

Appendix 4*

*These documents are tentative translations for the appendices of the nomination of the property.

Plans of protection applying to the nominated property

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4-1 Amami Gunto National Park (Tentative)
Park Plan
(Draft by the Ministry of the Environment)

Ministry of the Environment

1. Basic Policy

(1) Basic policy on protection

Amami Gunto National Park comprises eight distinctive islands that feature: subtropical laurel forests with endemic and rare species; highly varied coasts with natural features such as rias, beaches, tidal flats, coastal cliffs, and waters with the northernmost coral reefs in the world; as well as raised terraces, limestone caves, karst topography; and diverse cultural landscapes that underscore people's connections to the natural environment. For the purpose of maintaining and enhancing the diversity of the natural environment and landscapes, as well as the quality of natural experiences (i.e. the level of satisfaction and sense of fulfillment that visitors gain through their experiences of nature there) by maintaining and restoring individual landscape elements, the individual landscape elements shall be protected as follows in the park as a whole.

(i) Subtropical laurel forests

The subtropical laurel forests of Amami-Oshima Island and Tokunoshima Island, which are dominated by species such as *Castanopsis sieboldii*, are home to ecosystems consisting of many endemic and rare species such as the Amami rabbit (*Pentalagus furnessi*), and the protection of these habitats is of great importance from a global perspective.

Nevertheless, on Amami-Oshima Island and Tokunoshima Island, the decline in populations of endemic and rare species due to capture, collection, and traffic accidents, as well as the negative impact on these populations due to alien species, is a major concern. Furthermore, forestry mainly for pulp and woodchips is operated on Amami-Oshima Island, and the proper balance between ecosystem conservation and the practice of forestry is an issue to be challenged.

For these reasons, and for the purpose of proactively managing the ecosystems of the subtropical laurel forests, of sustaining conditions in which: the health of the ecosystems is maintained; the endemic and rare species can live and thrive with low risk of extinction; and it is possible to perceive the richness of the ecosystems and biodiversity, the region shall be protected according to the following policies.

a. Protection of endemic and rare species of flora and fauna

- Decreases in population of endemic and rare species as a result of anthropogenic factors such as capture, collection, and traffic accidents, shall be prevented.
- The negative impact on endemic and rare species from alien species shall be eliminated or controlled.
- Habitats shall be conserved to prevent any substantial interference to the growth and development of endemic and rare species.

b. Protection and management of forests

- The old-growth forest and forest stands with endemic and rare species shall be stringently protected.
- The conservation of ecosystems shall be given thorough consideration in the practice of forestry.
- The induction and conversion (reversion) to old-growth laurel forests of broadleaved secondary forests that have been logged and forests that have been replanted with different species shall be undertaken.

c. Protection and management of rivers

- Rivers shall be protected and managed in ways that take into consideration the movement and reproduction of aquatic organisms such as the Ryukyu ayu-fish (*Plecoglossus altivelis ryukyuensis*).
- Rivers shall be protected and managed in ways that take into consideration amphibians whose habitat includes both forests and rivers.
- Rivers shall be protected and managed in ways that take into consideration the protection of rheophytes, epiphytes that require high levels of air moisture, mangroves that grow in brackish water.

d. Control of entry by people

- The possibility of entry control shall be studied as necessary for areas that are particularly important in the biodiversity conservation, such as areas with many endemic and rare species, areas in which the quality of the natural environment or natural experiences is negatively affected due to over-visitation or concentrated visitation.

e. Scientific and accommodative protection and management

- Efforts shall be made to collect data on forests, endemic and rare species, etc., and based on such data, forest ecosystems shall be scientifically protected and managed.
- Monitoring shall be carried out on the conservation of forest ecosystems and rare species, and they shall be adaptively protected and managed based on the information obtained.

(ii) Coasts and marine areas

The coasts of the Amami Island Group have diverse natural landscapes that include beaches, tidal flats, coastal cliffs, rias, and other natural features, and are important as breeding grounds for seabirds and sea

turtles.

In addition, the marine areas feature the northernmost coral reefs in the world. They are home to fish and other marine life, and are closely connected to the lifestyles of the people on the islands. For example, the waters are the sites of customs such as *izari* (traditional fishing of small fish, octopuses, etc. carried out in the reefs during a spring tide on winter nights) and *hamaore* (the tradition of going to the beach on the third day of the third month of the old lunisolar calendar, when the tide is at its lowest point of the year, and gathering shellfish and such).

There are matters of concern for the area, including the altering of the coastal landscape due to development, and the deterioration of coral due to predation by crown-of-thorns starfish and to bleaching. For the purpose of keeping the region in a condition in which people can enjoy coastal landscapes whose natural features are well-maintained, the marine area of the coastal waters are highly clear so that people can enjoy underwater landscape whose beauty is enhanced by marine life, and resources can be used in people's lives in a sustainable manner, the region shall be protected according to the following policies.

a. Protection of the distinctive topography and natural vegetation in coastal areas

- Efforts shall be made to maintain the landscape by curbing and/or preventing alterations to topographical and other natural features of the coastal areas, especially the coastal cliffs and ria coasts.
- The alteration or decreasing of tidal flats that serve as habitats and migration grounds for diverse organisms shall be curbed and/or prevented.
- Protection and management shall be carried out in ways that take into consideration the maintenance of the continuity of natural vegetation extending from the coasts to the hinterlands.
- The negative impact on natural vegetation and endemic and rare plants from alien species shall be eliminated or controlled.

b. Protection of endemic and rare species

- Protection and management shall be carried out in ways that take into consideration the nesting of sea turtles and breeding of seabirds.
- The decrease of endemic or rare plants and of flora that makes landscapes distinctive as the result of collection (i.e. anthropogenic factors) shall be prevented.

c. Protection and restoration of marine environment

- Protection and management shall be carried out in ways that take into consideration the prevention of negative impact on the marine environment due to land-based factors, such as red clay runoff and the destruction of coastal areas.
- Efforts shall be made to protect and restore corals that serve as habitats for fish and other marine life.
- Efforts shall be made to protect those species that make up seascapes, as well as organisms that serve to purify the marine environment, that are in danger of being overfished from commercial harvesting.

(iii) Other

In addition to the above, the Park contains natural landscapes such as raised terraces, limestone caves, karst topography, as well as cultural and village landscapes that underscore people's connections to the natural environment.

For natural landscapes, protection and management shall be carried out with consideration to the natural features as well as to how people use the Park. For cultural and village landscapes, efforts shall be made to maintain landscapes that highlight the interaction between people and nature and to protect it appropriately in ways that takes into consideration the lives of residents.

Efforts shall also be made to raise awareness among residents and park visitors about the globally important natural values of the Amami Island Group, endemic and rare species, the negative impact of alien species, etc.

(2) Protective regulations plan

Because one of the characteristics of the Park is that its natural landscapes are diverse, and the features of the landscape differ from island to island, it is necessary to engage in protection in the Park in a way that suits the features of each island. For this reason, the policies for protective regulations plan shall be set for each island as follows.

(i) Amami-Oshima Island

This area features diverse landscapes, including subtropical laurel forests that are home to endemic and rare species such as the Amami rabbit, mangroves, ria coasts, the seascape of Kasari Bay, tidal flats teeming with birds and marine life, coral reefs, and coasts.

- (a) For subtropical laurel forests in the south-central and northern parts of Amami-Oshima Island, where endemic and rare species grow and live, conservation of those habitats shall be carried out. For the mountainous area in the south-central part, which is the most important in terms of maintaining Amami-Oshima Island's scenic beauty and conserving biodiversity, efforts shall be made to stringently protect especially important areas.

Many of the subtropical laurel forests are secondary forests that have been logged in the past, and in certain localized spots, Japanese cedar (*Cryptomeria japonica*) and other such trees have been planted. For these forests, in addition to making efforts as necessary to restore them to more pristine subtropical laurel forests, consideration shall be given to the conservation of ecosystems and of habitats of endemic and rare species during forestry operations, such as the establishment of felling periods, zones, and methods, and the securing of reserve forests.

For areas that are especially important for conserving the scenic beauty of the south-central part of the island and for habitat conservation, adjustments will be made in terms of use, such as restricting road traffic or other measures.

- (b) The unique landscape and marine life habitats of the Sumiyo mangrove forest, which is the second

largest in Japan and whose dominant species is different from mangrove forests in Okinawa, shall be stringently protected.

- (c) For the ria coast of the Oshima Strait, which stretches from the main island of Amami-Oshima Island to Kakeroma Island, in addition to maintaining the scenic beauty from the overlook and sides of the roads, efforts will be made to protect part of the seascape off Kakeroma Island, which is a good coral habitat.

In addition, efforts shall be made to protect birds and endemic species on Ukejima Island, Hamiya Island, and Kazaki on Kakeroma Island.

- (d) In Kasari Bay, off the northern part of Amami-Oshima Island's, efforts will be made to maintain the scenic beauty from the overlook and conserve the habitats of organisms in the Tekebutidal flats in the bay.
- (e) Efforts shall be made to maintain the scenic beauty of the eastern coast of the Kasari Peninsula, Ohama, Cape Miyakozaki, and Hien Beach, which feature coral reef and fine coastline. Efforts shall also be made to protect part of the seascape off eastern coast of the Kasari Peninsula and Cape Ohama-Surikozaki, which are good coral habitats. In addition, species that are main elements constituting the seascapes and species that serve as habitats of fish and other marine life shall be protected.

(ii) Kikai Island

This area features a distinctive terraced topography that shows how the island was formed, as well as landscapes created through the island residents' use of the land.

- (a) In order to maintain the landscape as seen from the overlook and protect the forests in Hyakunodai and the surrounding areas, in addition to stringent measures to protect the terraced slopes, effort shall be made to maintain scenery that highlights origin of the surrounding islands and the lifestyles of island residents.
- (b) Efforts shall be made to maintain the scenic beauty of Cape Tombi, Shitooke Coast and Araki Coast, which features a prominent view of the raised fringing reef that surrounds the island, with attention to conservation of the topography and soil cover.

(iii) Tokunoshima Island

This area features subtropical laurel forests that are home to endemic and rare species, most notably the Amami rabbit, lowland forests composed of *Ficus microcarpa*, *Machilus thunbergii*, and *Quercus glauca* var. *amamiana*, and other trees, coastal cliffs, and various coastal landscapes.

- (a) For the mountainous zone of the northern and south-central part of the island, where there are subtropical laurel forests that are home to endemic and rare species, the habitats of those species shall be conserved. In particularly important areas, stringent protection measures shall be employed. Many of the subtropical laurel forests are secondary forests that have been logged in the past, and in certain localized spots, Japanese cedar and other such trees have been planted. Efforts shall be made as

necessary to restore them to more pristine subtropical laurel forests.

(b) The lowland old-growth stands composed of *Ficus microcarpa* and *Quercus glauca* var. *amamiana*, among others, on Mt. Gina, are important examples of lowland forest vegetation of this area, and hence stringent efforts shall be made to protect them. In addition, the scenic beauty of the secondary forests in the surrounding area, which consists mostly of *Pinus luchuensis* and *Castanopsis sieboldii* shall be maintained as well, as they are good places for experiencing nature.

(c) The Sakibaru Coast (Mushiroze), which features exposed granite, and the coastal cliffs of Innojofuta and Cape Inutabu offer particularly unique and spectacular landscapes, among coastlines in Tokunoshima Island. For this reason, stringent efforts shall be made to protect them.

Furthermore, efforts will be made to maintain the scenic beauties of the river mouths of the Shikaura and Agon rivers, Kinen Beach, the Aze Coast, and Cape Kanemizaki, with attention to conservation of their topography and soil cover.

(iv) Okinoerabu Island

This area features distinctive coastal landscapes, including Ryukyu limestone karst formations and coastal cliffs.

(a) The topographical characteristics and soil cover of Cape Tamina, Cape Kunigami, and the coast around Fucha, which are distinctive because of their Ryukyu limestone coastal topography, shall be protected. In addition, efforts shall be made to protect the surrounding scenic beauty as necessary.

(b) Efforts shall be made to maintain the scenic beauty of the coast from Yakomo to Otsukan, with attention to conservation of their topography and soil cover.

(c) Efforts will be made to conserve the karst formations on the side of Mt. Oyama, including the limestone caves and dolines present.

(d) Efforts will be made to conserve the forest landscape at the peak of Mt. Oyama, which has one of the few forests remaining on the island.

(v) Yoron Island

The largest characteristic of this area is the expansive lagoon that stretches out about 1 km off the island. For this reason, the scenic beauty of the entire marine area of this island shall, together with the coastlines neighboring this seascape of the lagoon, shall be protected. In addition, efforts shall be made to protect species that are main elements constituting the seascape and species that serve as habitats of fish and other marine life. Furthermore, measures shall be taken as necessary to restore coral reefs that have deteriorated due to bleaching and predation by crown-of-thorns starfish in the past.

(vi) Measures common to all of the islands

(a) The nesting and breeding of sea turtles and seabirds such as terns take place on the beaches and reefs of the coasts of Amami-Oshima Island. Protection and management shall be carried out in ways that take into consideration this nesting and breeding.

- (b) For plants that are either rare or endemic to the Amami Island Group or the Nansei-Shoto Islands, or plants that are main elements constituting the landscape of the region, their decline due to collection and other factors shall be prevented.

(3) Basic policy on use

Amami Gunto National Park features subtropical laurel forests with endemic and rare species; highly varied coasts with natural features such as rias, beaches, tidal flats, coastal cliffs, and waters with the northernmost coral reefs in the world; as well as raised terraces, limestone caves, karst topography; and diverse natural and cultural landscapes that underscore people's connections to the natural environment. One of the defining characteristics of the Park is that these features differ from island to island. In addition, in this region there is a wealth of natural and cultural resources that highlight the connections between people and nature not only within this Park, but outside of it as well, and as such the region has great potential as a site for tourism.

Nevertheless, there are many issues remaining involving tourist facilities and such, and there is much work that still has to be done in the way of extracting and polishing these potential resources. Going forward, if the Park gains more recognition and if efforts to build up the capacity for receiving tourists, there is the potential for the number of visitors to increase greatly.

Given these issues, for the purpose of giving visitors a sense of satisfaction and sparking people's interest in nature and the way nature and people interact by offering them experiences of nature in the Park that make use of its regional characteristics, namely its rich natural resources and cultural resources that underscore people's ties to nature, the proper use of the Park shall be promoted according to the following policies.

(i) Promotion of use taking advantage of features of individual islands

Use of the Park in a way that utilizes the unique features of each islands shall be promoted, and community-specific experiences of nature shall be offered to visitors, such as providing the opportunity to leisurely enjoy natural environments consisting of endemic and rare species and thereby to feel the richness of biodiversity in the Park, offering glimpses into the history of the lifestyles of the local people and thereby giving visitors the chance to sense the closeness of the people to nature in the region, etc.

(ii) Cooperation with the community outside of the National Park

On each of the islands, there are points of interest that reflect what is unique about that island, regardless of whether those points are located inside or outside of the National Park. The feeling of satisfaction felt by visitors resulting from overall acts of "travelling" and "sightseeing" is not brought to an end just by "experiencing nature" in the National Park. Rather it is something felt as a complex whole, and incorporates experiences outside the National Park as well. In addition, visitors should be able to gain a higher degree of satisfaction if they are able to interact with the rich and diverse natural and cultural elements of the Amami Island Group. For these reasons, in addition to striving to offer high-quality

experiences of nature that make use of the unique features of the individual islands and to enhance visitor satisfaction inside of the National Park, the improvement of facilities and other measures shall be promoted with a view to cooperation with the community outside of the National Park.

(iii) The balance between natural environmental conservation and the sustainable development of the community

Use of the National Park can contribute to the socioeconomic development of the community by promoting local tourism. At the same time, however, overuse or concentrated use in specific areas carries with it the risk to have a negative impact on the natural environment of the Park, decrease the quality of nature experiences, and diminish sense of satisfaction on the part of visitors.

For these reason, the balance between natural environmental conservation and the sustainable development of the community shall be ensured by promoting the use of the Park on an area-by-area bases, improving visitor facilities, establishing visitation rules, etc. More specifically, this will be achieved by zoning the areas of the Park depending on the conditions of the natural environment and level of use, namely dividing it into zones in which anyone can visit at their convenience and zones which are set aside for visits by small groups or for high-quality visits to prevent the environmental pressure.

(iv) Use by community residents and consideration of local customs and traditions

In the Amami Island Group, there are still strong bonds between people and nature in their lives. For example, one can see residents visiting the beach as part of local customs, catching aquatic animals for food in reefs and rivers, etc. Residents sometimes relax at the beach while taking in the sunset, and go to forests and shores as families to relieve the fatigue of their daily professional lives. These times and experiences are important factors for residents in perceiving the richness in their lives as well as a sense of affection for their community. Furthermore, in recent years the need and demand for local environmental studies has been increasing.

The National Park and surrounding areas are also the places where community residents live. It is not uncommon to come across traditions and customs in the community that have been observed for generations, and visitors must avoid interfering with these practices.

In promoting the use of the National Park, it is necessary not only to think about use of the Park by local residents and act in ways that contribute to the maintenance and restoration of people's interactions with nature, but also for visitors to take care not to intrude upon or violate the lives, traditions, or customs of the local residents.

Main Forms of Park Use

(i) Amami-Oshima Island

Mountain climbing (Mt. Yuwandake), sea bathing (northern beaches and elsewhere), canoeing/kayaking (Sumiyo mangrove forest, Oshima Strait), forest exploration (Kinsakubaru), wildlife observation (roads in the forests), landscape exploration (Oshima Strait, Kasari Bay), humanities research (Akina Village),

leisurely drives (throughout the island), glass-bottom boat tours (Oshima Strait), diving (Kasari Bay, Oshima Strait, etc.).

(ii) Kikai Island

Coast exploration (Araki Coast), landscape exploration (Hyakunodai), humanities research (Aden Village), leisurely drives (throughout the island).

(iii) Tokunoshima Island

Mountain climbing (Mt. Amagidake), sea bathing (Aze Coast, etc.), forest exploration (Kamuiyaki Forest, etc.), wildlife observation (roads in the forests), landscape exploration (Cape Inutabu, Innojofuta), humanities research (Kamuiyaki Forest), leisurely drives (throughout the island), diving (northern coast, etc.).

(iv) Okinoerabu Island

Sea bathing (Okidomari Beach, etc.), landscape exploration (Cape Tamina, Fucha), seeing limestone caves (Shoryu Caves), leisurely drives (throughout the island).

(v) Yoron Island

Sea bathing (Oganeku Coast, etc.), kayaking (Minata Beach), leisurely drives (throughout the island), glass-bottom boat tours (Oganeku Coast).

(4) Facility plan for use

In order for visitors to be able to gain a sense of the diversity and endemism of the natural environment, including the topography and organisms of the Amami Island Group, and the traditional ties between the people and the nature, the appropriate use of each shall be promoted as follows. In addition to establishing a facility plan for use, steps shall be taken to regulate the use of the Park.

(i) Amami-Oshima Island

- (a) Amami-Oshima Island is the island with the most visitors among the Amami Island Group and its available resources are broad in variety. As this area can be expected to see a major increase in the number of visitors, efforts shall be made to establish routes for ordinary visitors and improve visitor facilities. For areas that are important for conserving the natural environment, visitation will be regulated in a manner that strikes a balance between preventing negative impact on the natural environment and offering good visitation experiences.
- (b) For Amami Airport and areas around the downtown Naze section, which are hubs for visitors to the Park, visitation routes centering on Amami Airport and downtown Naze shall be established. Necessary facilities for visitor use will be improved including: facilities that let visitors come into contact with the forests of Amami when they first visit and obtain information on nature itself,

cautions, and other such information; and facilities that offer information on the natural features of Amami's seas and peoples relationship to them, and let visitors enjoy snorkeling, traditional fishing and such.

- (c) Overlooks shall be established for enjoying the landscapes of the northern and southern parts of the island, which are expected to be visited by ordinary visitors.
- (d) For areas of subtropical laurel forest in which endemic and rare species occur and that are particularly important in terms of their conservation, roads and their use shall be managed appropriately by, for example, putting in place restrictions on road traffic and the use of personal vehicles, operating shuttle buses, etc. Other such efforts shall be taken to prevent any negative impact on the natural environment stemming from visitation, to prevent the collection of rare plants, and to prevent the traffic accidents of rare animals.

As necessary, walkways and such shall be installed that allow visitors to get a sense of the ecosystems of the subtropical laurel forests, the lifestyles of local people, and their connections with nature, while be mindful of the impact of visitors on the natural environment. Visitor facilities shall also be established that prevent and/or inhibit any negative impact on the natural environment.

- (e) As necessary, establishing rules for visitation and use shall be studied with attention to matters of negative impact on the natural environment and wildlife. Those rules would apply to forest exploration, wildlife observation at night, and visiting or exploring mangrove forests, tidal flats, or other marine areas or canoeing or kayaking there.

(ii) Kikai Island

- (a) In this area, which features a terraced topography that shows how the island was formed, as well as landscapes created through the island residents' use of the land, the establishment of overlooks, the utilization as walkways of old roads that connect villages to overlooks, and visitation for humanities research through exploring villages, shall be promoted.
- (b) Visitor facilities shall be constructed that allow visitors to enjoy the raised coral reef fields and natural vegetation.

(iii) Tokunoshima Island

- (a) For this area, in which round tours to visitation centers scattered along the coast are expected, overlooks and such shall be established at these centers.
- (b) For areas of subtropical laurel forest in which endemic and rare species occur and that are particularly important in terms of their conservation, roads and their use shall be managed appropriately by putting in place restrictions on road traffic. Other efforts shall be taken to prevent the collection of rare plants, and to prevent the traffic accidents of rare animals.

As necessary, walkways and such shall be installed that allow visitors to learn about the ecosystems of the subtropical laurel forests which are home to endemic and rare species and about the history of the area, while be mindful of the impact of visitors on the natural environment. Visitor facilities shall also

be established that prevent and/or inhibit any negative impact on the natural environment.

- (c) As necessary, establishing rules for visitation that apply to exploring the forests shall be studied with attention to matters of negative impact on the natural environment and wildlife.

(iv) Okinoerabu Island

- (a) For this area, in which round tours to visitation centers scattered along the coast are expected, overlooks and such shall be established at these centers.
- (b) Concerning the limestone caves, which are the most notable feature of this area, walkways and other necessary facilities shall be established for ordinary visitors, while only the minimum necessary facilities will be installed for guided tours. Establishing visitation rules will be studied as necessary.

(v) Yoron Island

- (a) This area offers the most outstanding seascapes in the Amami Island Group. By establishing visitor facilities on the Oganeku Coast and leading large numbers of visitors to them, the visitation pressures on other coasts shall be reduced, and other such considerations shall be taken to allow visitors to enjoy peaceful seascapes.
- (b) For coastal areas other than the Oganeku Coast, only the minimum necessary visitor facilities shall be installed so that visitors can enjoy the scenic beauty of the natural coasts.

(vi) Measures common to all of the islands

- (a) Efforts will be made to collect information on the natural and cultural resources of the region, and visitation programs will be developed that will allow visitors to experience the region's ecosystems and the interactions between its people and nature.
- (b) Proactive effort will be made to provide visitors and the public at large with information about the region.

2. Regulation Plan

(1) Protective regulations plans and related matters

(i) Special Protection Zone

The following zones are classified as Special Protection Zones:

(Table 3: Details of Special Protection Zones)

Name(s)	Zone overview	Area (ha)
Okawa River, Kawauchi River, and Kanekuda River upper reaches	<p>The upper reaches of the Okawa River, Kawauchi River, and Kanekuda River comprise a pristine zone of mainly old-growth laurel forests that are 80 years old or more, dominated by <i>Castanopsis</i> (<i>Castanopsis sieboldii</i>), and is a habitat for species endemic to Amami. Part of the area is a center of visitation to the Park.</p> <p>To protect endemic and rare species, efforts shall be made to stringently protect the old-growth laurel forests. For younger forests, efforts shall be made to encourage transition to older laurel forests. In addition, measures concerning use of the Park shall be taken as necessary to mitigate the impact on the natural environment.</p>	655
Sumiyo River and Kawauchi River middle reaches	<p>This zone stretches from the middle reaches of the Sumiyo River to the middle reaches of the Kawauchi River, and contains substantially large contiguous tracts of old-growth laurel forests that are 80 years old or more, dominated by <i>Castanopsis</i>. In conjunction with the mountain stream areas, it offers a pristine forest landscape.</p> <p>The zone forms one of the core areas of Amami-Oshima Island's south-central part, which has many rheophytes, epiphytes, and endemic animals, including the Amami rabbit (<i>Pentalagus furnessi</i>), the Ryukyu long-haired rat (<i>Diplothrix legata</i>), the Amami spiny rat (<i>Tokudaia osimensis</i>), the Amami thrush (<i>Zoothera dauma major</i>), the Otton frog (<i>Babina subaspera</i>), and the Amami Ishikawa's frog (<i>Odorrana splendida</i>). The habitats of these species shall be protected particularly stringently.</p>	1,219
Mt. Yuwandake	<p>This zone consists mainly of old-growth laurel forests that are 100 years old or more and wind-swept scrub forests near the mountain summit. This area contains some of the largest numbers of endemic plants and insects on Amami-Oshima Island. Together with the zone spanning the middle reaches of the Sumiyo and Kawauchi rivers, it forms a core area of the south-central part of the island. It is also a common destination for mountain climbers. This zone shall be protected particularly stringently so that conflict between protecting endemic and rare species and use of the Park.</p>	265
Yakugachi River Middle Reaches	<p>This zone consists mainly of relatively old laurel forests ranging from 50 to 80 years that grow from on both banks of the Yakugachi River from the lower to middle reaches. The forests form the roadside landscape along National Route 58, and endemic fauna such as the Amami thrush have been confirmed inhabiting them.</p> <p>Because the zone is located between the central and southern parts of the island, it is expected to serve as a corridor for wildlife.</p> <p>Efforts shall be made to protect the zone with attention to the maintenance of the landscape from the road and to the conservation of the habitats of wildlife.</p>	590

Name(s)	Zone overview	Area (ha)
Sumiyo Mangrove Forest	<p>This is a zone that has well-developed mangrove communities consisting mainly of <i>Kandelia obovata</i> located at the mouths of the Sumiyo River and Yakugachi River. The forest presents a landscape that is particularly distinctive even within the Park, and is a visitor destination for canoeing and such.</p> <p>The waters are rich in brackish fish in the Gobioidae, which are part of an extremely diverse ichthyofauna. The waters are also important as a habitat for juvenile Ryukyu ayu-fish (<i>Plecoglossus altivelis ryukyuensis</i>). For these reasons, efforts will be made to stringently protect the unique landscape and habitats for aquatic life.</p>	82
Mt. Torigamine and Mt. Higo Stretch	<p>This is an area that spans the entire area from the right bank of the Yakugachi River to Mt. Higo, Mt. Torigamine, and Mt. Kanagawadake. This zone consists mainly of relatively old laurel forests ranging from 60 to 80 years or older.</p> <p>Endemic animals, such as the Amami rabbit, Amami thrush, and Otton frog, have been found in this zone. It also has plants not seen in the central part of the island. Hence it is an important area for the protection of the endemism of Amami-Oshima Island, and for these reasons, efforts will be made to stringently protect it.</p> <p>For younger forests, efforts shall be undertaken to encourage transition to older laurel forests.</p>	761
Northern Mt. Yuidake	<p>This zone consists mainly of relatively old laurel forests ranging from 60 to 80 years or older, and comprises one of the few contiguous old-growth forests of any substantial size.</p> <p>It is home to such endemic animals as the Amami rabbit, Amami thrush, and Otton frog and as such efforts will be made to stringently protect it.</p>	233
Mt. Amagidake and Mt. Sasontsujidake	<p>This zone contains many old-growth laurel forests of 100 years old or older, and is a core area for the conservation of the forest areas of the northern part of Tokunoshima Island. In addition to featuring substantially large contiguous <i>Quercus miyagii</i> communities, it is important as a habitat for endemic species such as the Amami rabbit and Tokunoshima spiny rat (<i>Tokudaia tokunoshimensis</i>). Efforts shall be made to stringently protect this zone.</p>	582
Mt. Inokawadake and Mt. Tanpatsu	<p>This zone contains many old-growth laurel forests of 100 years old or older, and it features wind-swept scrub forests that line the ridge of Mt. Inokawadake, including its peak, as well as communities of <i>Quercus miyagii</i> at the foot of Mt. Tanpatsu.</p> <p>As a habitat for endemic species such as the Amami rabbit, Tokunoshima spiny rat, and others, it is a core area in the forest areas of Tokunoshima Island. As such, in addition to stringently protecting this zone, for younger forests and artificial forests, efforts shall be made to restore them and encourage transition to older laurel forests.</p>	842
Total		5,229

(ii) Class I Special Zone

The following zones are classified as Class I Special Zones:

(Table 5: Details of Class I Special Zones)

Name(s)	Zone overview	Area (ha)
Nagakumo Pass	<p>This zone is centered on Amami Nature Observation Forest, and is an important habitat for the Amami rabbit, Amami jay (<i>Garrulus lidthi</i>), and Amami Ishikawa's frog in the northern part of Amami-Oshima Island. In addition, the zone is a center for observing nature and exploring scenery.</p> <p>As it is a habitat for endemic species and is a good place for experiencing nature, its scenic beauty shall be maintained.</p>	39
Kinsakubaru	<p>This zone consists mainly of relatively old laurel forests ranging from about 60 to 80 years or older. It neighbors Special Protection Zone of the Okawa River, Kawauchi River, and Kanekuda River upper reaches, it helps form excellent scenic beauty. Some areas within the zone are centers of use by Park visitors.</p> <p>In addition to maintaining the scenic beauty of the old-growth laurel forests, for younger forests and artificial forests, efforts shall be made to restore them and encourage transition to older laurel forests. In addition, measures concerning Park use shall be taken as necessary to mitigate the impact on the natural environment.</p>	527
Kawauchi River upper reaches	<p>This zone comprises secondary laurel forests with Ryukyu pine (<i>Pinus luchuensis</i>) mixed in, though there are some old forests in certain localized spots. It is important as a corridor linking the core area spanning the Sumiyo River and Kawauchi River with the upper reaches of the Okawa River, Kawauchi River, and Kanekuda River.</p> <p>The Amami rabbit and Amami thrush have been found inhabiting this area, hence efforts will be made to maintain the scenic beauties of the zone as both a habitat and corridor for these animals.</p>	376
Kawauchi River basin	<p>Located at the Kawauchi River basin and neighboring the Okawa River, Kawauchi River, and Kanekuda River upper reaches Special Protection Zone and Sumiyo River and Kawauchi River middle reaches Special Protection Zone, this zone features expanses of old-growth laurel forest. The Amami rabbit and Amami thrush are confirmed in this area. It is necessary to conserve this zone as a whole in conjunction with the neighboring Special Protection Zones.</p> <p>Efforts shall be made to sufficiently maintain scenic beauty of this zone as a habitat for endemic species.</p>	156
Sumiyo River middle reaches	<p>This zone covers the middle reaches of the Sumiyo River, and features substantially large contiguous tracts of old-growth laurel forests dominated by <i>Castanopsis</i>, etc. Together with the neighboring Sumiyo River-Kawauchi River middle reaches Special Protection Zone, this zone is part of the core of the south-central part of Amami-Oshima Island.</p> <p>This zone has rheophytes, aepiphytes, and many endemic species, including the Amami rabbit, the Ryukyu long-haired rat, the Amami spiny rat, the Amami thrush, the Otton frog, and Amami Ishikawa's frog. In addition to measures to sufficiently maintain these habitats and scenic beauty, including altering forms of park use, efforts will be made to encourage transition to of younger forests to older forests.</p>	1,311

Name(s)	Zone overview	Area (ha)
Mt. Yuwandake foot and Kawauchi River upper reaches	<p>This zone stretches from the foot of Mt. Yuwandake to the upper reaches of the Kawauchi River, and includes the ridge extending to Mt. Yakugachoboshidake. It consists mainly of laurel forests that are less than 50 years old and those that are 50 to 80 years or older. Endemic species are found in this zone, including the Amami rabbit, the Amami spiny rat, and the Amami thrush. Together with the neighboring Mt. Yuwandake Special Protection Zone and the Sumiyo River and Kawauchi River middle reaches Special Protection Zone, this zone forms part of the core of the south-central part of Amami-Oshima Island. It is also of extreme importance as a corridor that connects the core areas of the middle reaches of the Sumiyo River, the Mt. Yuwandake, and the middle reaches of the Yakugachi River.</p> <p>In addition to measures, including altering forms of park use, to sufficiently maintain the scenic beauty of the zone as wildlife habitats and as a corridor linking core areas, efforts will be made to encourage transition to of younger forests to older forests.</p>	2,113
Gusuku and Wase	<p>This zone comprises mainly secondary young laurel forests with Ryukyu pine mixed in, yet it is also serves as a habitat for the Amami rabbit and Amami thrush.</p> <p>In addition to measures to maintain the scenic beauty of the zone as habitats for endemic species, efforts shall be made to restore younger and artificial forests and encourage their transition to older laurel forests.</p>	260
Santaro Pass	<p>The zone around Santaro Pass is a mixture of relatively old and young laurel forests. It serves as a habitat for animals such as the Amami rabbit and the Ryukyu long-haired rat. It is often visited by people wishing to observe the animals at night.</p> <p>As it is a habitat for endemic species and is a good place for experiencing nature, its scenic beauty shall be maintained, and efforts shall be made to encourage the transition of younger forests to older laurel forests.</p>	213
Yakugachi River lower reaches	<p>This zone consists of secondary forests with <i>Pinus luchuensis</i> mixed in. It is expected to maintain the scenic beauty of the roadside and serve as a corridor that connects the central areas with the southern areas.</p> <p>Attention will be given to maintaining the scenic beauty of the roadside and to conserving the habitats of wildlife.</p>	131
Kofukuji River basin	<p>Located at the lower reaches of the Kofukuji River, a tributary of the Yakugachi River, this zone is a secondary forest stand, and is home to the Amami rabbit, the Amami spiny rat, and frog species.</p> <p>In addition to measures to maintain the scenic beauty of the zone as habitats for endemic species, efforts shall be made to encourage the transition of younger forests to older forests. It is also expected to serve as a corridor that connects the central areas of Amami-Oshima Island with the Mt. Torigamine stretch in the southern areas of Amami-Oshima Island.</p>	204

Name(s)	Zone overview	Area (ha)
Mt. Torigamine-Mt. Kanengodake Stretch	<p>This zone stretches in stepping-stone fashion from the hinterlands of the mountainous village area to the area around Mt. Kanengodake, and consists mainly of secondary forests.</p> <p>It also has plants not seen in the central portion of the island, and in part because it neighbors Special Protection Zones, it is a very important area for the protection of the endemism of Amami-Oshima Island. For these reasons, in tandem with the stringent protection given to the neighboring Special Protection Zones, it is important to sufficiently maintain the scenic beauty of this zone. In addition, efforts shall be made to encourage the transition of younger forests to older laurel forests.</p>	724
Katoku	<p>This area consists of secondary laurel forests with old-growth forests mixed in, and is a home to the Amami rabbit and frog species.</p> <p>In addition to measures to maintain the scenic beauty of the zone as habitats for endemic species, efforts shall be made to encourage the transition of younger forests to older forests.</p>	108
Yakugachi River upper reaches and eastern Mt. Yuidake	<p>This zone consists mainly of young forests with older laurel forests aged 60 to 80 years or more mixed in. It is home to endemic species such as the Amami rabbit, the Ryukyu long-haired rat, the Amami spiny rat, the Amami thrush, the Otton frog, and others, and Ryukyu ayu-fish run up the Yakugachi River, which are reasons that it is highly important for the protection of the endemism of Amami-Oshima Island.</p> <p>This zone is also important as a corridor that links northern Mt. Yuidake Special Protection Zone and Yakugachi River upper reaches Special Protection Zone with other areas of the south-central part of the island, and as such its scenic beauty needs to be maintained.</p> <p>In addition to measures to protect the remaining old-growth forests, for younger forests and artificial forests, efforts shall be made to restore them and encourage transition to older laurel forests.</p>	1,575
Cape Tombi	<p>This is a shore of raised coral reefs (raised fringing reefs), and is notable for its bleak coastal landscape of rocks. Natural vegetation remains in the hinterland of the coast. Efforts shall be made to maintain the scenic beauty with attention to these topographical formations and vegetation.</p>	38
Hyakunodai	<p>This zone covers terraced slopes descending from the highest point on the island, which was formed from raised coral reef terraces. It consists of forests of <i>Ficus superba</i>, <i>Ficus microcarpa</i>, <i>Ficus virgate</i>, <i>Machilus thunbergii</i>, and others. One can command a view from this area of the terraced slopes, the farmland on the plain, settlements surrounded by windbreak forests, and the coast of raised coral reefs all at once, making it possible to gain an understanding of the topographical formation of the island and the way in people live. It is therefore one of the representative views in the Park.</p> <p>The scenic beauty shall be maintained with attention to these features.</p>	190
Araki Coast	<p>This zone is a coast of raised coral reefs (raised fringing reefs). On the coast of raised coral reefs and in the hinterland is natural coastal vegetation. It offers coastal landscapes distinctive of Kikai Island and not present on other islands in the Park.</p> <p>Efforts shall be made to maintain the scenic beauty with attention to these topographical formations and vegetation.</p>	33

Name(s)	Zone overview	Area (ha)
Mushiroze	This zone features a shore of exposed granite, and offers one of the more distinctive landscapes in the Park. Efforts shall be made to maintain the scenic beauty with attention to the conservation of topographical formations and coastal vegetation.	32
Mt. Amagidake foot	Located at the foot of Mt. Amagidake, this zone is important for the conservation of the forest areas of Northern Tokushima Island, which are dominated by old laurel forests. It is home to endemic species such as the Amami rabbit and the Tokunoshima spiny rat. It is necessary to conserve this zone as a whole in conjunction with the neighboring Mt. Amagidake and Mt. Sasontsujidake Special Protection Zone. Efforts shall be made to sufficiently maintain the scenic beauty of this zone as a habitat for endemic species.	70
Mt. Nesugata	This zone is covered by relatively old laurel forests, and together with the neighboring Special Protection Zones, forms part of the distinctive landscape that extends along the ridge from Mt. Amagidake. The surrounding areas are also inhabited by the Amami rabbit. Efforts shall be made to maintain the scenic beauty with attention to the conservation of forests and the landscapes.	29
Mt. Ogusuku	This zone features a mixture of old and young laurel forests. The Amami rabbit has also been confirmed here. Efforts shall be made to maintain the scenic beauty with attention to the conservation of the habitats of endemic species.	104
Innojofuta	The sea cliffs and pedestal rocks formed by the erosion of raised Ryukyu limestone make this zone most distinctive. Efforts shall be made to maintain the scenic beauty with attention to the conservation of coastal landscapes as seen from overlooks at parking lots, walkways, etc., as well as to the conservation of coastal vegetation.	29
Mt. Inokawadake foot	Located at the foot of Mt. Inokawadake, this zone consists mainly of old-growth laurel forests. It encompasses the mountain trail entrance that leads to the peak of Mt. Inokawadake. Endemic species such as the Amami rabbit and Tokunoshima spiny rat live in this zone, and it is necessary to conserve this zone as a whole in conjunction with the neighboring Mt. Inokawadake and Mt. Tanpatsu Special Protection Zone. Efforts shall be made to sufficiently maintain the scenic beauty of this zone with attention to the conservation of the habitats of endemic species as well as the forest landscapes.	86
Mt. Inutabudake and Mikyo	This zone consists mainly of secondary laurel forests but contains old laurel forests that are 100 years old or more. In addition to <i>Quercus miyagii</i> forests, the Amami rabbit and the Ryukyu long-haired rat have been confirmed in the area. Efforts shall be made to maintain the scenic beauty of this zone with attention to the conservatin of the habitats of endemic species.	592
Cape Inutabu	The sea cliffs formed by the erosion of raised Ryukyu limestone are distinctive in this zone. It also offers a landscape of the largest of sea cliffs in the Park. Efforts shall be made to maintain the scenic beauty of this zone with attention to the conservation of the landscapes of the sea cliffs from the overlooks in Cape Inutabu and the Obaru district.	66

Name(s)	Zone overview	Area (ha)
Mt. Gina	This zone contains forests that are of academic importance, as one can see giant <i>Ficus microcarpa</i> , <i>Quercus glauca</i> var. <i>amamiana</i> , and <i>Machilus thunbergii</i> trees in the lowland Ryuku limestone rocks. As a lowland natural forest it is representative in the Park, and the importance of its conservation is high. Efforts shall be made to maintain the scenic beauty of this zone with attention to the conservation of the important lowland natural forest.	14
Cape Kunigami	This zone consists mainly of rocky shores of raised coral reefs, though the rock and beach vegetation and seascape of the moat are distinctive. The spouting phenomena seen at the raised coral coast at Fucha offer a particularly special landscape. Efforts shall be made to maintain the scenic beauty of this zone with attention to the conservation of these features.	57
Cape Tamina and Okidomari Coast	Cape Tamina features a landscape of steep sea cliffs with excellent coastal cliffs of Ryuku limestone. With its distinctive beaches underneath coastal cliffs, vegetation, and coral, the Okidomari Coast offers one of the best scenic views on Okinoerabu Island. Efforts shall be made to maintain the scenic beauty of this zone with attention to the conservation of the view of the bluffs seen from Cape Tamina and the coastal landscape of the Okidomari Coast.	23
Yoron Coast	Among the Yoron area, whose marine areas are its main feature, together with the lagoon seascapes this zone forms the core of the area's coastal landscapes. In fact, the coastal landscape here offers one of the best-known in the Park. The coastal landscapes of beach, rock reef of Ryukyu limestone, and the coastal vegetation, such as raised reef vegetation, is a rare natural landscape, as it is isolated from the rural landscapes farther inward on the island. Efforts shall be made to maintain the scenic beauty of this zone with attention to the conservation of the natural qualities of the coast and the vegetation, as well as their continuity.	33
Total		9,133

(iii) Class II Special Zone

The following zones are classified as Class II Special Zones:

(Table 6: Summary of Class II Special Zones)

Prefecture	Zone	Area (ha)
Kagoshima	<p>Within Amami City: National Forest Kagoshima District Forest Office All of Compartments 214 and 215 as well as parts of Compartments 204 and 207</p> <p>Kasari Town, Amami City: Parts of Oaza Ushuku, Oaza Kasari, Oaza Kise, Oaza Sani, Oaza Suno, Oaza Sotoganeku, Oaza Tekebu, Oaza Yani, and Oaza Yo</p> <p>Sumiyo Town, Amami City: Parts of Oaza Ishihara, Oaza Ichi, Oaza Kamiya, Oaza Kawauchi, Oaza Gusuku, Oaza Nishinakama, Oaza Higashinakama, Oaza Mizato, Oaza Yakugachi, Oaza Yanma, and Oaza Wase</p> <p>Naze, Amami City: Parts of Oaza Asato, Oaza Ashikebu, Oaza Itsubu Town, Oaza Kanekucho, Oaza Koshuku, Oaza Kominato, Oaza Daikuma, Oaza Chinase, and Oaza Nishinakagachi</p>	6,932
	<p>Yamato Village, Oshima County: Parts of Oaza Imazato, Oaza Oganeku, Oaza Odana, Oaza Ongachi, Oaza Shidokan, Oaza Tsunagu, Oaza Toen, Oaza Naon, Oaza Yamatohama, and Oaza Yuwangama</p>	3,693
	<p>Within Uken Village, Oshima County: National Forest Kagoshima District Forest Office All of Compartments 226 and 227 as well as parts of Compartments 228 and 229</p> <p>Uken Village, Oshima County: Parts of Oaza Ashiken, Oaza Taken and Oaza Yuwan</p>	2,065
	<p>Setouchi Town, Oshima County Parts of Oaza Agina, Oaza Atetsu, Oaza Aminoko, Oaza Amurogama, Oaza Ikeji, Oaza Ikenma, Oaza Oshikaku, Oaza Kachiura, Oaza Kachiyuki, Oaza Katetsu, Oaza Katoku, Oaza Kuji, Oaza Kudaton, Oaza Kutsune, Oaza Ketten, Oaza Kedomi, Oaza Koshi, Oaza Konase, Oaza Koniya, Oaza Satsukawa, Oaza Saneku, Oaza Shinokawa, Oaza Shiba, Oaza Shokazu, Oaza Shodon, Oaza Seisui, Oaza Seso, Oaza Sekko, Oaza Sokaru, Oaza Takena, Oaza Tean, Oaza Doren, Oaza Nishiamuro, Oaza Nishikomi, Oaza Hyo, Oaza Miura, Oaza Yui, and Oaza Yoro</p>	6,828
	<p>Tatsugo Town, Oshima County: Parts of Oaza Akina, Oaza Ashitoku, Oaza Ankiyaba, Oaza Ikusato, Oaza Ura, Oaza En, Oaza Ogachi, Oaza Kado, Oaza Kuba, Oaza Sedome, and Oaza Tatsugo</p>	2,440
	Subtotal for Amami-Oshima Island	21,958
	<p>Within Tokunoshima Town, Oshima County: National Forest Kagoshima District Forest Office Parts of Compartments from 231 to 233, 239, 255, 256, and 259</p> <p>Tokunoshima Town, Oshima County: Parts of Oaza Inokawa, Oaza Kametsu, Oaza Kametoku, Oaza Kedoku, Oaza San, Oaza Shimokushi, Oaza Shirai, Oaza Tete, Oaza Todoroki, and Oaza Boma</p>	1,751

Prefecture	Zone	Area (ha)
Kagoshima	Within Amagi Town, Oshima County: National Forest Kagoshima District Forest Office All of Compartment 241 as well as parts of Compartments 235, 238, 242, 244, and 249 Amagi Town, Oshima County: Parts of Oaza Amagi, Oaza Okazen, Oaza Kaneku, Oaza Tobe, Oaza Nishiagina, Oaza Matsubara, and Oaza Yonama	1,132
	Within Isen Town, Oshima County: National Forest Kagoshima District Forest Office Parts of 250 and 251 Isen Town, Amami County: Parts of Oaza Agon, Oaza Asan, Oaza Isen, Oaza Itokina, Oaza Kinen, Oaza Kinoko, Oaza Saben, and Oaza Yaezao	140
	Subtotal for Tokunoshima Island	3,023
	China Town, Oshima County Parts of Oaza Otsukan, Oaza Kamishiro, Oaza Kamihirakawa, Oaza Shimojiro, Oaza Shinjo, Oaza Sumiyoshi, Oaza Serikaku, Oaza Tamina, Oaza Tokudoki, and Oaza Yakumo	237
	Subtotal for Okinoerabu Island	237
These areas include coasts, islets, and reefs extending off the land.		
Total		25,218

(iv) Class III Special Zone

The following zones are classified as Class III Special Zones:

(Table 8: Summary of Class III Special Zones)

Prefecture	Zone	Area (ha)	
Kagoshima	Within Amami City: National Forest Kagoshima District Forest Office All of Compartment 10 Naze, Amami City: Parts of Oaza Koshuku, Oaza Chinase, and Oaza Nesebu	469	
	Yamato Village, Oshima County: Parts of Oaza Kuninao and Oaza Toen	56	
	Subtotal for Amami-Oshima Island	525	
	Kikai Town, Oshima County: Parts of Oaza Araki, Oaza Sadeku, Oaza Shitooke, and Oaza Nakasato	91	
	Subtotal for Kikaijima Island	91	
	Within Tokunoshima Town, Oshima County: National Forest Kagoshima District Forest Office Parts of Compartments 258 and 259 Tokunoshima Town, Oshima County: Parts of Oaza Kanami, Oaza San, and Oaza Tete	193	
	Amagi Town, Oshima County: Parts of Oaza Otsukawa, Oaza Kaneku, and Oaza Setaki	82	
	Isen Town, Oshima County: Part of Oaza Inutabu	13	
	Subtotal for Tokunoshima Island	288	
	China Town, Oshima County: Parts of Oaza Otsukan, Oaza Sumiyoshi, Oaza Serikaku, and Oaza Tokudoki	325	
	Subtotal for Okinoerabu Island	325	
	Yoron Town, Oshima County: Parts of Oaza Chabana, Oaza Nama, Oaza Furusato, and Oaza Mugiya	92	
	Subtotal for Yoron Island	92	
	These areas include coasts, islets, and reefs extending off the land.		
	Total		1,321

(ii) Ordinary Zone

The following zones are classified as Ordinary Zones:

(Table 13: List of Ordinary Zones)

Prefecture	Zone	Area (ha)
Kagoshima	Sumiyo Town, Amami City: Parts of Oaza Ishihara, Oaza Kamiya, Oaza Nishinakama, and Oaza Yakugachi.	250
	Setouchi Town, Oshima County: Parts of Oaza Katoku, Oaza Saneku, Oaza Shodon, Oaza Takena, and Oaza Doren.	84
	Tatsugo Town, Oshima County: Parts of Oaza Akina, Oaza Ankiyaba, and Oaza Ikusato.	118
	Subtotal for Amami-Oshima Island	452
	Kikai Town, Oshima County: Parts of Oaza Aden, Oaza Urahara, Oaza Oasato, Oaza Kadon, Oaza Kawamine, Oaza Keraji, Oaza Shiramizu, Oaza Takigawa, and Oaza Nishime.	623
	Subtotal for Kikaijima Island	623
	Tokunoshima Town, Oshima County: Part of Oaza Kanami	7
	Isen Town, Oshima County: Parts of Oaza Isen, Oaza Inutabu, Oaza Omonawa, Oaza Kenbuku, Oaza Kojima, Oaza Sakibaru, Oaza Nakayama, Oaza Bane, and Ozawa Furusato.	309
	Subtotal for Tokunoshima Island	316
	China Town, Oshima County: Part of Oaza Tamina.	1
	Subtotal for Okinoerabu Island	1
	Yoron Town, Oshima County: Part of Oaza Mugiya.	1
	Subtotal for Yoron Island	1
	Total for land areas	1,393
	Parts of sea water surface adjacent to land areas of the park	31,974
Total	33,367	

iv. Breakdown of area

(i) Area by zone category and by ownership status

(Table 14: Summary of area by zone category and by ownership status)

(Island Group Overall)

Zone category		Special Zone							
Zone class		Special Protection Zones				Class I			
Ownership status		National	Public	Private	Other	National	Public	Private	Other
Kagoshima Prefecture	Area by ownership status	1,785	322	3,009	113	3,371	2,729	2,724	309
	Area by class (rate)					9,133 (21.6)			
						5,229 (12.4)			
	Area by category (rate)								

Special Zone							
Class II				Class III			
National	Public	Private	Other	National	Public	Private	Other
1,718	6,082	15,972	1,446	67	284	441	529
				25,218 (59.6)			
				1,321 (3.1)			
				35,672 (84.3)			
				40,901 (96.7)			

Ordinary Zone (On land)				Total (On land)			
National	Public	Private	Other	National	Public	Private	Other
95	135	243	920	7,036	9,552	22,389	3,317
				1,393 (3.3)			
				42,294 (100.0)			

(Units are hectares and percentages)

Ordinary Zone (Marine area)*	Marine Special Zone*	Total (Marine area)
31,974	9 sites 1,125	33,099

* Marine areas are public water surfaces that are owned by the national government. Because it is not possible to list their geometric areas by prefecture and island, the figures given here represent the Amami Gunto National Park as a whole.

(Amami-Oshima Island)

Zone category		Special Zone							
Zone class		Special Protection Zone				Class I			
Ownership status		National	Public	Private	Other	National	Public	Private	Other
Kagoshima Prefecture	Area by ownership status	429	322	2,941	113	2,533	2,669	2,497	40
	Area by class (rate)					7,739 (22.4)			
	Area by category (rate)					3,805 (11.0)			

Special Zone							
Class II				Class III			
National	Public	Private	Other	National	Public	Private	Other
821	5,642	14,275	1,220	26	194	245	60
				21,958 (63.7)			
				30,222 (87.7)			
				34,027 (98.7)			

Ordinary Zone (On land)				Total (On land)			
National	Public	Private	Other	National	Public	Private	Other
0	1	87	364	3,809	8,828	20,045	1,797
				452 (1.3)			
				34,479 (100.0)			

(Tokunoshima Island)

Zone category		Special Zone							
Zone class		Special Protection Zone				Class I			
Ownership status		National	Public	Private	Other	National	Public	Private	Other
Kagoshima Prefecture	Area by ownership status	1,356	0	68	0	838	51	67	64
	Area by class (rate)					1,020 (16.8)			
						1,424 (23.5)			
	Area by category (rate)								

Special Zone							
Class II				Class III			
National	Public	Private	Other	National	Public	Private	Other
897	263	1,689	174	41	42	64	141
				3,023 (49.8)			
				4,331 (71.3)			
				5,755 (94.8)			

Ordinary Zone (On land)				Total (On land)			
National	Public	Private	Other	National	Public	Private	Other
95	9	67	145	3,227	365	1,955	524
				316 (5.2)			
				6,071 (100.0)			

3. Project Plan

(1) Facility plan

i. Protective facilities plan

Plans for protective facilities are as follows.

(Table 16: List of protective facilities)

No.	Type	Location	Development policy
1	Nature restoration facilities	Amami City, and Yamato Village, Uken Village, Setouchi Town and Tatsugo Town in Oshima County, Kagoshima Prefecture	For younger laurel forests, efforts shall be made to restore them and encourage transition to older laurel forests.
2	Nature restoration facilities	Tokunoshima Town, Amagi Town, and Isen Town, in Oshima County, Kagoshima Prefecture	For younger laurel forests, efforts shall be made to restore them and encourage transition to older laurel forests.
3	Nature restoration facilities	Yoron Town, Oshima County, Kagoshima Prefecture	Within barrier lagoons, efforts shall be made to restore coral communities.

ii. Facility plan for use

(i) Facility Complex Zone

Facility Complex Zones shall be as follows.

(Table 17: List of Facility Complex Zones)

No.	Name	Zone	Plan objectives
1	Sumiyo	Part of Oaza Nishinakama, Sumiyo Town, Amami City, Kagoshima Prefecture	This zone neighbors mangrove forests that have developed at the mouths of the Sumiyo River and Yakugachi River, and is located off National Route 58, making it a good location as a center of visitation. The facilities shall be established in an integrated manner as a center to promote the proper use of the Park, such as nature exploration of the mangrove forests and subtropical laurel forests.

Planned zones and core facilities	Development policy			Area (ha)
Sumiyo Planned Zone	To maintain the distinctive landscape of the neighboring mangrove forest and to encourage the proper use of the Park, such as nature exploration by canoeing, core facilities, including museum-like exhibits, shall be developed. At sites suited to taking in scenic views, overlook facilities, recreation areas, etc. shall be put in place, and parking lots and toilets will be established of an appropriate scale taking into account the degree of visitation, etc. In developing these facilities, in addition to ensuring harmony with the scenic beautyaround, universal design principles shall be adopted.			11.0
Total area	National	Public	Private	Other
	0.0	0.9	0.6	9.5
				11.0

(ii) Individual facility

The individual facilities are described as follows:

(Table 18: List of individual facilities)

No.	Type	Location	Development policy
1	Recreation site	Kasari Town, Amami City, Kagoshima Prefecture (Gamozaki)	Overlooks and paths will be developed for visitors to look out on Kasari Bay and Cape Kasarizaki and walk through coastal forests.
2	Recreation site	Kasari Town, Amami City, Kagoshima Prefecture (Cape Ayamaru)	Overlooks, etc. will be developed—with attention to protecting the coastal vegetation—for visitors to look out on the landscape of the fringing reef that stretches from Cape Kasarizaki to Cape Ayamaru and within moats.
3	Swimming area	Kasari Town, Amami City, Kagoshima Prefecture (Sakibaru Coast)	Toilet and shower facilities will be installed for visitors bathing at beach.
4	Recreation site	Kasari Town, Amami City, Kagoshima Prefecture (Tomori Coast)	Toilet and shower facilities and a parking lot—with attention to protecting the breeding grounds of seabirds—will be installed for visitors bathing at beach.
5	Accommodations	Kasari Town, Amami City, Kagoshima Prefecture (Tomori Coast)	For visitors to the Tomori Coast and other coasts in the northern part of Amami-Oshima Island, accommodations will be developed, with attention to sea turtle habitats.
6	Recreation site	Kasari Town, Amami City, Kagoshima Prefecture (Ose Coast)	Toilets and a parking lot will be constructed for those observing seabirds that come to the tidal flats.
7	Recreation site	Amami City, Kagoshima Prefecture (Ohama)	For the visitor facility that is closest to the downtown area, toilets, a parking lots, a rest area, etc., will be developed with attention to sea turtle habitats.
8	Campsite	Amami City, Kagoshima Prefecture (Ohama)	For visitors bathing or day-camping, a kitchen, outdoor fireplace, toilets, etc. will be developed, with attention to sea turtle habitats.
9	Exhibition facility	Amami City, Kagoshima Prefecture (Ohama)	To help visitors to the Park at Ohama gain a better understanding of natural environments, interpretation/exhibition facilities will be developed, with attention to sea turtle habitats.
10	Recreation site	Amami City, Kagoshima Prefecture (Kinsakubara)	Paths, etc., will be developed—with attention to wildlife habitats—so that visitors can get an up-close look at the natural features of subtropical laurel forests.
11	Recreation site	Yamato Village, Oshima County, Kagoshima Prefecture (Fukumotokita)	Observation deck facilities will be developed so that visitors can look out on the expanse of subtropical laurel forest.

No.	Type	Location	Development policy
12	Recreation site	Yamato Village, Oshima County, Kagoshima Prefecture (Fukumoto)	Facilities will be developed—with attention to wildlife habitats—to serve as a center for visitors to experience natural features at Mt. Yuwandake and the surrounding forests and rivers, and as facilities that allow visitors to easily interact with the forest areas of Amami.
13	Campsite	Yamato Village, Oshima County, Kagoshima Prefecture (Fukumoto)	Facilities will be developed—with attention to wildlife habitats—so that visitors can spend time relaxing in the middle of the forest.
14	Recreation site	Uken Village, Oshima County, Kagoshima Prefecture (Mt. Yuwandake)	As a starting point for climbing Mt. Yuwandake, toilets, a rest area, etc., will be developed with attention to wildlife habitats.
15	Recreation site	Setouchi Town, Oshima County, Kagoshima Prefecture (Mt. Yuidake)	An observation deck, toilets, etc., will be installed to serve as an overlook to view the Oshima Strait.
16	Recreation site	Setouchi Town, Oshima County, Kagoshima Prefecture (Mt. Kochi)	An observation deck, toilets, etc., will be installed to serve as an overlook to view the Oshima Strait.
17	Recreation site	Setouchi Town, Oshima County, Kagoshima Prefecture (Honohoshi Coast)	A parking lot, toilets, paths, etc. for visitors to the Honohoshi Coast will be installed with attention to the protection of coastal vegetation.
18	Accommodations	Setouchi Town, Oshima County, Kagoshima Prefecture (Yadori Beach)	Accommodations will be developed for Park visitors to the southern part of Amami-Oshima Island and other such areas.
19	Swimming area	Setouchi Town, Oshima County, Kagoshima Prefecture (Yadori Beach)	Toilet and shower facilities will be installed for visitors bathing.
20	Recreation site	Kakeroma Island, Setouchi - Town, Oshima County, Kagoshima Prefecture (Ankyaba)	An observation deck, toilets, etc., will be installed to serve as an overlook to view the Oshima Strait.
21	Recreation site	Kakeroma Island, Setouchi - Town, Oshima County, Kagoshima Prefecture (Cape Machamizaki)	An observation deck, toilets, etc., will be developed to serve as an overlook to view the Oshima Strait.
22	Recreation site	Tatsugo Town, Oshima County, Kagoshima Prefecture (Nagakumo Pass)	Paths, an observation deck to view the Kasari Bay, etc. will be installed with attention to wildlife habitats.

No.	Type	Location	Development policy
23	Exhibition facility	Tatsugo Town, Oshima County, Kagoshima Prefecture (Nagakumo Pass)	Facilities will be constructed where visitors can learn about the natural features of subtropical laurel forests. They can also serve as the “entranceway to the forests of Amami,” providing cautions and other such information concerning forest use and visitation.
24	Recreation site	Kikai Town, Oshima County, Kagoshima Prefecture (Shitooke Beach)	Toilets and other such facilities will be installed for Park visitors to the Shitooke Beach and other coastal areas in the northern part of the island.
25	Recreation site	Kikai Town, Oshima County, Kagoshima Prefecture (Hyakunodai Park)	An observation deck, toilets, and similar facilities will be installed so that visitors can look out to see terraced slopes, farmland, settlements, and coasts of raised fringing reefs.
26	Recreation site	Kikai Town, Oshima County, Kagoshima Prefecture (ArakiCoast)	Toilets and other such facilities will be installed to serve as a midpoint rest area along the Araki Coast Road (walkway).
27	Recreation site	Kikai Town, Oshima County, Kagoshima Prefecture (Nakanishi Park)	An observation deck, toilets, a grass-covered open space, etc. will be developed so that visitors can look out to see terraced slopes, farmland, settlements, and coasts of raised fringing reefs.
28	Recreation site	Tokunoshima Town, Oshima County, Kagoshima Prefecture (Cape Kanemizaki)	An observation deck, paths, etc. will be installed so that visitors can enjoy viewing the <i>Cycas revoluta</i> communities and looking out from the northernmost point of Tokunoshima Island.
29	Recreation site	Tokunoshima Town, Oshima County, Kagoshima Prefecture (Aze Coast)	A parking lot, a grass-covered open space, paths, etc. will be developed for visitors bathing at beach or observing nature at the moats.
30	Campsite	Tokunoshima Town, Oshima County, Kagoshima Prefecture (Aze Coast)	For visitors bathing, a kitchen, outdoor fireplace, toilets, etc. will be developed.
31	Recreation site	Amagi Town, Oshima County, Kagoshima Prefecture (Mushiroze)	Paths, toilets, etc. will be installed so that visitors can look out on the coastal landscape of exposed granite.
32	Recreation site	Amagi Town, Oshima County, Kagoshima Prefecture (Innojofuta)	Paths, toilets, etc. will be installed so that touring sightseers can look out on the landscape of coastal cliffs and other coastal features.
33	Recreation site	Isen Town, Oshima County, Kagoshima Prefecture (Kobaru Coast)	Garden paths, toilets, etc. will be installed so that touring sightseers can look out on the limestone caves, coastal cliffs, and other features.
34	Recreation site	Isen Town, Oshima County, Kagoshima Prefecture (Cape Inutabu)	An observation deck, toilets and other such facilities will be installed so that touring sightseers can look out on the landscape of coastal cliffs and other coastal features.
35	Recreation site	Isen Town, Oshima County, Kagoshima Prefecture (Mt. Gina)	Paths, toilets, etc. will be installed so that visitors can observe the natural features of the forest areas of the southern part of Tokunoshima Island.

No.	Type	Location	Development policy
36	Recreation site	Isen Town, Oshima County, Kagoshima Prefecture (Kinen Beach)	A parking lot, garden paths, etc. will be developed for visitors bathing at beach or observing nature at the moats.
37	Campsite	Isen Town, Oshima County, Kagoshima Prefecture (Kinen Beach)	For visitors swimming at the beach, a kitchen, outdoor fireplace, toilets, etc. will be developed.
38	Recreation site	Wadomari Town, Oshima County, Kagoshima Prefecture (Fucha)	Paths, toilets, etc. will be created for touring sightseers.
39	Recreation site	China Town, Oshima County, Kagoshima Prefecture (Cape Tamina)	Paths, toilets, etc. will be created for touring sightseers.
40	Campsite	China Town, Oshima County, Kagoshima Prefecture (Okidomari Coast)	For visitors who wish to bathe leisurely at beach or observe nature at the moats, a kitchen, toilets, showers, open spaces, etc. will be developed.
41	Recreation site	China Town, Oshima County, Kagoshima Prefecture (Shoryudo Caves)	A parking lot and other such facilities will be developed to visitors to the limestone caves.
42	Recreation site	China Town, Oshima County, Kagoshima Prefecture (YakomoBeach)	Toilets, a gazebo, and other such facilities will be installed for touring sightseers.
43	Recreation site	Yoron Town, Oshima County, Kagoshima Prefecture (Oganeku Coast)	A parking lot, information center, etc. will be developed for visitors to the Oganeku Coast and Yurigahama Beach.
44	Campsite	Yoron Town, Oshima County, Kagoshima Prefecture (Oganeku Coast)	For visitors to the marine areas of Yoron Island, tent sites (which include simple accommodation facilities), toilets, showers, etc. will be developed.

(iii) Roads

a. Roads allowing vehicle access

The roads allowing vehicle access are described as follows:

(Table 19: List of roads (vehicle access))

No.	Name	Section	Major site on the course	Development policy
1	Cape Kasarizaki Route	From: Amami City (Boundary between Yo, Kasari Town and National Park limits), Kagoshima Prefecture To: Amami City (Cape Kasarizaki), Kagoshima Prefecture	Yo Coast	As a route that extends to Cape Kazarizaki, the northernmost point on Amami-Oshima Island, and the Yo Coast, efforts shall be made to establish, maintain, and manage this route, with attention to preserving the scenic beauty of the coastal area.
2	Ohama Beach Park Route	From: Amami City (Boundary between Naze-Ohama and National Park), Kagoshima Prefecture To: Amami City (Ohama), Kagoshima Prefecture	Ohama Beach	As a route that extends from Naze, which is an urban area, to Ohama, which is the closest center of visitation, efforts shall be made to establish, maintain, and manage this route, with attention to maintain the scenic beauty of the coastal area.
3	Kinsakubaru Route	From: Amami City (Boundary between Chinase and National Park), Kagoshima Prefecture To: Amami City (Boundary between Sato and National Park), Kagoshima Prefecture	Kinsakubaru	As a route that extends to Kinsakubaru, which is a major center of visitation to forest area, efforts shall be made to establish, maintain, and operate this route, with attention to the wildlife habitats and to the proper accommodation of rational automobile use.
4	Asato-Aminoko Route	From: Amami City (Boundary between Asato and National Park), Kagoshima Prefecture To: Amami City (Boundary between Wase, Sumiyo Town and National Park), Kagoshima Prefecture From: Amami City (Boundary between Mizato, Sumiyo Town and National Park), Kagoshima Prefecture To: Setouchi Town (Boundary between Aminoko and National Park), Oshima County, Kagoshima Prefecture	Sumiyo mangrove forest	As a route that joins the forest areas of the central and southern parts of the island, efforts shall be made to establish, maintain, and manage this route, with attention to the wildlife habitats.
5	Yuwandake-	From: Sumiyo Town		As a route that joins the Pacific

No.	Name	Section	Major site on the course	Development policy
	Shinmura Route	(National Route junction), Amami City, Kagoshima Prefecture To: Uken Village (Boundary between Yuwan and National Park), Oshima County, Kagoshima Prefecture		side with the East China Sea side, efforts shall be made to establish, maintain, and manage this route, with attention to the landscapes as seen from the shoulder of the road, and to the wildlife habitats.
6	Fukumoto Route	From: Yamato Village (Boundary between Odana and National Park), Oshima County, Kagoshima Prefecture To: Yamato Village (Fukumoto), Oshima County, Kagoshima Prefecture	Mt. Ogawadake	As a route that extends to the Amami Forestpolis, which is a center of use, efforts shall be made to establish, maintain, and manage this route, with attention to the view from the roadside, and to the wildlife habitats.
7	Odana-Yuwandake Route	From: Yamato Village (Boundary between Odana and National Park), Oshima County, Kagoshima Prefecture To: Yamato Village (Boundary between Odana and National Park), Oshima County, Kagoshima Prefecture To: Uken Village (Mt. Yuwandake trail starting point), Oshima County, Kagoshima Prefecture To: Uken Village (Boundary between Yuwan and National Park), Oshima County, Kagoshima Prefecture	Mt. Yuwandake	As a route that extends to Mt. Yuwandake, which is a center of visitation to the forest areas, efforts shall be made to establish, maintain, and manage this route, with attention to the wildlife habitats.
8	Shinokawa-Shimofuku Route	From: Setouchi Town (Prefectural Route 85 junction), Oshima County, Kagoshima Prefecture To: Setouchi Town (Boundary between Shinokawa and National Park), Oshima County, Kagoshima Prefecture		As a route that joins the forest areas of the south-central part of the island with the Oshima Strait area, efforts shall be made to establish, maintain, and manage this route, with attention to the habitats of rare species.
9	Mt. Yuidake-Mt. Kochi Route	From: Setouchi Town (Boundary between Jizo Pass and National Park), Oshima County, Kagoshima Prefecture To: Setouchi Town (Mt. Kochi), Oshima County, Kagoshima Prefecture To: Setouchi Town (Mt. Yuidake), Oshima County, Kagoshima Prefecture	Mt. Yuidake, Mt. Kochi	As a route that extends to Mt. Yuidake, which is a major overlook for the Oshima Strait, and to Mt. Kochi, efforts shall be made to establish, maintain, and manage this route, with attention to scenic view as seen from the overlook on the shoulder of the road.

No.	Name	Section	Major site on the course	Development policy
10	Amami Nature Observation Forest Route	<p>From: Tatsugo Town (Boundary between Sedome and National Park), Oshima County, Kagoshima Prefecture</p> <p>To: Tatsugo Town (Amami Nature Observation Forest), Oshima County, Kagoshima Prefecture</p> <p>From: Tatsugo Town (Boundary between Kado and National Park limits), Oshima County, Kagoshima Prefecture</p> <p>To: Tatsugo Town (Boundary between Kuba and Nagakumo Pass crossroads), Oshima County, Kagoshima Prefecture</p>	Amami Nature Observation Forest	As a route extending to Amami Nature Observation Forest, efforts shall be made to establish, maintain, and manage this route, with attention to the wildlife habitats.
11	Hyakunodai Route	<p>From: Kikai Town (Boundary between Kawamine and National Park), Oshima County, Kagoshima Prefecture</p> <p>To: Kikai Town (Boundary between Takigawa and National Park), Oshima County, Kagoshima Prefecture</p> <p>Starting point - Kikai Town (Boundary between Keraji and National Park limits), Oshima County, Kagoshima Prefecture</p> <p>To: Kikai Town (Nakanishi Park Junction), Oshima County, Kagoshima Prefecture</p>	Hyakunodai	As a route that extends to centers of visitation such as the observation deck above the terraced slopes of Hyakunodai and to areas of interest such as the “Husband-and-Wife <i>Ficus microcarpa</i> ” trees, efforts shall be made to establish, maintain, and manage this route, with attention to the view from the overlook.

b. Walkways

The walkways are described as follows:

(Table 20: List of roads (walkways))

No.	Name	Section	Major site on the course	Development policy
1	Kinsakubaru Route	From: Amami City (terminus of Chinese Forest Access Road), Kagoshima Prefecture To: Amami City (Kinsakubaru), Kagoshima Prefecture	Kinsakubaru National Forest	This is a route that crosses through core areas of subtropical laurel forest in the south-central part of Amami-Oshima Island. Efforts shall be made to establish, maintain, and manage this route as a walkway in which visitors can enjoy the landscapes of subtropical laurel forests, with attention to the wildlife habitats. [Walkway Category: Nature Trail]
2	Cape Miyakozaki Route	From: Yamato Village (Boundary between Kuninao and National Park), Oshima County, Kagoshima Prefecture To: Yamato Village (Cape Miyakozaki), Oshima County, Kagoshima Prefecture		As a route that extends from Kuninao Village to Cape Miyakozaki, efforts shall be made to establish, maintain, and manage this walkway, with attention to landscapes of the dwarf bamboo fields in Cape Miyakozaki. [Walkway Category: Nature Trail]
3	Mt. Yuwandake Trail Route	From: Uken Village (start of mountain trail), Oshima County, Kagoshima Prefecture To: Uken Village (Mt. Yuwandake summit), Oshima County, Kagoshima Prefecture To: Uken Village (start of mountain trail), Oshima County, Kagoshima Prefecture	Mt. Yuwandake	As a route for climbing Mt. Yuwandake, one of the core forest areas of Amami-Oshima Island, efforts shall be made to establish, maintain, and manage this route as a walkway in which visitors can enjoy and learn about the natural features of the forest areas of Amami-Oshima Island, with attention to the protection of wildlife habitats. [Walkway Category: Mountain Trail, etc.]
4	Araki Coast Route	From: Kikai Town (Nakasato), Oshima County, Kagoshima Prefecture To: Kikai Town (Boundary between Araki Village and National Park), Oshima County, Kagoshima Prefecture	Araki Coast	As a walkway that passes through the raised coral reef fields of the Araki Coast as well as coastal hinterland vegetation, efforts shall be made to establish, maintain, and manage this route as a walkway, with attention to the protection of the coastal topography and vegetation of Kikai Island. [Walkway Category: Nature Trail]

No.	Name	Section	Major site on the course	Development policy
5	Matsubara Route	From: Amagi Town (Boundary between start of mountain trail and National Park), Oshima County, Kagoshima Prefecture To: Amagi Town (side of Mt. Amagidake), Oshima County, Kagoshima Prefecture		As a route for exploring the mountainside of Mt. Amagidake, which is one of the core forest areas of Tokunoshima Island, efforts shall be made to establish, maintain, and manage this route as a walkway in which visitors can enjoy and learn about the natural features of the forest areas of Tokunoshima Island, with attention to the protection of wildlife habitats. [Walkway Category: Mountain Trail, etc.]
6	Mikyo Route	From: Amagi Town (entrance Mikyo National Forest), Oshima County, Kagoshima Prefecture To: Amagi Town (Mikyo National Forest), Oshima County, Kagoshima Prefecture		As a route for exploring old subtropical laurel forests consisting mainly of <i>Quercus miyagii</i> , efforts shall be made to establish, maintain, and manage this route as a walkway, with attention to the protection of habitats of wildlife species. [Walkway Category: Nature Trail]

4-2 Yambaru National Park Park Plan (Excerpt)

September 15, 2016

Ministry of the Environment

1. Basic Policy

The landscape of Yambaru National Park features a range of diverse and complex ecosystems in Japan's largest subtropical laurel forest. Reflecting the geological development process of the Ryukyu Chain, this forest is home to concentrations of many endemic species unique to this area. It features the presence of cloud forests that develop in humid highlands, river ecosystems that host rheophyte plant communities, plants specific to limestone regions, and mangrove ecosystems.

The Park Plan seeks to promote the protection and use of Yambaru National Park through protecting ecosystems that offer habitat for a wide range of rare and endemic species, contributing to the conservation of local life and cultures that have lived in harmony with and benefited from the richness of these natural environments, thereby serving as a national park to experience the rich biodiversity and endemic subtropical forest ecosystems found here.

(1) Basic policy on protection

The subtropical laurel forest is home to many rare and endemic species, including the Okinawa spiny rat (*Tokudaia muenninki*), Okinawa rail (*Gallirallus okinawae*), Okinawa woodpecker (*Sapheopipo noguchii*), Yanbaru long-armed scarab beetle (*Cheirotonus jambar*), and an orchid species *Dendrobium okinawense*. Despite the importance of protecting the ecosystems created by such flora and fauna, the forests in this region have been the site of various industrial activities over the years. For example, they have been managed as forestry resources for Okinawa from the days of the Ryukyu Kingdom. Dams have been built to provide water resources for the life and industry in Okinawa Island. The forests are also vulnerable to the consequences of alien species like the mongoose and feral cats, as well as roadkill, capturing and collection of flora and fauna, and other human activity. In addition, the Okinawa woodpecker damages crops. Within the National Park, protection and management will be crucial for maintaining the value of these ecosystems handed down to the present day, all the while carrying out adjustments and coordinated efforts with local industry.

The basic policy with regard to protection will be to ensure that important resource of wild flora and fauna continue to flourish and that no species is lost to extinction while working to coordinate forestry operations within the regenerative capacity of the forest. More specifically, the policy will be to protect old-growth

forests and forests that include stands of old-growth trees through strict protection measures; to protect the mountainous backbone in continuity as important habitats for rare and endemic species; to protect the mountain stream environments that nurture rheophyte plants, amphibians, and other wildlife species; and to ensure forestry operations mindful of these ecosystems. Additionally, efforts will seek to ensure the natural restoration and rehabilitation of laurel forests and river ecosystems wherever they are impaired by human activity, including industry and development.

Efforts will seek to control alien species that threaten the ecosystem and to minimize the adverse effects of human consequences like capture and collection as well as roadkill.

i. Regulation plan

(i) Special Zones

a. Special Protection Zones

The area comprising the environs of Mt. Ibudake and Mt. Nishimedake is home to an old growth forest composed of many large trees, an important habitat for rare and endemic species. Not just an important habitat for wildlife, Mt. Yonahadake is a region where cloud forests containing numerous species of epiphytic ferns and orchidaceous plants are found. Mt. Hedodake features a unique landscape formed by karst topography. These zones will be designated Special Protection Zones to protect their biodiversity and remarkable landscapes.

b. Class I Special Zones

Mountainous backbone provides key habitats for rare and endemic species. Mountain streams within these forests are home to rheophyte plants characteristic of tropical and subtropical areas. The zones are also egg-laying areas and habitats for endemic amphibian species. Mt. Nekumachijidake is situated in a Paleozoic limestone region featuring karst topography—home to unique plant species—while Cape Hedo features spectacular sea-cliff landscape. These zones will be designated Class I Special Zones to maintain their biodiversity and remarkable scenic beauty.

c. Class II Special Zones

These subtropical laurel forests are extensions of Special Protection Zones or Class I Special Zones and provide habitat for rare and endemic species. These zones will involve a coordination of ecosystem protective measures and forestry operations. The natural coastline in this zone is home to coastal vegetation, while the beaches provide nesting grounds for sea turtles. These zones will be designated Class II Special Zones to protect their fine scenic beauty.

d. Class III Special Zones

Lying adjacent to Class I or Class II Special Zones, these zones feature expanding forest of planted Ryukyu pine (*Pinus luchuensis*). In addition, the natural environment and mountain ranges in these zones are used for agriculture. These zones will be designated Class III Special Zones to maintain their local scenic

beauty.

(ii) Ordinary Zones

To maintain the mountain and seascapes in these zones with which the lives of local residents are intertwined and to conserve the scenery surrounding the Special Zones, these zones will be designated Ordinary Zones.

(2) Basic policy on use

Yambaru National Park features subtropical laurel forests and mountain stream landscapes, numerous rare and endemic species that inhabit these biomes, sea-cliff coastlines and beaches that provide nesting grounds for sea turtles, and karst topography. The Park also involves the lives and culture of the people in this region who have inherited these natural treasures. These resources will be managed so that, in addition to creating a National Park where many kinds of wildlife characteristic of the region can live and flourish, we can ensure wildlife diversity, rich subtropical laurel forest, and a high quality natural experience, together offering more than just nature sightseeing for ordinary visitors, all the while taking into account the potential for deterioration and damage to the natural environment and atmosphere that may result from concentration of users.

With regard to use, the national park is inhabited by many insects, amphibians, reptiles, and plants that may be adversely affected by capture and collection. To prevent the kind of damage to the natural environment that may result from unregulated use of the forest and concentration of users, rules of use, including the implementation of restricted visitor numbers and escorts of guides, will be studied based on the condition of the natural environment. Efforts will be made to promulgate thorough knowledge of forest etiquette, thereby allowing sustainable use of the forest while conserving its natural resources. Wildlife observation is one form of national park use. Consideration will be given to the potential impact of observations on wildlife and appropriate rules of use.

To protect the living and cultural resources of the region, visitors will be asked to avoid disrupting the lives, traditions, and customs of the local inhabitants.

(3) Facility plan

(i) Individual facilities

Plans will be deployed to provide the facilities needed for exploring nature in subtropical laurel forest and karst topography, viewing of coastal sea-cliffs, and observations of wildlife in the mangrove forests and tidal flats. Facilities already established in the region, including recreation areas, accommodations, and camp sites, will be included in the plans, if they contribute to use of the national park. Plans for the development and maintenance of facilities that can be used within subtropical laurel forests that provide habitats for rare and endemic species will account for potential adverse impacts on the natural environment.

(ii) Roads

The plan will contain provisions for roads allowing vehicle access to allow exploration of the National Park's landscapes, including its subtropical laurel forests, karst topography, and natural coastlines. The plan will also include walkways to allow users to observe flora and fauna and experience the richness of the forest while exploring the scenery associated with the subtropical laurel forests and karst topography. Due to the fragility of the foundation soil, which is prone to outflow and scouring, appropriate walkways will be constructed, based on due consideration of usage patterns and the state of the natural environment. Should deterioration occur, routes may be changed or walkways temporarily closed to facilitate recovery.

In the development and maintenance of roads and walkways within subtropical laurel forests that are home to both rare and endemic species, consideration will be given to measures to prevent adverse impact on the natural environment due to use of the National Park and to prevent capture and the collection of rare species and the loss of rare animals due to roadkill.

2. Regulation Plan

(1) Protective regulations plans and related matters

(i) Special Protection Zone

Among the Special Zones, the following zones are classified as Special Protection Zones:

(Table 3: Details of Special Protection Zones)

Name	Zone overview	Area (ha)
Mt. Hedodake	With a Paleozoic limestone substrate, the karst topography of the zone provides magnificent landscapes. <i>Psychotria manillensis-Diospyros maritima</i> communities, specific to limestone regions, are found in the forests. Plants specific to limestone regions develop in this zone. These elements and the landscapes of the karst topography will be protected by strict conservation measures.	56
Benoki River upper reaches	The zone includes the laurel forests that are at least 75 years old, as well as the mountain stream environment of the Benoki River upper reaches. Providing habitats for rare and endemic species, including the Okinawa woodpecker, Okinawa rail, and Okinawa Ishikawa frog (<i>Odorrana ishikawae</i>), this zone will be protected by strict conservation measures.	192
Mt. Ibudake	The laurel forests that spreads from the northwestern foothills of Mt. Ibudake (elevation 353 m) to the Fungawa River contains laurel forests at least 75 years old. Representing an important habitat for rare and endemic species, including the Okinawa woodpecker and Okinawa rail, this zone will be protected by strict conservation measures. The boundary between the zone and the Class I Special Zone on the hillside of Mt. Ibudake features <i>Quercus miyagii</i> oak trees estimated to be some 300 years old.	220
Yona River upper reaches	Home to the laurel forests at least 75 years old, this zone encompasses the Yona River upper reaches from an altitude of 200 m to 300 m. It provides habitats for rare and endemic species, including the Ryukyu long-haired rat (<i>Diplothrix legata</i>) and Ryukyu black-breasted leaf turtle (<i>Geoemyda japonica</i>). This zone will be protected by strict conservation measures. The zone will allow monitoring and academic research activities.	62
Mt. Yonahadake	With Mt. Yonahadake (elevation 503 m), representing Okinawa Island's highest peak, the laurel forests occur on mountain sides up to altitudes of around 300 m. The zone is important habitat for many rare and endemic species, including the Okinawa woodpecker. Also found here are cloud forests featuring numerous epiphytic ferns and orchidaceous plants. In addition to being a core National Park region, this region is popular with climbers and other visitors. This zone will be protected by strict conservation measures to prevent and minimize friction between public use and to ensure the conservation of rare and endemic species.	256
Taminato-utaki Sacred Site	Featuring a basement rock of Paleozoic limestone, Sacred Site has been protected up to the present day, untouched by human activity. The vegetation in this zone is regarded as typical of a Paleozoic limestone region in Okinawa. This zone will be protected by strict conservation measures.	3
Total		789

(ii) Class I Special Zone

The following zones are classified as Class I Special Zones:

(Table 5: Details of Class I Special Zones)

Name	Zone overview	Area (ha)
Cape Hedo	This sea-cliff terrain is home to windswept vegetation. A limestone substrate featuring karst topography stretches inland from the cliffs, on the flat portions of which an expansive prairie of Korean lawn (<i>Zoysia pacifica</i>) grows. The zone offers various coastal scenic perspectives. Efforts will seek to maintain this scenic beauty while preserving the sea cliff landscapes.	31
Mountainous backbone	A mountainous region located at elevations of 250 m or higher, this zone is covered by the laurel forests. It serves as important habitat for the Okinawa spiny rat, Ryukyu long-haired rat, Okinawa woodpecker, and Okinawa rail. Rheophyte plants flourish in the mountain streams of the valleys. The zone is also home to various rare and endemic species of amphibians and reptiles, including the Okinawa Ishikawa frog, Namiye's frog (<i>Limnonectes namiyei</i>), Holst's frog (<i>Babina holsti</i>), the Ryukyu black-breasted leaf turtle, and the Anderson's crocodile newt (<i>Echinotriton andersoni</i>). With several major forestry roads running through the zone, measures will focus on conservation approaches that maintain the scenic beauty of the zone and allow continuing public use of the National Park, as well as efforts to replant and link younger and artificial forests to the older laurel forests.	3,796
Eastern zone	Lying at elevations between 100 m to 200 m, this hilly zone on the eastern slope of the mountainous backbone is covered by evergreen laurel forests of ranging between 40 and 60 years in age. The zone is home to various rare and endemic species, including the Okinawa woodpecker, Okinawa rail, Ryukyu robin (<i>Luscinia komadori namiyei</i>), and Ryukyu black-breasted leaf turtle. In addition to measures intended to maintain the scenic beauty of this zone and to preserve it as habitat for endemic species, efforts will seek to link young forests to older forests.	441
Mt. Nekumachijidake, Mt. Shioya-fuji	Featuring a karst topography, this mountainous region includes Mt. Nekumachijidake (elevation 361 m) and Mt. Shioya-fuji (elevation 318 m), both Paleozoic limestone mountains. The zone is home to many rare plants adapted to this special environment of mountaintop cloud forest, windswept areas, and special soil characteristics. Mountain trails are already established here. Plans call for maintaining the zone's scenic beauty while considering measures to conserve its valuable plant species.	149
Gesashi	Located at the mouth of the Gesashi River, this unique landscape features mangrove forests comprised of oriental mangrove (<i>Bruguiera gymnorrhiza</i>), Asiatic mangrove (<i>Rhizophora mucronata</i>), and <i>Kandelia obovata</i> . Various aquatic species including fiddler crabs and barred mudskippers (<i>Periophthalmus argentilineatus</i>) can be observed here at low tide. The zone is a base from which visitors can walk along a boardwalk or venture out in kayaks to observe the flora and fauna.	11
Total		4,428

(iii) Class II Special Zone

The following zones are classified as Class II Special Zones:

(Table 6: Summary of Class II Special Zones)

Prefecture	Zone	Area (ha)
Okinawa	Kunigami Village, Kunigami County: Parts of Aza Oku, Aza Ginama, and Aza Hedo	241
	Within Kunigami Village, Kunigami County: National Forest Okinawa District Forest Office Parts of Compartment 55 – 57 Kunigami Village, Kunigami County: Parts of Aza Iji, Aza Uka, Aza Ura, Aza Oku, Aza Okuma, Aza Ginama, Aza Sate, Aza Jashiki, Aza Hama, Aza Hiji, Aza Benoki, Aza Hentona and Aza Yona Ogimi Village, Kunigami County: Parts of Aza Kijoka, Aza Janagusuku and Aza Takazato	2,318
	Kunigami Village, Kunigami County: Parts of Aza Ada	131
	Kunigami Village, Kunigami County: Parts of Aza Ada	23
	Kunigami Village, Kunigami County: Parts of Aza Aha	184
	Higashi Village, Kunigami County: Parts of Aza Takae	127
	Ogimi Village, Kunigami County: Parts of Aza Uehara, Aza Ogimi, Aza Oganeku, Aza Oshikawa, Aza Shioya, Aza Taminato, Aza Nuhha, Aza Nerome and Aza Yako	324
	Ogimi Village, Kunigami County: Parts of Aza Shirahama and Aza Miyagi	68
	Ogimi Village, Kunigami County: Parts of Aza Ogimi, Aza Oshikawa, Aza Taminato and Aza Nerome Higashi Village, Kunigami County: Parts of Aza Kawata and Aza Miyagi	80
	Ogimi Village, Kunigami County: Parts of Aza Tsuha Ogimi Village, Kunigami County: Parts of Aza Arume, Aza Gesashi and Aza Taira	558
	Total	4,054

(iv) Class III Special Zone

The following zones are classified as Class III Special Zones:

(Table 8: Summary of Class III Special Zones)

Prefecture	Zone	Area (ha)
Okinawa	Kunigami Village, Kunigami County: Parts of Aza Ginama and Aza Hedo	162
	Kunigami Village, Kunigami County: Parts of Aza Oku, Aza Ginama, and Aza Hedo	496
	Within Kunigami Village, Kunigami County: National Forest Okinawa District Forest Office All of Compartment 53, and parts of Compartment 54 and 56 Kunigami Village, Kunigami County: Parts of Aza Oku and Aza Ginama	397
	Within Kunigami Village, Kunigami County: National Forest Okinawa District Forest Office All of Compartment 48 – 52 and parts of Compartment 57 Kunigami Village, Kunigami County: Parts of Aza Oku and Aza Sosu	1,000
	Kunigami Village, Kunigami County: Parts of Aza Ada and Aza Sosu	136
	Kunigami Village, Kunigami County: Parts of Aza Ada	8
	Within Kunigami Village, Kunigami County: National Forest Okinawa District Forest Office Parts of Compartment 59 – 62 Kunigami Village, Kunigami County: Parts of Aza Iji, Aza Uka, Aza Ura, Aza Oku, Aza Okuma, Aza Sate, Aza Jashiki, Aza Hama, Aza Hiji, Aza Benoki, Aza Hentona and Aza Yona Ogimi Village, Kunigami County: Parts of Aza Ogimi, Aza Kijoka, Aza Takazato and Aza Nuhha	1,114
	Ogimi Village, Kunigami County: Parts of Aza Shirahama	8
	Ogimi Village, Kunigami County: Parts of Aza Tsuha Higashi Village, Kunigami County: Parts of Aza Gesashi	24
	Total	3,345

ii. Related matters

(i) Ordinary Zone

The following zones are classified as Ordinary Zones:

(Table 10: List of Ordinary Zones)

Prefecture	Zone	Area (ha)
Okinawa	Kunigami Village, Kunigami County: Parts of Aza Ada, Aza Aha, Aza Ginama, Aza Sosu, Aza Hama, Aza Hiji and Aza Hedo	887
	Ogimi Village, Kunigami County: Parts of Aza Taiho, Aza Shioya, Aza Shirahama, Aza Taminato, Aza Tsuha, Aza Miygagi and Aza Yako	85
	Higashi Village, Kunigami County: Parts of Aza Kawata, Aza Gesashi and Aza Takae	34
Total for land areas		1,006
Parts of sea water surface adjacent to land areas of the park		3,670
Total		4,676

iii. Breakdown of area

(i) Area by zone category and by ownership status

(Table 12: Summary of area by zone category and by ownership status)

Zone category		Special Zone							
Zone class		Special Protection Zones				Class I			
Ownership status		National	Public	Private	Other	National	Public	Private	Other
Okinawa Prefecture	Area by ownership status	236	482	71	0	822	3,271	280	55
	Area by class (rate)					4,428 (32)			
						789 (6)			
	Area by category (rate)								

Special Zone							
Class II				Class III			
National	Public	Private	Other	National	Public	Private	Other
425	2,271	1,258	100	1,403	1,221	660	61
				4,054 (30)			
				3,345 (25)			
				11,827 (87)			
				12,616 (93)			

Ordinary Zone (On land)				Total (On land)			
National	Public	Private	Other	National	Public	Private	Other
51	427	460	68	2,937	7,672	2,729	284
				1,006 (7)			
				13,622 (100)			

Marine Special Zone	Ordinary Zone (Marine area)	Total (Marine area)
0	3,670	3,670

3. Facility Plan

(1) Protective facilities plan

The protective facilities plans are given below.

(Table 13: List of protective facilities)

No.	Type	Location	Development policy
1	Nature restoration facility	Kunigami Village, Kunigami County, Okinawa Prefecture	For young laurel forests and other forests, measures will target the restoration of and linkage to old-growth forests, as well as the revitalization of the river basin.
2	Nature restoration facility	Ogimi Village, Kunigami County, Okinawa Prefecture	For young laurel forests and other forests, measures will target the restoration of and linkage to old-growth forests, as well as the revitalization of the river basin.
3	Nature restoration facility	Higashi Village, Kunigami County, Okinawa Prefecture	For young laurel forests and other forests, measures will target the restoration of and linkage to old-growth forests, as well as the revitalization of the river basin.

(2) Facility plan for use

a. Individual facility

The individual facilities are described as follows:

(Table 14: List of individual facilities)

No.	Type	Location	Development policy
1	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Hedo)	Located at Okinawa Island's northernmost tip, this cape provides visitors with views of both the East China Sea and the Pacific Ocean as well as opportunities to see humpback whales (<i>Megaptera novaeangliae</i>). Improvements will include parking spaces, toilets, and paths to make it more suitable for viewing the scenery and exploration of wildlife. Measures will target the conservation of the landscape and vegetation in the surrounding areas.
2	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Uzabama)	The site will offer views of Cape Hedo and Mt. Hedodake. Improvements will include an observation platform, paths, and parking spaces.
3	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Ginama)	Improvements will include parking spaces, toilets, and paths to make it more suitable for viewing the karst topography and its Paleozoic limestone substrate.
4	Exhibition facility	Kunigami Village, Kunigami County, Okinawa Prefecture (Ginama)	The facility will be developed to allow visitors to learn on the importance of the region's nature. Improvements will include exhibitions on tropical karst topography,
5	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Kayauchi-banta Cliff)	Improvements will include parking spaces, toilets, and paths to make it more suitable for viewing the scenery of cliffs and reef slopes.
6	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture	The site will be developed to allow visitors to explore remnants of older modes of life in the village landscapes of the Yambaru region, as well as

No.	Type	Location	Development policy
		(Oku)	traditional stonewalls around settlements to keep out boars.
7	Accommodation	Kunigami Village, Kunigami County, Okinawa Prefecture (Benoki)	Accommodations will be developed here for those visiting the park areas in the Yambaru region. Plans will account for the need to protect wild local flora and fauna.
8	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Ada)	The site will be developed to allow nature exploration in and around the Mt. Ibudake and the environs of Ada. The site will give visitors the opportunity to observe the Okinawa rail.
9	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Kochibaru)	The site will be developed to allow exploration of laurel forests and seashore. Visitors will also have the opportunity to experience charcoal making and other local cultural activities.
10	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Hentona)	The site will be developed to allow visitors to observe wildlife in the midst of laurel forests and experience the richness of the Yambaru forest.
11	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Aha)	The site will be developed to allow visitors to observe wild local flora and fauna and the scenery of laurel forests and experience the richness of the Yambaru forest.
12	Accommodation	Kunigami Village, Kunigami County, Okinawa Prefecture (Aha)	Accommodations will be developed here for those visiting the park areas in the Yambaru region. The surroundings will give visitors opportunities to encounter wildlife in the midst of laurel forests and experience the richness of the Yambaru forest.
13	Campsite	Kunigami Village, Kunigami County, Okinawa Prefecture (Aha)	The site will be developed here for those visiting the park areas in the Yambaru region. The surroundings will give visitors opportunities to encounter wildlife in the midst of laurel forests and experience the richness of the Yambaru forest.
14	Recreation site	Kunigami Village, Kunigami County, Okinawa Prefecture (Hiji)	The site will be developed to allow nature exploration and observations of wild birds and other species along the Hiji River and in the surrounding areas.
15	Campsite	Kunigami Village, Kunigami County, Okinawa Prefecture (Hiji)	The site will be developed to allow visitors to experience the natural riches of Yambaru in the midst of the laurel forests of the Hiji River and the surrounding areas.
16	Recreation site	Ogimi Village, Kunigami County, Okinawa Prefecture (Takazato)	The site will be developed to allow nature exploration and observations of wild birds and other species along the Takazato River and in the surrounding areas.
17	Campsite	Ogimi Village, Kunigami County, Okinawa Prefecture (Takazato)	The site will be developed to allow visitors to experience the natural riches of Yambaru in the midst of the laurel forests of the Takazato river and the surrounding areas.
18	Recreation site	Ogimi Village, Kunigami County, Okinawa Prefecture (Mutabaru)	The site will offer views of Shioya Bay. Improvements will include an observation platform and parking spaces.
19	Recreation site	Ogimi Village, Kunigami County, Okinawa Prefecture (Shioya Bay)	The site will be developed to allow nature exploration in the areas surrounding Shioya Bay

No.	Type	Location	Development policy
20	Recreation site	Ogimi Village, Kunigami County, Okinawa Prefecture (Tsuha)	The site will be developed to allow nature exploration in the areas surrounding Ta-taki Falls.
21	Recreation site	Higashi Village, Kunigami County, Okinawa Prefecture (Arakawa)	The site will be developed to allow visitors to take in views from the eastern coast and explore nature along Arakawa and in the surrounding areas.
22	Recreation site	Higashi Village, Kunigami County, Okinawa Prefecture (Fukuji)	The site will be developed to allow nature exploration and observations of laurel forests and local flora and fauna, whether on foot or by boat.
23	Recreation site	Higashi Village, Kunigami County, Okinawa Prefecture (Gesashi)	Improvements will include paths, toilets, parking spaces, and information offices. The site will give visitors opportunities to observe wildlife in the Gesashi mangrove forests and tidal flats, whether by canoe or from the boardwalks.

ii. Roads

(i) Roads allowing vehicle access

The roads allowing vehicle access are described as follows:

(Table 15: List of roads (vehicle access))

No.	Name	Section	Major site on the course	Development policy
1	Oku - Ginama route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Boundary between Oku and National Park) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Boundary between Ginama and National Park)	Cape Hedo	The road will be developed and maintained as a route leading to the eastern coastline and passing through Cape Hedo, Okinawa's northernmost point, and the area surrounding Mt. Hedodake. Measures will account for the need to maintain the scenery along the route and conserve habitat for rare and endemic species.
2	Mt. Hedodake route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Ginama recreation site entrance) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Ginama recreation site)	Mt. Hedodake	The road will be developed and maintained as a route leading to Ginama recreation site. Measures will account for the need to maintain the forest landscape and conserve habitat for rare species.
3	Eastern coast route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Boundary between Oku and National Park) To: Kunigami Village, Kunigami County, Okinawa Prefecture	Akasaki	The road will be developed and maintained as a route passing along the eastern coast of the Pacific side and its many natural coastlines. Measures will account for the need to maintain the coastal landscape and conserve habitat for rare

No.	Name	Section	Major site on the course	Development policy
		(Boundary between Sosu and National Park) From: Kunigami Village, Kunigami County, Okinawa Prefecture (Boundary between Ada and National Park) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Boundary between Ada and National Park)		species.
4	Yambaru East-West route From: (Boundary between Yona and National Park)	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Boundary between Yona and National Park) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Oku Yona forest road converging point)	Mountainous backbone	The road will be developed and maintained as a route linking the east and west slopes and passing through the mountainous backbone. Measures will account for the need to maintain the forest landscape and conserve habitat for rare species.

(ii) Walkways

The walkways are described as follows:

(Table 17: List of roads (walkways))

No.	Name	Section	Major site on the course	Development policy
1	Mt. Ibudake route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Converging point for Mt. Ibudake trailhead and trail) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Mt. Ibudake)	Mt. Ibudake	The route will be developed and maintained as a trail that allows visitors to explore the natural beauty and the remnants of older modes of life in the subtropical laurel forests. Measures will account for the need to maintain the forest landscape and conserve habitat for rare species. [Mountain trail]
2	Ada route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Ada-Kochibaru) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Converging point for Mt. Ibudake trailhead and trail)	Ada Village	The route will be developed and maintained as a trail that allows visitors to walk along and view the beaches where sea turtles lay their eggs and the natural beauty of the subtropical laurel forests. The route will also give visitors opportunities to observe the Okinawa rail. Measures will account for the need to maintain the forest landscape and conserve habitat for rare and endemic species. [Nature trail]

No.	Name	Section	Major site on the course	Development policy
3	Mt. Yonahadake route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Mt. Yonahadake trailhead) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Mt. Yonahadake)	Mt. Yonahadake	The route will be developed and maintained as an ascending trail through Mt. Yonahadake in the heart of the Yambaru region. Measures will account for the need to maintain the forest landscape, conserve habitat for rare and endemic species, and protect vegetation. [Mountain trail]
4	Aha route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Yambaru Discovery Forest) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Aha village)	Yambaru Discovery Forest	The route will be developed and maintained as a trail that allows visitors to observe the subtropical laurel forests and the flora and fauna of the mountain streams. Measures will account for the need to maintain the forest landscape and conserve habitat for rare and endemic species. [Nature trail]
5	Hiji-otaki Falls route	From: Kunigami Village, Kunigami County, Okinawa Prefecture (Hiji-otaki Falls access point) To: Kunigami Village, Kunigami County, Okinawa Prefecture (Hiji-otaki Falls)	Hiji-otaki Falls	The route will be developed and maintained as a nature exploration trail leading up to Hiji-otaki Falls, allowing visitors to observe wild birds and plants of the Hiji River and the surrounding areas. Measures will account for the need to maintain the forest landscape. [Nature trail]
6	Mt. Nekumachijidake and Mt. Shioya-fuji route	From: Ogimi Village, Kunigami County, Okinawa Prefecture (Mt. Nekumachijidake trailhead) To: Ogimi Village, Kunigami County, Okinawa Prefecture (Mutabaru)	Mt. Nekumachijidake, Mt. Shioya-fuji	The route will be developed and maintained as an ascending trail through the limestone mountains of Mt. Nekumachijidake and Mt. Shioya-fuji. Measures will account for the need to conserve habitat for rare and endemic species and protect vegetation. [Mountain trail]
7	Mt. Tamatsuji route	From: Higashi Village, Kunigama County, Okinawa Prefecture (Fukuji Dam) To: Ogimi Village, Kunigama County, Okinawa Prefecture (Okuni Forest Road)	Mt. Tamachiji	The route will be developed and maintained as an ascending trail through Mt. Tamachiji. Measures will account for the need to conserve habitat for rare and endemic species and protect vegetation. [Mountain trail]

4-3 Iriomote-Ishigaki National Park

Park Plan (Excerpt)

April 15, 2016

Ministry of the Environment

1. Basic Policy

Among the Yayeyama Islands that are situated at the southernmost end of the Ryukyu Chain, Iriomote-Ishigaki National Park consists of parts of Iriomote Island and Ishigaki Island; various islands within and outside Sekisei Lagoon which lies between Iriomote Island and Ishigaki Island; and the surrounding sea area. The park is characterized by the natural landscapes that represent Japan's typical subtropical-zone, including pristine subtropical evergreen broadleaved forests, mangrove forests spreading along rivers and estuaries, and the largest coral reef in the country. The park is also characterized by cultural landscapes such as townscapes and rituals rich in the Ryukyu culture that have been nurtured on the back of the natural environment.

The theme of the park is "pristine subtropical forest and coral reef ocean." It is aimed to create a park where visitors can feel the connection with mountains, rivers and the sea comprising the ecosystems of subtropical broadleaved forests, mangroves, and coral reefs. To protect the scenic beauties and landscapes of the park as well as to promote its appropriate use, the park plan is set based on the following policies.

(1) Regulation plan

i. Protective regulations plan

(i) Special Protection Zone

The following areas are designated as Special Protection Zones to achieve strict protection as they form the nucleus of the Park's landscape and provide habitat to many endemic and rare species.

- The mountainous areas where pristine subtropical evergreen broadleaved forests of *Castanopsis* (*Castanopsis sieboldii*) and *Quercus miyagii* grow in large clusters including: central part of Iriomote Island centering at Mt. Gozadake and Mt. Komidake, the highest peak in Iriomote Island;; and the north-east side of Mt. Omotodake in Ishigaki Island, the highest peak in Okinawa Prefecture.

(ii) Class I Special Zone

The following areas are designated as Class I Special Zones to maintain their remarkable scenic beauties that are equivalent to Special Protection Zones with subtropical characteristics. In addition, the ecosystem of these areas that spreads uninterrupted from mountains to the sea provides habitats for rare species.

- Mountainous areas where flourishing subtropical evergreen broadleaved forests comprising of *Castanopsis* and *Quercus miyagii* spread continuously from the Special Protection Zone and are well conserved including: Mt. Tedo, Mt. Haterumamori, the Sakiyama Peninsula, and the southern part of Iriomote Island surrounding Mt. Haikishidake in Iriomote Island; and the north-west area of Mt. Omotodake and the eastern part of Mt. Fukai-Omotodake in Ishigaki Island.
- River zones where oriental mangrove (*Bruguiera gymnorhiza*) and *Heritiera littoralis* are distributed along the riverside including the Nakama River, the Maira River, and the Shiira River on Iriomote Island
- Wetlands and tidal flats where mangroves develop including; the estuaries of the Urauchi River and the Nakara River as well as the Funaura Bay on Iriomote Island; the estuaries of the Fukido River and the Kara River on Ishigaki Island; and Nagura Amparu, which is a site included in the List of Wetlands of International Importance under Ramsar Convention.
- Daichibanari, which is located in the north of the Hirakubo Peninsula in northern Ishigaki Island and constitutes an important part of the view from the Hirakubo Peninsula.
- Small island groups in the Kabira Bay on Ishigaki Island, one of the tourist spots representing the Yaeyama Islands
- Takanazaki in Hateruma Island, a sea cliff of Ryukyu limestone that stretches for 1 km, offering habitats to unique coastal plants.

(iii) Class II Special Zone

The following areas are designated as Class II Special Zones to promote the maintenance of their scenic beauties and the appropriate use of the areas as they provide fine scenic beauties and are actively utilized as a park.

- River zones that are actively utilized for sightseeing by boats, kayaking and “shower climbing” including: the Urauchi River, the Nakara River, the Hinai River, the Geda River, the Nishida River on Iriomote Island
- Beaches that attract many tourists with sea bathing and nature walks including: Hoshinosuna (Star-sand) Beach, Toudoumari Beach, and Ida Beach in Iriomote Island; and Kondoi Beach and Kajii Beach on Taketomi Island
- Beaches popular for snorkeling including: Yonehara Beach and Shiraho Beach in Ishigaki

Island, Nakamoto Beach on Kuroshima Island, Nishihama Beach on Hateruma Island

- Beaches that offer important egg-laying sites for sea turtles including: the east coast of the Hirakubo Peninsula, north of Ishigaki Island
- Sotopanari Island and Uchipanari Island near Iriomote Island that attract sea kayakers as resting spots as well as sites for historic trekking.
- Uninhabited islands surrounding Iriomote Island that are significant elements of the marine landscape including: Hatobanari Island, Akabanari Island, and Atuku-iwa Island
- Nakanougan Island, which surrounded by cliffs and serves as a significant breeding ground for seabirds.
- Mountainous areas where subtropical evergreen broadleaved forests dominated by *Castanopsis* occur including: the western side of Mt. Omotodake, the eastern side of Mt. Nosokodake, and the southern side of Mt. Maedake in Ishigaki Island
- Large Marge and Small Marge that are which have academic significance as uplifted seafloor landforms.

(iv) Class III Special Zone

The areas other than Special Protection Zones and Class I and II Special Zones where ordinary agriculture, forestry and fishery activities will not cause major impacts on maintenance of scenic beauty are designated as Class III Special Zones.

(v) Marine Special Zone

Some parts of the marine areas of the Sekisei Lagoon, Japan's largest coral reef, and the surrounding sea areas of Iriomote Island, Ishigaki Island, and Hateruma Island, are designated as Marine Special Zones. The designated areas offer remarkable marine landscapes comprising diverse coral reef ecosystems where coral communities grow thick. The areas also attract many divers.

Among mangrove marshes and tidal flats in brackish-water regions, the areas that offer habitat for a number of diverse and endemic benthic species, feeding grounds for wildlife such as Iriomote cats (*Prionailurus bengalensis iriomotensis*), and wildlife observation sites are considered significant and designated as Marine Special Zones. The designation aims to achieve the conservation of the marine landscapes, the general coastal landscapes consisting of the sea and land, and the marine ecosystems of the zone.

(vi) Ordinary Zone

Sekisei Lagoon and the marine areas 2 km off the coasts of Iriomote Island, Ishigaki Island and Hateruma Island that are connected to the Marine Special Zones are designated as Ordinary Zones to conserve the marine sceneries.

Village areas and the land areas adjacent to the villages, whose natural sceneries and traditional streetscapes are connected to the Special Protection Zones, will also be designated as Ordinary Zones to conserve the sceneries.

(2) Facility Plan

i. Facility plan for use

(i) Individual facilities

Regarding facilities necessary for the use of the park or the facilities that are already in use in the park, those such as recreation and camp sites will be planned taking into account the current utilization of the land areas, the feasibility of the project, and the impact of construction works on natural landscapes.

Mooring facilities will be planned for marine areas as there is a threat that the coral reefs of each Marine Special Zone may be damaged by boats anchoring for leisure activities such as diving and snorkeling. Furthermore, there is a plan to build restoration facilities for the coral reefs that face deterioration or that have already deteriorated because of the damage caused by the crown-of-thorns starfish (*Acanthaster planci*) and by coral bleaching.

(ii) Roads (vehicle access and walkways)

The following roads are incorporated into the road plan (vehicle access).

- A prefectural road that connects Shirahama and Haemi on Iriomote Island
- A prefectural road to explore the scenery of the tidal flats of Nagura Amparu and coastlines on Ishigaki Island
- A municipal road to explore the scenery of pasture and sea landscapes of the Hirakubo Peninsula on Ishigaki Island

The following footpaths are incorporated into the road plan (walkways)

- Walkways leading to Yutsun-no-taki Falls, Nara-no-taki Falls and Sangara-no-taki Falls on Iriomote Island
- Trails to climb Mt. Nosokodake and Mt. Omotodake on Ishigaki Island

(iii) Transport facilities

The following transport facilities are planned.

- Pleasure boats to explore the nature of the Urauchi River and the Nakama River on Iriomote Island
- Mooring facilities to conserve the waters adjacent to residential areas as well as the surrounding coral reef landscape on Iriomote and Ishigaki Islands

2. Regulation Plan

(1) Protective regulations plan

i. Special Zone

(i) Special Protection Zone

Among the Special Zones, the following zones are classified as Special Protection Zones:

(Table 3 : Details of Special Protection Zones)

Name	Zone overview	Area (ha)
Mt. Omotodake	<p>The area is located in the east and the north-east of Mt. Omotodake (526 m), the highest peak of the prefecture. It is characterized by thick subtropical climax forests dominated by <i>Castanopsis</i> (<i>Castanopsis sieboldii</i>) and <i>Distylium racemosum</i>. Ryukyu bamboo (<i>Pleioblastus linearis</i>) forests, which typically grows in a wind-swept site, can also be observed in the mountaintop area. The area is designated as a specific plant community of “Vegetation in Mt. Omotodake and Mt. Fukaiomotodake zone.”</p> <p>The area provides habitat to flora and fauna of academic significance such as a butterfly <i>Ochlodes asahina</i> , a cicada <i>Platypleura albivannata</i>, and Yaeyama palm (<i>Satakentia liukiensis</i>) communities, all of which are endemic to the Yaeyama Islands. This area must be strictly protected as the nucleus of the park.</p>	557
Central Iriomote Island	<p>The area mainly consists of headwaters of the Urauchi River and the Nakama River as well as the area centering on Mt. Komi, the highest peak of Iriomote Island (469 m), and Mt. Goza.</p> <p>The area provides the typical landscape of the park, with Japan’s representative pristine subtropical evergreen broadleaved forests remained in a large cluster.</p> <p>The majority of the forest zone are covered with <i>Castanopsis</i> forests. The forests of <i>Quercus miyagii</i> spread along the lowland valleys while <i>Ficus bengutensis</i> and <i>Machilus japonica</i> forests occur in the valleys along the upper streams. Rare plant species <i>Sphenomeris gracilis</i> occurs in a peculiar way along mountain streams running around the headwaters of the Urauchi River.</p> <p>The area also provides habitat to wild flora and fauna that are endemic to the Yaeyama Islands including Iriomote Island (Iriomote cat and <i>Ochlodes asahinai</i>), and species at their northern limits (crested serpent eagle (<i>Spilornis cheela perplexus</i>) and yellow-margined box turtle (<i>Cuora flavomarginata</i>)). This area must be strictly protected as the nucleus of the park.</p>	4,624
Total		5,181

(ii) Class I Special Zone

The following zones are classified as Class I Special Zones:

(Table 5 : Details of Class I Special Zones)

Name	Zone overview	Area (ha)
Daichipanari	This is an uninhabited island around 400 m north of Hirakubozaki. Surrounded by cliffs, the island offers a breeding site for seabirds such as the roseate tern (<i>Sterna dougallii bangsi</i>) and the black-naped tern (<i>Sterna sumatrana</i>). Because it constitutes an important element of the view from Hirakubozaki, the remarkable scenic beauty must be protected.	3
Kara River	The area includes the surroundings of the Kara River on the northern Hirakubo Peninsula. Mangrove forests develop at the mouth of the river. At the middle and lower reaches of the river, powder-puff tree (<i>Barringtonia racemose</i>) form exceptionally large communities, creating a characteristic scenic beauty together with diverse benthic species. The river is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty that is equivalent to a Special Protection Zone and to promote the appropriate use of the river.	16
Fukido River area	The area is one of Ishigaki Island's representative distribution areas for mangrove forests, a vegetation unique to the subtropical region. The area is selected as a specific plant community called "Mangrove forests of Fukido River." Shrimps such as <i>Atyoida pilipes</i> , <i>Neocaridina brevirostris</i> , and a crab <i>Ryukyumu yaeyamense</i> live along the river. These species are categorized as near-threatened in the Red Data Book (2006) of the Ministry of the Environment. Because the area possesses one of Ishigaki Island's best areas of mangrove forest landscape as well as significant wildlife habitat, the remarkable scenic beauty must be protected.	40
Kabirakushima Island	Being located at the mouth of Kabira Bay, the area consists of Kushima Island and Majipanari and Saipanari, rock islands made of coral reefs. Together with the surface of the inner bay that changes its color according to tidal fluctuation and climate condition, the area constitutes a valuable element of the landscape. The remarkable scenic beauty of the area must be protected.	36
Mt. Omotodake	The area includes the northern slope of the cordillera continuing from Mt. Omotodake north-westwards as well as the southern part of Mt. Fukai Omotodake. The area is adjacent to the Special Protection Zone. There develops subtropical climax forests mainly dominated by <i>Castanopsis</i> and <i>Distylium racemosum</i> . Ryukyu bamboo forests, which typically grows in a wind-swept site, can also be observed in the mountaintop area.. The area along the upper stream of the Arakawa River is Okinawa Prefecture's only natural habitat for Taiwan cherry <i>Prunus campanulata</i> (National Natural	521

Name	Zone overview	Area (ha)
	Monument). The area is designated as a scenic site and the remarkable scenic beauty must be protected.	
Nagura Amparu	The area is located at the mouth of the Nagura River which is facing Nagura Bay on the western coast of Ishigaki Island. The area is selected as a specific plant community called “Mangrove forests at the mouth of the Nagura River.” Mangrove forests, tidal flats, beaches and coastal forests form a diverse ecosystem and serve as a stop-over habitat for migrating birds and habitat for forest birds. Therefore, in November 2005, the site was included in the Ramsar Convention list for its international importance. Because the area offers a remarkable landscape of mangrove forests and important habitat for wildlife, the remarkable scenic beauty must be protected.	128
The mouth of the Urauchi River	The area is designated as a Class I Special Zone to strictly protect its remarkable scenic beauty that is equivalent to a Special Protection Zone as well as to promote the appropriate use of the area for the following reasons. <ul style="list-style-type: none"> • The area, a backland of the mangrove forests at the mouth of the Urauchigawa River, is dominated by Ryukyu pine(<i>Pinus luchuensis</i>) and offers good scenic beauty. • The area includes Hoshidate Utaki where Yaeyama palm trees grow wild. It is the one of the only three Yaeyama palm communities in the world. • A fern community of <i>Acrostichum aureum</i>, endangered threatened species, constitutes the valued scenic beauty of the area. 	172
Takanakomi	The area includes the southern foot of Mt. Komidake, the highest peak on Iriomote Island, towards the eastern side of the mountain as well as the cordillera continuing from Mt. Komidake towards the north west. It is designated as a Class I Special Zone to strictly protect its remarkable scenic beauty equivalent to a Special Protection Zone for the following reasons. <ul style="list-style-type: none"> • Good-condition evergreen broadleaved forests of <i>Camellia japonica</i> class survive in the mountain area and the forests offer habitat for a number of rare species such as Iriomote cats and crested serpent eagles. • A number of rare fish such as <i>Rhyacichthys aspro</i>, <i>Rhinogobius</i> sp.YB, and <i>Tetraroge niger</i> live in large and small rivers including major rivers such as the Omija River, the Yutsun River, the Aira River, the Shiira River and the Maira River. • Large mangrove forests mainly comprised of Asiatic mangrove (<i>Rhizophora mucronata</i>) grow around the mouth of each river. Particularly, the mouths of the Aira River, the Shiira River and the Maira River offer plant habitat for <i>Sonneratia alba</i>, too, the species that can be seen only in the eastern part of Iriomote Island. 	3,506

Name	Zone overview	Area (ha)
Funaura	<p>Within Japan, communities of Nipa palm (<i>Nipa fruticans</i>) only exist in Funaura, Iriomote Island, and on Uchibanari Island. Particularly, the community in Funaura, which is the northern limit of habitat, is designated as a specific plant community, a National Natural Monument, and a plant community protected forest for its significance for botanical geography and for its particular value.</p> <p>There is a concern regarding the decline of the Nipa palm community; it was revised to Critically Endangered from Vulnerable on the Red List of the Ministry of the Environment because of its very high risk of extinction in the wild. For the reasons stated above, the zone is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty mainly comprising Nipa palms.</p>	4
Central part of Iriomote Island	<p>The area includes Mt. Tedo, Iriomote Island's second highest mountain after Mt. Komidake, and the rivers running through the mountain. In the mountain, evergreen broadleaved forests remain in a good condition while Ryukyu bamboo forests, which typically occur in a wind-swept site, can be seen in the mountaintop area. There are frequent reports about inhabitation of rare species such as Iriomote cats and crested serpent eagles in this zone, which indicates that the zone is an important habitat for them. For all the reasons stated above, the zone is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty that is equivalent to a Special Protection Zone.</p>	1,311
Hateruma Forests	<p>The area encompasses Mt. Haterumamori in its center and the ridge lines along the upper reaches of the Nakara River and the Kuira River. The vegetation of the area consists of pristine subtropical evergreen broadleaved forests and secondary forests with Ryukyu pines. In addition, the area along the upper reaches of the Nakara River offers habitat for rare species such as a goby <i>Rhinogobius</i> sp.YB and <i>Stylogomphus shirozui watanabei</i>, an endemic dragonfly species to Iriomote Island.</p> <p>For all the reasons stated above, the area is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty which also offers habitat to rare and endemic species as well as to promote the appropriate use of the area.</p>	2,672
The mouth of the Nakara River	<p>The area is located at the mouth of the Nakara River, the third longest river on Iriomote Island and one of the representative scenic sites of the park. The area consists of mangrove forests including <i>Asiatic mangrove</i>, <i>Oriental mangrove</i> and <i>Kandelia obovata</i>.</p> <p>The habitat information of rare wild species such as Iriomote cats and crested serpent eagles is frequently reported in this area, which indicates that the site is an important habitat for them.</p> <p>For all the reasons stated above, the area is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty that is equivalent to a Special Protection Zone.</p>	32

Name	Zone overview	Area (ha)
Sakiyama Peninsula	<p>Sightings of Iriomote cats and crested serpent eagles are frequently reported in this area and recent research has revealed that the area is an important habitat for those rare species.</p> <p>A number of giant common gracinia (<i>Garcinia subelliptica</i>) trees contribute to create the characteristic scenic beauty of the area. Furthermore, along large and small rivers, the ecosystem is maintained in a good condition with continuity from the subtropical evergreen broadleaved forests around the headstreams to the mangrove forests and tidal flats around the mouths of the rivers. Natural scenery almost untouched by human activity remains in this area. Meanwhile, there also are some sites that gather attention as usable places recently. For all the reasons stated above, the area is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty equivalent to a Special Protection Zone as well as to promote the appropriate use of the area.</p>	2,959
Kuira River	<p>The ecosystem of the area is maintained with continuity from the upper reaches of the Kuira River to mangrove forests and tidal flats of the mouth of the river; the natural terrain without any artificial object remains in a good condition. In addition, Mizuochitaki Falls fall into the mouth of the Pimichi River, allowing boats to directly approach the water falls. There is evidence that coal carriers and warships used to use this site to collect fresh water, which adds to the historical value of the area.</p> <p>Sightings of rare species such as Iriomote cats, crested serpent eagles, and Kishinoue's giant skinks (<i>Plestiodon kishinouyei</i>) are frequently reported in this area, which indicates that the area is an important habitat for them.</p> <p>Further, Ubu Beach and Sazare Beach in the area are egg-laying sites for green turtles (<i>Chelonia mydas</i>). The landscape of over 200 m-long steep escarpments that run down from edge lines to the coast stretches from east to west, making exclusive beach landscapes. Recently, the beaches are also used actively as resting spots for kayak tourists and divers. For all the reasons stated above, the area is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty equivalent to a Special Protection Zone as well as to promote the appropriate use of the area.</p>	1,171
Nakama River	<p>The Nakama River is the second longest river on Iriomote Island, along which Japan's largest mangrove forests consisting of <i>Asiatic mangrove</i>, <i>Kandelia obovata</i> and oriental mangrove. The mangrove forests along the river are designated as "Nakama River Natural Monument Protection Zone" and as a National Natural Monument. The zone is the most popular tourist spot in Iriomote Island, being actively used by powered vessels and kayaks.</p> <p>In addition, a lot of sighting information of various rare species in the area has been reported. Such rare species include Iriomote cats, crested serpent eagles and yellow-margined box turtles, as well as the migrant birds such as</p>	

Name	Zone overview	Area (ha)
	black-faced spoonbills (<i>Platalea minor</i>), black-winged stilts (<i>Himantopus himantopus</i>), and gray-faced buzzards (<i>Butastur indicus</i>). Particularly the number of sightings (including the traces) for the Iriomote cat is increasing over the past 10 years, and parent with kitten have also been seen, which proves that the area is an important habitat for Iriomote cats. For all the reasons stated above, the zone is designated as a Class I Special Zone to strictly protect the remarkable scenic beauty equivalent to a Special Protection Zone as well as to promote the appropriate use of the area.	2,821
Takanazaki	The area is located at the south-east coast of Hateruma Island where the coastal cliff stretches about 1 km; the constant and strong sea breeze eroded the Ryukyu limestone, creating this cliff. The area constitutes dynamic and remarkable coastal landscape where rough waves surge against rock reefs and splash high in the air. The area is designated as Class I Special Zone to protect the remarkable scenic beauty.	18
Total		15,410

(iii) Class II Special Zone

The following zones are classified as Class II Special Zones.

(Table 7: Summary of Class II Special Zones)

Prefecture	Zone	Area (ha)
Okinawa	Ishigaki City: Parts of Aza Arakawa, Aza Ibaruma, Aza Ohama, Aza Kabira, Aza Sakieda, Aza Shiraho, Aza Touzato, Aza Tonoshiro, Aza Nagura, Aza Nosoko, Aza Hirakubo, Aza Fukai, and Aza Miyara	1,315
	Within Taketomi Village, Yaeyama County: National Forest Okinawa District Forest Office All of Compartments 101, 104, 107, 135, and Nakanokami Island and parts of Compartments 102, 103, 105, 106, 108, 109, 128 to 134, 136, 137, 142, 143, 145 to 147, 150 to 155, 161, 172, 173, 184-188, 193, 202, and 204 to 209 Taketomi Village, Yaeyama County: Parts of Aza Iriomote, Aza Uehara, Aza Kuroshima, Aza Kohama, Aza Komi, Aza Sakiyama, Aza Takana, Aza Taketomi, Aza Haimi, Aza Hateruma and Aza Hatoma	5,046
Total		6,361

(iv) Class III Special Zone

The following zones are classified as Class III Special Zones.

(Table 8: Summary of Class III Special Zones)

Prefecture	Zone	Area (ha)
Okinawa	Ishigaki City: Parts of Aza Ibaruma, Aza Ohama, Aza Kabira, Aza Sakieda, Aza Shiraho, Aza Touzato, Aza Tonoshiro, Aza Nagura, Aza Nosoko, Aza Hirae, Aza Hirakubo, Aza Fukai, Aza Maezato and Aza Miyara	4,385
	Within Taketomi Village, Yaeyama County: National Forest Okinawa District Forest Office All of Compartments 139 and 140 and parts of Compartments 102, 103, 132 to 134, 136 to 138, 141, 142, 188, 197, 198, 208 and 209 Taketomi Village, Yaeyama County: Parts of Aza Iriomote, Aza Uehara, Aza Kuroshima, Aza Kohama, Aza Komi, Aza Sakiyama, Aza Takana, Aza Taketomi, Aza Haimi, Aza Hateruma and Aza Hatoma	2,658
Total		7,043

ii. Marine Special Zone

The following zones are classified as Marine Special Zones.

(Table 10 : List of Marine Special Zones)

No.	Name	Zone	Area (ha)
1	Taketomi Island Takidunguchi, North reef of Sekisei Lagoon, Yonara Channel	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Kohama and Aza Taketomi adjacent area, part of the waters adjacent to Aza Komi	3,281.9
2	Taketomi Island Shimobishi	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Taketomi adjacent area	221.0
3	Kuroshima Island Urabishi, Kyanguchi, Nakamoto Beach	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Kuroshima adjacent area	2403.2
4	Aragusukujima Island Maibishi	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Aragusuku adjacent area	179.7
5	Hirakubo	Okinawa Prefecture, Ishigaki-City, Aza Hirakubo adjacent area	176.9
6	Kabiraishizaki	Okinawa Prefecture, Ishigaki-City, Aza Kabira adjacent area	274.8
7	Yonehara	Okinawa Prefecture, Ishigaki-City, adjacent areas to Aza Kabira and Aza Fukai	129.7
8	Shiraho	Okinawa Prefecture, Ishigaki-City, Aza Shiraho adjacent area	311.6
9	Hirano	Okinawa Prefecture, Ishigaki-City, Aza Hirakubo adjacent area	938.0
10	Akaishi	Okinawa Prefecture, Ishigaki-City, Aza Ibaruma adjacent area	861.6
11	Tamatorizaki	Okinawa Prefecture, Ishigaki-City, Aza Ibaruma adjacent area	903.0
12	Yonehara Pukapi	Okinawa Prefecture, Ishigaki-City, adjacent areas to Aza Kabira and Aza Fukai	147.4
13	Uganzaki	Okinawa Prefecture, Ishigaki-City, Aza Sakieda adjacent area	291.9
14	Hatoma Island, Barasu Island, Unarizaki	Okinawa Prefecture, Yaeyama County, Taketomi Town, part of the waters adjacent area to Aza Uehara	1,419.1
15	Iriomote Island Shiira River mouth	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Komi adjacent area	369.0
16	Taketomi Island Minamiokisho	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Taketomi adjacent area	424.2
17	Iriomote Island Kanokawanakanose	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Sakiyama adjacent area	380.6
18	Iriomote Island Nakamazaki	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Haeminaka adjacent area	193.6

No.	Name	Zone	Area (ha)
19	Hateruma Island Nuubizakioki	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Hateruma adjacent area	1,721.7
20	Hateruma Island Hamazakioki	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Hateruma adjacent area	712.9
21	Iriomote Island Omija	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Uehara adjacent area	103.0
22	Iriomote Island Yutsun	Okinawa Prefecture, Yaeyama County, Taketomi Town, adjacent areas to Aza Uehara and Aza Takana	87.2
23	Sotopanari Island	Okinawa Prefecture, Yaeyama County, Taketomi Town, Aza Iriomote adjacent area	391.0

iii. Related matters

(i) Plant, for which collecting and damaging is restricted

Collecting or damaging the following plants is restricted.

(Table 11 : List of plants, for which collecting and damaging is restricted)

Family	Species
Psilotaceae	<i>Psilotum nudum</i>
Lycopodiaceae	<i>Lycopodium laxum</i> , <i>Lycopodium salvinoides</i>
Selaginellaceae	<i>Selaginella leptophylla</i> , <i>Selaginella moellendorffii</i> , <i>Selaginella tamariscina</i>
Ophioglossaceae	<i>Ophioglossum pendulum</i>
Schizaeaceae	<i>Schizaea dichotoma</i>
Hymenophyllaceae	<i>Cephalomanes atrovirens</i> , <i>Cephalomanes javanicum</i> var. <i>asplenioides</i> , <i>Crepidomanes bipunctatum</i> , <i>Crepidomanes kurzii</i> , <i>Crepidomanes humile</i> , <i>Crepidomanes humile</i> , <i>Crepidomanes minutum</i> , <i>Trichomanes motley</i> , <i>Trichomanes tahitense</i> , <i>Cephalomanes thysanostoma</i>
Pteridaceae	<i>Acrostichum aureum</i> , <i>Lindsaea merrillii</i> , <i>Lindsaea lucida</i> , <i>Microlepia speluncae</i> var. <i>pubescens</i> , <i>Pteris semipinnata</i> , <i>Sphenomeris gracilis</i>
Plagiogyriaceae	<i>Plagiogyria koidzumii</i>
Cyatheaceae	<i>Cyathea hancockii</i> , <i>Sphaeropteris lepifera</i> , <i>Cyathea podophylla</i> , <i>Cyathea lepifera</i>
Dryopteridaceae	<i>Bolbitis heteroclite</i> , <i>Thelypteris truncate</i> , <i>Ctenitis eatoni</i> var. <i>iriomotensis</i> , <i>Diplazium lobatum</i> , <i>Diplazium virescens</i> , <i>Polystichum formosanum</i> , <i>Polystichum hancockii</i> var. <i>yaeyamense</i> , <i>Thelypteris castanea</i>
Aspleniaceae	<i>Asplenium loriceum</i>
Polypodiaceae	<i>Crypsinus hastatus</i> var. <i>longisquamatus</i> , <i>Grammitis dorsipila</i> , <i>Lepisorus uchiyamae</i> , <i>Loxogramme salicifolia</i> , <i>Microsorium pteropus</i> , <i>Polypodium formosanum</i> , <i>Prosaptia kanashiroi</i>
Vittariaceae	<i>Vittaria ensiformis</i>
Marsileaceae	<i>Marsilea crenata</i>
Dipteridaceae	<i>Dipteris conjugata</i>
Urticaceae	<i>Elatostema platyphyllum</i>
Loranthaceae	<i>Taxillus nigrans</i>
Balanophoraceae	<i>alanophora fungosa</i> , <i>Balanophora tobiracola</i>
Aristolochiaceae	<i>Asarum gelasinum</i> , <i>Asarum yaeyamense</i> , <i>Asarum monodoriflorum</i>
Rafflesiaceae	<i>Mitrastemon yamamotoi</i>
Droseraceae	<i>Drosera spathulata</i>
Crassulaceae	<i>Sedum formosanum</i>
Saxifragaceae	<i>Deutzia yaeyamensis</i>
Rosaceae	<i>Osteomeles anthyllidifolia</i>
Leguminosae	<i>Dalbergia candenatensis</i> , <i>Entada phaseoloides</i> , <i>Sophora tomentosa</i>
Violaceae	<i>Viola tashiroi</i>
Begoniaceae	<i>Begonia fenicis</i> , <i>Begonia formosana</i>
Lythraceae	<i>Pemphis acidula</i>
Melastomataceae	<i>Bredia yaeyamensis</i>
Diapensiaceae	<i>Shortia rotundifolia</i>
Pyrolaceae	<i>Monotropastrum humile</i>
Ericaceae	<i>Rhododendron amanoi</i> , <i>Rhododendron latoucheae</i> (including <i>Rhododendron amamiense</i>), <i>Rhododendron simsii</i>
Primulaceae	<i>Androsace umbellata</i> , <i>Lysimachia decurrens</i>
Plumbaginaceae	<i>Limonium sinense</i> , <i>Limonium wrightii</i>
Gentianaceae	<i>Centaurium japonicum</i> , <i>Nymphoides coreana</i> , <i>Swertia makinoana</i>
Apocynaceae	<i>Ecdysanthera utilis</i>
Rubiaceae	<i>Argostemma solaniflorum</i> , <i>Ophiorrhiza kuroiwai</i>
Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>
Boraginaceae	<i>Argusia argentea</i>

Family	Species
Verbenaceae	<i>Callicarpa oshimensis</i> var. <i>iriomotensis</i> , <i>Vitex quinata</i> , <i>Vitex trifolia</i> var. <i>bicolor</i>
Labiatae	<i>Ajuga pygmaea</i>
Acanthaceae	<i>Strobilanthes glandulifer</i>
Gesneriaceae	<i>Cyrtandra yaeyamae</i> , <i>Titanotrichum oldhami</i>
Lentibulariaceae	<i>Utricularia bifida</i> , <i>Utricularia exoleta</i>
Myoporaceae	<i>Myoporum bontioides</i>
Compositae	<i>Aster taiwanensis</i> var. <i>lucens</i> , <i>Crossostephium chinense</i> , <i>Solenogyne mikadoi</i>
Liliaceae	<i>Asparagus cochinchinensis</i> , <i>Heloniopsis kawanoi</i> , <i>Lilium longiflorum</i> , <i>Tricyrtis formosana</i>
Amaryllidaceae	<i>Curculigo orchioides</i>
Burmanniaceae	<i>Burmannia cryptopetala</i> , <i>Burmannia itoana</i>
Gramineae	<i>Arundo formosana</i> , <i>Chikusichloa brachyanthera</i>
Zingiberaceae	<i>Alpinia flabellata</i>
Orchidaceae	<i>Anoectochilus formosanus</i> , <i>Anoectochilus koshunensis</i> , <i>Aphyllorchis Montana</i> , <i>Arundina graminifolia</i> , <i>Bulbophyllum drymoglossum</i> , <i>Bulbophyllum affine</i> , <i>Bulbophyllum macrae</i> , <i>Calanthe densiflora</i> , <i>Calanthe lyroglossa</i> , <i>Calanthe triplicate</i> , <i>Calanthe masuca</i> , <i>Cephalantheropsis gracilis</i> , <i>Corymborkis veratrifolia</i> , <i>Cymbidium lancifolium</i> , <i>Didymoplexis minor</i> , <i>Didymoplexis pallens</i> , <i>Disperis philippinensis</i> , <i>Epipogium roseum</i> , <i>Eria corneri</i> , <i>Eria ovata</i> , <i>Eria ovata</i> var. <i>retroflexa</i> , <i>Galeola altissima</i> , <i>Gastrochilus japonicus</i> , <i>Gastrodia nipponica</i> , <i>Gastrodia javanica</i> , <i>Geodorum densiflorum</i> , <i>Goodyera foliosa</i> var. <i>commelinoides</i> , <i>Goodyera hachijoensis</i> var. <i>matsumurana</i> , <i>Goodyera viridiflora</i> var. <i>ogatae</i> , <i>Goodyera procera</i> , <i>Goodyera grandis</i> , <i>Lecanorchis triloba</i> , <i>Lecanorchis flavicans</i> , <i>Liparis bituberculata</i> var. <i>formosana</i> , <i>Lecanorchis nigricans</i> , <i>Liparis bootanensis</i> , <i>Listera japonica</i> , <i>Macodes petola</i> , <i>Malaxis bancanoides</i> , <i>Malaxis latifolia</i> , <i>Microtis unifolia</i> , <i>Oberonia japonica</i> , <i>Oberonia anthropophora</i> var. <i>arisanensis</i> , <i>Anoectochilus tashiroi</i> , <i>Phaius mishmensis</i> , <i>Phaius tancarvilleae</i> , <i>Platanthera sonoharae</i> , <i>Platanthera stenoglossa</i> , <i>Spathoglottis plicata</i> , <i>Trichoglottis luchuensis</i> , <i>Stereosandra javanica</i> , <i>Thrixspermum subulatum</i> , <i>Tropidia calcarata</i> , <i>Zeuxine agyokuana</i> , <i>Zeuxine gracilis</i> var. <i>sakaguchii</i> , <i>Zeuxine strateumatica</i> , <i>Zeuxine temiofolia</i>

(ii) Animal, for which capturing etc. is restricted

Capturing, killing, wounding, or collecting or damaging of the eggs of the following animals is restricted.

(Table 12 : List of animals, for which capturing etc. is restricted)

Family	Species
Cheloniidae	Loggerhead turtle (<i>Caretta caretta</i>), green turtle, hawksbill turtle (<i>Eretmochelys imbricata</i>)

(iii) Vessel Exclusion Zone

Use of vehicles, horses, powered vessels, or the landing of airplanes is restricted in the following areas.

(Table 13 : List of Vessel Exclusion Zones)

Name	Zone Class	Area overview	Area(ha)
Urauchi River Basin	Class I and II Special Zone	The start of the Urauchi River is at central Iriomote Island and the river ends at the north-west of the island. The section up to 13,100m from the mouth of the river is designated as class B river. Mangrove forests dominantly comprising oriental mangrove, <i>Asiatic mangrove</i> , and <i>Kandelia obovata</i> develop along the lower and middle reaches of the river. Subtropical evergreen broadleaved forests flourish along the upper reaches, almost covering the river. Complicated shapes of respiratory roots of mangrove plants provide habitat for many fish and shellfish. The forest along the river is also an important habitat for valuable wildlife; such as birds that hunt small animals living in the forests, including crested serpent eagles; Iriomote cats, and yellow-margined box turtles. It is highly necessary to restrict the entry of powered vessels for leisure to maintain the fine scenic beauty of the zone.	53
Nakama River Basin	Class I Special Zone	The start of the Nakama River is at Mt. Goza in central Iriomote Island and the river runs eastwards to end in the south-east part of the Island. The mainstream up to 7,450 m from the Nakama Bridge at the mouth of the river is designated as class B river. From the mouth to the middle reaches of the river, the largest mangrove forest in Japan comprising of oriental mangrove and <i>Asiatic mangrove</i> develops along the riverside. Subtropical evergreen broadleaved forests flourish along the upper reaches, almost covering the river. Complicated shapes of respiratory roots of mangrove plants provide habitat for many fish and shellfish. The forest along the river is also an important habitat for valuable wildlife; such as birds that hunt small animals living in the forests including crested serpent eagles; Iriomote cats, and yellow-margined box turtles. It is highly necessary to restrict the entry of powered vessels for leisure to maintain the fine scenic beauty of the zone.	80

(v) Ordinary Zone

The following zones are classified as Ordinary Zones.

(Table 15: List of Ordinary Zones)

Prefecture	Zone	Area (ha)
Okinawa	Ishigaki City: Parts of Aza Ibaruma, Aza Ohama, Aza Kabira, Aza Sakieda, Aza Maezato and Aza Yashima	120
	Within Taketomi Village, Yaeyama County: National Forest Okinawa District Forest Office Parts of Compartments 137, 138, 141, 161, 172, 187, 193, 197, 198 and 208 Taketomi Village, Yaeyama County: All of Aza Aragusuku and parts of Aza Iriomote, Aza Uehara, Aza Kuroshima, Aza Kohama, Aza Komi, Aza Takana, Aza Taketomi, Aza Haimi, Aza Haiminaka, Aza Hateruma and Aza Hatoma	6,538
Total land area		6,658
Parts of sea surface adjacent to land areas of the park		65,574
Total		72,232

iv. Breakdown of area

The area breakdown based on zone, ownership, and municipalities is as listed below.

(Table 16: Summary of area by zone category and by ownership status)

Zone category		Special Zone							
Zone class		Special Protection Zone				Class I			
Ownership status		National	Public	Private	Other	National	Public	Private	Other
Okinawa Prefecture	Area by ownership status	4,624	557	0	0	13,644	652	242	872
	Area by class (rate)					15,410 (37.9)			
	Area by category (rate)					5,181 (12.7)			

Special Zone							
Class II				Class III			
National	Public	Private	Other	National	Public	Private	Other
4,146	1,453	589	173	2,456	4,150	337	100
				6,361 (15.6)			
				7,043 (17.3)			
				28,814 (70.9)			
				33,995 (83.6)			

Ordinary Zone (On land)				Total (On land)			
National	Public	Private	Other	National	Public	Private	Other
513	1,289	4,384	472	25,383	8,101	5,552	1,617
				6,658 (16.4)			
				40,653 (100.0)			

Ordinary Zone (Marine area)	Marine Special Zone	Total (Marine area)
65,574	23 sites 15,923	81,497

3. Project Plan

(1) Facility plan

i. Protective facilities plan

(Table 18: List of protective facilities plan)

No.	Type	Location	Development policy
1	Nature restoration facility	Okinawa Prefecture, waters adjacent to Ishigaki-City and Taketomi Town of Yaeyama County, and the peripheries of these areas (Sekisei Lagoon)	For the conservation and restoration of the coral reef ecosystem of Sekisei Lagoon, nature restoration through actions such as rehabilitation projects for coral reef communities and necessary monitoring surveys will be implemented based on the “Overall Plan for Sekisei Lagoon Nature Restoration Project” and in coordination with terrestrial measures.
2	Nature restoration facility	Okinawa Prefecture, waters adjacent to Ishigaki-City and its periphery (Ishigaki Island)	For the conservation and restoration of the coral reef ecosystem of the sea surrounding Ishigaki Island, nature restoration through actions such as rehabilitation projects for coral reef communities and necessary monitoring surveys will be implemented based on the “Overall Plan for Sekisei Lagoon Nature Restoration Project” and in coordination with terrestrial measures.
3	Nature restoration facility	Okinawa Prefecture, waters adjacent to Taketomi Town of Yaeyama County, and its periphery (Iriomote Island)	For the conservation and restoration of the coral reef ecosystem at the sea surrounding Iriomote Island, nature restoration through actions such as rehabilitation projects for coral reef communities and necessary monitoring surveys will be implemented based on the “Overall Plan for Sekisei Lagoon Nature Restoration Project” and in coordination with terrestrial measures.
4	Animal breeding facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (Komi)	Enhance the function of Iriomote Wildlife Conservation Center, which is currently maintained as a exhibition facility, by positioning the Center as a wildlife rehabilitation facility for rare wild species in the park such as Iriomote cats and crested serpent eagles.

ii. Facility plan for use

(i) Individual facility

The individual facilities are described as follows:

(Table19: List of individual facilities)

No.	Type	Location	Development policy
1	Exhibition facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (the mouth of the Urauchi River)	Improvement will include an exhibition facility as a center for use in western Iriomote Island
2	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Hinaitaki Falls)	Improvement will include a recreation site to promote the pleasant and safe use of the area along the Hinai River
3	Exhibition facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (Komi)	Improvement will include positioning the existing Iriomote Wildlife Conservation Center as a museum in eastern Iriomote Island
5	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Nishifunatsuki)	Improvement will include as an observatory to explore mangrove forests along the Nakama River
5	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Otomi Entrance)	Improvement will include a recreation site to observe subtropical forests
6	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Kohama Island)	Improvement will include a recreation site for a nature trip in Kohama Island
7	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Taketomi Island)	Improvement will include a recreation site for a nature trip in Taketomi Island
8	Exhibition facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (Taketomi Island)	Improvement will include a visitor center focusing on introducing the natural environment and the culture of Taketomi Island and the surrounding area
9	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Kuroshima Island)	Improvement will include a recreation site for a nature trip on Nakamoto Beach and other sites on Kuroshima Island
10	Exhibition facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (Kuroshima Island)	Improvement will include a visitor center focusing on introducing the natural environment and the culture of Kuroshima Island and the surrounding area
11	Exhibition facility	Okinawa Prefecture, Ishigaki-City (Ishigaki Island)	Improvement will include an exhibition facility that offers general information of the national park as well as educational opportunities to learn about the coral reef of Sekisei Lagoon and the surroundings of Iriomote Island and Ishigaki Island
12	Recreation site	Okinawa Prefecture, Ishigaki-City (Akaishi)	Improvement will include an observatory to have a view from the eastern Hirakubo Peninsula
13	Recreation site	Okinawa Prefecture, Ishigaki-City (Tamatorizaki Peninsula)	Improvement will include an observatory to have a view of the Hirakubo Peninsula and the coast of the eastern part of Ishigaki Island that continues up to Shiraho
14	Recreation	Okinawa Prefecture, Ishigaki-	Improvement will include a recreation site

No.	Type	Location	Development policy
	site	City (Sukuji)	for a nature trip on Sukuji Beach
15	Recreation site	Okinawa Prefecture, Ishigaki-City (Kabira)	Improvement will include a recreation site where visitors can observe Kabira Bay and explore the nature of the surrounding area.
16	Campsite	Okinawa Prefecture, Ishigaki-City (Yonehara)	Improvement will include a campsite for a nature trip utilizing the natural environment of Yonehara Beach.
17	Recreation site	Okinawa Prefecture, Ishigaki-City (Yonehara)	Improvement will include a recreation site for a nature trip on Yonehara Beach and around Yaeyamai palm communities.
18	Recreation site	Okinawa Prefecture, Ishigaki-City (Uganzaki)	Improvement will include an observatory to offer a view from Uganzaki.
19	Recreation site	Okinawa Prefecture, Ishigaki-City (Nagura Amparu)	Improvement will include a recreation site to explore nature including the tidal flats of Nagura Amparu and mangrove forests.
20	Recreation site	Okinawa Prefecture, Ishigaki-City (Shiraho)	Improvement will include a recreation site for a nature trip on Shiraho Beach.
21	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Hatoma)	Improvement will include a recreation site for a nature trip at Hatoma Barasu and its surrounding area.
22	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Nishihama Beach)	Improvement will include a recreation site to explore the nature of the natural coast from Nishihama Beach to Pe Beach.
23	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Takanazaki)	Improvement will include a recreation site for a nature trip at Takanazaki and the surrounding area.
24	Recreation site	Okinawa Prefecture, Ishigaki-City (Hirakubo)	Improvement will include a recreation site for a nature trip around Common Putat plant colonies along the Hirakubo River.
25	Recreation site	Okinawa Prefecture, Ishigaki-City (Kuura)	Improvement will include a recreation site for a nature trip around powder-puff tree communities along the Kira River.
26	Recreation site	Okinawa Prefecture, Ishigaki-City (Fukido River)	Improvement will include a recreation site for a nature trip around mangrove forests along the Fukido River.
27	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Sumiyoshi)	Improvement will include an observatory to view the marine landscape from Unarizaki.
28	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Utara)	Improvement will include a recreation site for a nature trip around the ruins of Utara coal mine.
29	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Urauchi)	Improvement will include a recreation site for a nature trip around the Urauchi River.
30	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Omija)	Improvement will include a recreation site for a nature trip around the mouth of the Omija River.
31	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Yutsun)	Improvement will include a recreation site for a nature trip around the mouth of the Yutsun River.
32	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town	Improvement will include a recreation site for a nature trip around the ruins of

No.	Type	Location	Development policy
		(Uchibanari Island)	Uchibanari Island coal mine.
33	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Funauki)	Improvement will include a recreation site for a nature trip around Ida-no-hama Beach.
34	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Komi)	Improvement will include a recreation site for a nature trip around <i>Heritiera littoralis</i> communities at the mouth of the Maira River.
35	Campsite	Okinawa Prefecture, Yaeyama County, Taketomi Town (Kanokawa)	Improvement will include a campsite for a nature trip utilizing the natural environment of Kanokawa.
36	Campsite	Okinawa Prefecture, Yaeyama County, Taketomi Town (Haemida)	Improvement will include a campsite for a nature trip utilizing the natural environment of Haemida.
37	Recreation site	Okinawa Prefecture, Yaeyama County, Taketomi Town (Haemida)	Improvement will include a recreation site for a nature trip around Haemida-no-hama Beach.

(ii) Roads

a. Roads allowing vehicle access

The roads allowing vehicle access are described as follows:

(Table 20 : List of roads (vehicle access))

No.	Name	Section	Major site on the course	Development policy
1	Nosokodake Route	From: Okinawa Prefecture, Ishigaki-City (Nosoko, boundary with the national park) To: Okinawa Prefecture, Ishigaki-City (Inoda, boundary with the national park)	Mt. Nosokodake	Improve the road from Nosoko to Inoda via the foot of Mt. Nosokodake.
2	Yarabu Peninsula Route	From: Okinawa Prefecture, Ishigaki-City (Sakie, boundary with the national park) To: Okinawa Prefecture, Ishigaki-City (Sakie, boundary with the national park)	Uganzaki	Improve the road to explore the beaches around the Yarabu Peninsula.
3	Hirakubo, Ibaruma Routes	From: Okinawa Prefecture, Ishigaki-City (Hirakubo, boundary with the national park) To: Okinawa Prefecture, Ishigaki-City (Akaishi, boundary with the national park) From: Okinawa Prefecture, Ishigaki-City (Akaishi, boundary with the national park) To: Okinawa Prefecture, Ishigaki-City (Ibaruma, boundary with the national park)	Hirakubo Peninsula	Improve the road to explore pasture and marine landscapes of the Hirakubo Peninsula.
4	Nagura Amparu Route	From: Okinawa Prefecture, Ishigaki-City (Nagura, boundary with the national park) To: Okinawa Prefecture, Ishigaki-City (Nagura, boundary with the national park)	Nagura Amparu	Improve the road to explore the tidal flats and coastlines of Nagura Amparu.
5	Shirahama Haemi Route	From: Okinawa Prefecture, Yaeyama County, Taketomi Town (Shirahama) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (Haemi)	Uehara	It is the major road connecting Shirahama in western Iriomote Island and Haemi in eastern Iriomote Island. Improve the road that goes around Iriomote Island, taking into account measures to prevent accidents with wild animals.
6	Urauchi Inaba Route	From: Okinawa Prefecture, Yaeyama County, Taketomi Town (the mouth of the Urauchi River) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (the middle reaches of the Urauchi River)	Urauchi	Improve the road to explore the section starting from the mouth of the Urauchi River up to the ruins of Inaba village.

b. Walkways

The walkways are described as follows:

(Table 21 : List of roads (walkways))

No.	Name	Section	Major site on the course	Development policy
1	Urauchi River-Funaura Route	From: Okinawa Prefecture, Yaeyama County, Taketomi Town (Iriomote Island Urauchi River Kampira-taki Falls, a fork in the walkway) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (Iriomote Island Funaura)	Mt. Tedo Hinai-taki Falls	Improve the walkways to explore nature from Kampira-taki Falls to the Funaura Bay via Mt. Tedo and Hinai-taki Falls
2	Cross-Iriomote Island Route	From: Okinawa Prefecture, Yaeyama County, Taketomi Town (the middle reaches of the Urauchi River, Iriomote Island) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (Iriomote Island Otomi, a junction with a motoring road)	Kanpiree-taki Falls	Improve the walkways to explore nature up to Kanpiree-taki Falls as well as a trail across Iriomote Island
3	Mt. Nosokodake Route	From: Okinawa Prefecture, Ishigaki-City (Nosoko, boundary with the national park) To: Okinawa Prefecture, Ishigaki-City (Mt. Nosokodake)		Improve the trail to climb Mt. Nosokodake
4	Mt. Omotodake Route	From: Okinawa Prefecture, Ishigaki-City (Hirae, boundary with the national park) To: Okinawa Prefecture Ishigaki City (Mt. Omotodake)		Improve the trail to climb Mt. Omotodake.
5	Nishida River Route	From: Okinawa Prefecture, Yaeyama County, Taketomi Town (the lower reach of the Nishida River) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (the upper reach of the Nishida River)	Sangara-no-taki Falls	Improve the trail up to Sangara-no-taki Falls.
6	Yutsun Taki Falls Route	From: Okinawa Prefecture, Yaeyama County, Taketomi Town (Yutsun Bridge) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (Yutsun-no-sandantaki Falls)	Yutsun-no-sandantaki Falls	Improve the trail up to Yutsun-no-sandantaki Falls
7	Nakara River Route	From: Okinawa Prefecture, Yaeyama County, Taketomi Town (the middle reaches of the Nakara River) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (the upper reaches of the Nakara River)	Nara-no-taki Falls	Improve the trail up to Nara-no-taki Falls

iii. Transportation facility

The transportation facilities are described as follows:

(Table 22 : List of transportation facilities)

No.	Name	Type	Section	Development policy
1	Urauchi River Route	Shipping facility	From : Okinawa Prefecture, Yaeyama County, Taketomi Town (Urauchi River) To: Okinawa Prefecture, Yaeyama County, Taketomi Town (Urauchi River)	Improvement will include a shipping facility for nature trips on the Urauchi River.
2	The mouth of Urauchi River	Mooring facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (the mouth of the Urauchi River)	Improvement will include a mooring facility at the mouth of the Urauchi River.
3	Gunkan-iwa	Mooring facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (Gunkan-iwa)	Improvement will include a mooring facility at Gunkan-iwa of the Urauchi River.
4	Nakama River Route	Shipping facility	From : Okinawa Prefecture, Yaeyama County, Taketomi Town (Nakama River) To : Okinawa Prefecture, Yaeyama County, Taketomi Town (Nakama River)	Improvement will include a shipping facility for a nature trip on the Nakama River.
5	The middle reaches of the Nakama River	Mooring facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (the middle reach of Nakama River)	Improvement will include a mooring facility to access Nishifunatsuki recreation site (an observatory) from the Nakama River.
6	Otomi	Mooring facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (Otomi)	Improvement will include a mooring facility at the mouth of the Nakama River.
7	Kabira-ishizaki	Mooring facility	Okinawa Prefecture, waters adjacent to the residential area of Ishigaki City (Kabira-ishizaki)	Improvement will include a mooring facility for vessels to explore the marine landscape at the area surrounding Kabira-ishizaki.
8	Yonehara-pukapi	Mooring facility	Okinawa Prefecture, waters adjacent to the residential area of Ishigaki City (Yonehara-pukapi)	Improvement will include a mooring facility for vessels to explore the marine landscape at Yonehara-pukapi.
9	Uganzaki	Mooring facility	Okinawa Prefecture, waters adjacent to the residential area of Ishigaki City (Uganzaki)	Improvement will include a mooring facility for vessels to explore the marine landscape at Uganzaki
10	Shiraho	Mooring facility	Okinawa Prefecture, waters adjacent to the residential area of Ishigaki City Chisaki (Shiraho)	Improvement will include a mooring facility for vessels to explore the marine landscape at Shiraho

No.	Name	Type	Section	Development policy
11	Hatoma Island Barasu	Mooring facility	Okinawa Prefecture, Yaeyama County, waters adjacent to the residential area of Taketomi Town (Hatoma Island Barasu)	Improvement will include a mooring facility for vessels to explore the marine landscape of the coral reef from Hatoma Island Barasu to Unarizaki.
12	Sotopanari Island	Mooring facility	Okinawa Prefecture, Yaeyama County, waters adjacent to the residential area of Taketomi Town (Sotopanari Island)	Improvement will include a mooring facility for vessels to explore the marine landscape at Sotopanari Island.
13	The middle reach of the Nakara River	Mooring facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (the middle reaches of the Nakara River)	Improvement will include a mooring facility for vessels to explore the nature surrounding the Nakara River.
14	Iriomote Island Kanokawa Nakanose	Mooring facility	Okinawa Prefecture, Yaeyama County, waters adjacent to the residential area of Taketomi Town (Iriomote Island Kanokawa Nakase)	Improvement will include a mooring facility for vessels to explore the nature surrounding Kanokawa Bay.
15	Sekisei Lagoon, the North side	Mooring facility	Okinawa Prefecture, Yaeyama County, waters adjacent to the residential area of Taketomi Town (Sekisei Lagoon, North side)	Improvement will include a mooring facility for vessels to explore the marine landscape of the entire coral reef that stretches from the north side of Taketomi Island to Kohama Island.
16	Taketomi Island Shimobishi	Mooring facility	Okinawa Prefecture, Yaeyama County, Taketomi Town, waters adjacent to the residential area of Aza Taketomi (Taketomi Island Shimobishi)	Improvement will include a mooring facility for vessels to explore the marine landscape at Shimobishi in Taketomi Island
17	Taketomi Island Minamiokisho Reef	Mooring facility	Okinawa Prefecture, Yaeyama County, waters adjacent to the residential area of Taketomi Town (Taketomi Island Minamiokisho Reef)	Improvement will include a mooring facility for vessels to explore the marine landscape at Minamiokisho Reef in Taketomi Island.
18	Aragusujima Island Maibishi	Mooring facility	Okinawa Prefecture, Yaeyama County, waters adjacent to the residential area of Taketomi Town (Aragusujima Island Maibishi)	Improvement will include a mooring facility for vessels to explore the marine landscape at Maibishi in Aragusujima Island.
19	Kuroshima Nakamoto Beach	Mooring facility	Okinawa Prefecture, Yaeyama County, Taketomi Town (Kuroshima Nakamoto Beach)	Improvement will include a mooring facility for vessels to explore the marine landscape in Kuroshima Island.

4-4 Regional Administration and Management Plan (The Amami-oshima Forest Planning Area): Excerpts

1. Basic Matters Related to the Administration and Management of National Forests

(1) Basic Policy on Administration and Management of National Forests

This Plan has the Amami-oshima Forest Planning Area as its jurisdiction, covering 8,130 hectares of national forests, which include 209 hectares of those retired from forestry business, in the Amami Islands, a group of remote islands (Amami-oshima, Kikai-jima, Kakeroma-jima, Uke-shima, Yoro-shima, Tokuno-shima, Okinoerabu-jima, and Yoron-jima), although none of them has any national forest, other than Amami-oshima and Tokuno-shima.

(Omitted)

(A) Amami-oshima Area (Forest compartment No. 201 - No. 230)

The Area stretches from the middle through southern parts of the island, zero to 700 meters above sea level, lying in subtropical maritime climate, which keeps the district warm and rainy throughout the year, leaving there red-yellow soil that is poor in humus. Covered with thin topsoil and hit by frequent typhoons, the island is unsuitable for growing cedars and cypresses, and as a result, planted forests occupy a smaller part of the woods there, 20 percent. In physiognomy, the major part of the area is composed of natural broad-leaved trees, such as sudajii chinquapin (*Castanopsis sieboldii*), isunoki witch hazel (*Distylium racemosum*), and iju camellia (*Schima liukuensis Nakai*), with some area of mixed forest, mainly ryukyumatsu pine (*Pinus luchuensis*). As a large part of the area is expected to serve as water source forest for people living along lower reaches of rivers running there and perform the function of water conservation, this Plan classifies it as "Water and Soil Conservation Forest" for its administration and management.

Parts of the Kamiya National Forest and a large part of the Kamiokubo National Forest located around the top of Mt. Yuwan-dake are designated as national monuments, and parts of the Kinsakubaru National Forest are classified as Reserved Forest for Health and Recreation.

As they are expected to perform the functions for preservation of natural environments, and health and culture, this Plan classifies them as "Forest for Coexistence of Human and Nature" for their administration and management.

(B) Tokuno-shima Area (Forest compartment No. 231 - No. 261)

The Area, lying 100 to 650 meters above sea level, stretches over Tokunoshima Town, Amagi Town, and Isen Town, with many foldings found in most parts, covered with thin topsoil poor in humus.

In physiognomy, the area is covered with natural forests, mainly Ryukyumatsu pine (*Pinus luchuensis*), Okinawa-urajirogashi oak (*Quercus miyagii*), and sudajii chinquapin (*Castanopsis sieboldii*).

As Mt. Hage-dake, Mt. Inokawa-dake, and areas surrounding them, designated as a Special Protection Zone in Amami Islands Quasi-National Park, are expected to perform the functions for preservation of natural environments, and health and culture, this Plan classifies them as "Forest for Coexistence of Human and Nature" for their administration and management.

As the Akahata, Isen, and Kanpuku National Forests, serving as water sources for local settlements, are expected to perform the function of water conservation, this Plan classifies them as "Water and Soil Conservation Forest" for their administration and management.

(2) Matters Related to the Administration and Management Corresponding to Functional Types

Administration and management of forests must be performed according to their functional types based on the "Policies on Forest Administration and Management" (separate volume), with attention also given to the matters stated below, in a manner relevant to site, forestry, and other conditions of individual forest stands.

When any timber is produced as a result of operations necessary to maintain and improve forests in physiognomy developed to help them perform expected functions, effort must be exerted to make the most of it. Final cutting must also be performed in a systematic manner to satisfy needs of local communities, such as evenness in the age structure of trees and efficient use of biomass, for supplying timber.

Matters related to Water and Soil Conservation Forests

Water and Soil Conservation Forests are classified into two types, Land Conservation and Water Conservation Types, to deal with them.

(A) Land Conservation Type

Forests are classified into the Land Conservation Type when they are primarily expected to perform the functions of controlling erosion and collapse of land, fall of rock, and/or other forest disasters that may cause damage to human life and/or facilities, and preserving and developing other conditions for safe and comfortable life; they must be administered and managed in an appropriate manner, with attention given to matters stated below, based on, among others, relationship in location between a forest and its conservation target, their site conditions, such as geological and geographical features, and the current state of the forest.

- (a) Forest stands, when expected to control erosion and collapse of land, fall of rock, and/or other forest disasters that may cause damage to human life and/or facilities, must be grown to have deep and wide root systems, and maintain layers of fallen leaves, with moderate sunlight

pouring in, understory vegetation growing well, and facilities constructed for forest conservation and other purposes when necessary to prevent erosion and/or collapse of land, as their target for development.

- (b) Stands expected to control wind, drifting sand, and other weather harms that may cause deterioration of environments must be grown to consist of types of trees with greater shielding capability, such as those of larger height, and/or higher density of lower branches, to be more resistant to various types of damage, as their target for development.

(B) Water Conservation Type

Forests are classified into the Water Conservation Type when they are primarily expected to perform the functions of supplying plenty of quality water people need for their lives; for better performing the function of water conservation, which includes drought mitigation and water quality preservation, forests there must be grown to maintain forest soil with greater capabilities of water permeability and storage, and root systems and understory vegetation developed sufficiently to resist various types of damage, as their target for development.

Area of Water and Soil Conservation Forests (in hectares)

Type	Land Conservation	Water Conservation	Total
Current Plan	2,962	3,925	6,887
Former Plan	2,963	3,927	6,890

(ii) Matters related to Forests for Coexistence of Human and Nature

Forests for Coexistence of Human and Nature are classified into two types, Nature Conservation and Forest Space Usage Types, to deal with them.

(A) Nature Conservation Type

Forests are classified into the Nature Conservation Type when they are primarily expected to perform the functions of conserving natural environments, such as maintenance of natural environments composed of primeval forest ecosystems, protection of animals and plants, and preservation of genetic resources; in principle, they must be allowed to go through natural transition while administered and managed with care paid to preservation of biodiversity, among others.

Among forests classified into the Nature Conservation Type, those composed of primeval forest ecosystems, those needed by precious wild animals and plants for their habitation, and those needed to preserve genetic resources, among others, must be selected as protected forest.

(B) Forest Space Usage Type

Forests are classified into the Forest Space Usage Type when they are primarily expected to perform the functions of providing places for sport or recreation, education and culture, relaxation, or other activities, and excellent landscape, and maintaining scenic beauty in or around urban areas; they must be administered and managed in a manner relevant to their form of use for health and cultural purposes.

Area of Forests for Coexistence of Human and Nature

(in hectares)

Type	Nature Conservation		Forest Space Utilization		Total
		Protected Forest		Recreation Forest	
Current Plan	951	265	—	—	951
Former Plan	951	265	—	—	951

(Omitted)

2. Matters related to maintenance and preservation of national forests

(1) Matters related to patrol

- (i) Forest conservation patrol for forest fire prevention and other purposes

Public relations and awareness raising activities for preventing fire forests, together with enhanced forest conservation patrols, must be performed to take full-scale measures for preventing fire forests.

Effort to prevent illegal dumping of waste must also be exerted through enhanced cooperation between local municipalities and other relevant organizations, Forest Conservation Patrollers, and volunteer organizations.

(Omitted)

- (iii) Protection and administration of rare wild species

As the main island, Amami-oshima, is inhabited by several Nationally Endangered Species of Wild Fauna or Flora, such as Owston oakagera woodpecker (*Dendrocopos leucotos owstoni*), ootora-tsugumi thrush (*Zoothera dauma amami*), Amami-yamashigi thrush (*Scolopax mira*), and Amami-no-kurousagi hare (*Pentalagus furnessi*), forests there must be patrolled to maintain and preserve environments of their habitats.

(Omitted)

(3) Matters related to forests that require special protection

This Planning Area is covered with many natural forests offering precious natural environments, and given that they have important roles to play in efforts to preserve biodiversity, they must be

designated as protected forest for appropriate protection and conservation, with patrol and monitoring conducted for them for facilitating appropriate preservation and administration.

(i) Protected forest (in hectares)

Type	No. of sites	Area (hectares)
Forest for Preserving Genetic Resources of Forest Trees	3	265
Total	3	265

(Omitted)

(4) Other necessary matters

In this Planning Area, as seen in the fact that most of the national forests have been designated as Reserved Forest for Water Conservation, many of the woods are critical for water conservation, and therefore, the reserved forests, as well as others, must be administered in an appropriate manner.

Efforts must also be made to rehabilitate and restore forests damaged by natural disasters or other causes, as well as grow forests where people can live side by side with wild birds and animals, and recover devastated vegetation in collaboration and cooperation with volunteer and other organizations, as part of initiatives carried out to preserve forest ecosystems.

The Area is also susceptible to typhoons and other threats of nature, which requires any project to be carried out there with full attention paid especially to conservation of water sources, prevention of forest disasters, and maintenance of landscape.

3. Matters related to the supply of forest products

(Omitted)

(2) Other necessary matters

Forest products must be supplied with great effort to achieve effectiveness and efficiency, especially to sell more of the trees cut down for thinning as timber.

Initiatives for encouraging use of more wood must also be carried out; for instance, more timber from thinning should be used for construction of wooden buildings for government agencies or other purposes, engineering works for forests, and other public works.

4. Matters concerning utilization of national forests

(1) Policy for promoting utilization of national forests

Effective and efficient use of national forests must be actively promoted in full coordination with administration and management of them, with social and economic conditions of local communities and opinions of people there taken into account, in a manner to help promote local industries and improve welfare of the people.

Given that, adjacent to national forests included in this Plan, farmland is being developed, with farm roads and other facilities under construction for it, active cooperation must be offered when they can be used in an effective manner for such local community development initiatives, with care paid to protection of natural environments and maintenance of natural landscape.

(Omitted)

5. Matters related to the forest maintenance through public participation

(1) Matters related to national participation forests

"Fureai-no-Mori" (Forest for Contact), projects to be carried out in cooperation with volunteer and other organizations under an agreement concluded with them, and other initiatives must be implemented to promote voluntary participation of people in maintenance of forests and other activities.

(Omitted)

(3) Other necessary matters

"Yuyu-no-Mori" (Forest for Play), projects to be carried out to offer regular opportunities of experience under an agreement concluded for that purpose, and other initiatives must be effectively used to make available national forests, rich in natural environment, as a place for a variety of activities for experience, and promote forest environment education.

Active efforts must also be exert to provide teachers and volunteer leaders with learning and awareness-raising opportunities and technical guidance, and offer programs and teaching materials for forest environment education.

The District Forest Offices and other relevant organizations must strive to perform the functions as a base for providing people with information on participation in maintenance and preservation of forests, counseling them, and helping them with participation.

(Omitted)

4-5 Regional Administration and Management Plan (The Northern Okinawa Forest Planning Area): Excerpts

1. Basic Matters Related to the Administration and Management of National Forests

(1) Basic Policy on Administration of National Forests

This Plan has the Northern Okinawa Forest Planning Area as its jurisdiction, covering 11,964 hectares of national forests, including six hectares of those retired from forestry business, and 4,398 hectares which are leased to Okinawa Prefecture for the purpose of establishing a basic property for the Prefecture and setting an example to the forestry industry there under Article 64, paragraph (1) of the Cabinet Ordinance on Special Measures for Application of the Laws and Regulations Related to the Ministry of Agriculture, Forestry and Fisheries in Line with Reversion of Okinawa, etc. (Cabinet Ordinance No.158 of 1972) ("Cabinet Ordinance"). The land leased under the Cabinet Ordinance to Okinawa Prefecture is administered and managed by the prefectural government as prefectural forest under its Prefectural Forest Management Plan.

Most of the remaining area, 7,566 hectares, except for the leased land under the Cabinet Ordinance, is used for the United States' Northern Training Area of Okinawa, based on the permission granted to the Okinawa Defense Bureau.

The Planning Area, lying along the mountainous backbones, composed of Mt. Nishime-dake (420 meters), Mt. Ibu-dake (354 meters), Mt. Terukubi-yama (395 meters), Mt. Iyu-dake (446 meters), and other mountains running in the middle of the northern part of the main Okinawa Island from Northeast to Southwest on one side, and faced with the Pacific Ocean on the other, forms a long, huge stretch of land.

(Omitted)

The Area is inhabited by precious wild animals, such as Noguchi-gera woodpecker (*Sapheopipo noguchii*), Yanbaru-kuina water rail (*Gallirallus okinawae*), and Yanbaru-tenaga-kogane gold beetle (*Cheirotonus jambar*), each designated by the national government as a Special Natural Monument and Nationally Endangered Species of Wild Fauna or Flora, with parts around Mt. Ibu-dake designated as Special Protection Zone of the Wildlife Sanctuary, being expected to serve for preservation and formation of natural environments, especially for protection and multiplication of these species.

Accordingly, this Plan focuses on functions national forests located in places like this are expected to serve for public benefits, such as water conservation and health and culture functions, and promotes effort to deliver open and accessible "forests for people" as well as promotes the forest environmental education, while paying attention to sustainability in forest management, measures to mitigate global warming, and preservation of biodiversity in administering and managing forests.

(Omitted)

(B) Zones not classified into any function type (Forest compartment No. 3 - No. 46)

Most of them are used for the United States' Northern Training Area of Okinawa; based on the permission granted to the Okinawa Defense Bureau, they are not classified into any function type. As the Special Action Committee on Facilities and Areas in Okinawa (SACO) decided in their final report, released in December 1996, that some of them be returned, they, together with those returned so far (497 hectares), must be administered and managed according to the purposes mentioned for each of them in the report issued by the Committee for Examination on Treatment of National Forests in Northern Okinawa.

(C) Zones leased under the Cabinet Ordinance (Forest compartment No. 47 - No. 73)

They are leased to Okinawa Prefecture under Article 64, paragraph 1 of the Cabinet Ordinance, and administered and managed by the prefectural government as prefectural forest under its Prefectural Forest Management Plan.

(Omitted)

(2) Matters Related to the Administration and Management Corresponding to Functional Types

With a view to administering and managing national forests in a manner that the functions they should perform for public benefit will be maintained and facilitated, they must be classified into the function types listed below:

(Omitted)

- Water Conservation Type;

(Omitted)

so that they will be administered and managed to be able to fully perform the type of function each is expected to.

(Omitted)

- (v) Policy for administration and management of the Water Conservation Type, and other matters related to the Type

Forests are classified into the Water Conversation Type when they are primarily expected to perform the functions of supplying plenty of quality water people need for their lives; for better performing the function of water conservation, which includes drought mitigation and water quality preservation, forests there must be grown to maintain forest soil with greater capabilities of water permeability and storage, and root systems and understory vegetation developed enough to resist various types of damage, as their target for development.

Care must also be paid to effective use of forest resources to the extent that the conditions stated above can be satisfied.

Area of Water Conservation Type

(in hectares)

Type	Water Conservation Type
Area	4,581

(Omitted)

2 Matters related to maintenance and preservation of national forests

(1) Matters related to patrol

(i) Forest conservation patrol for forest fire prevention and other purposes

To prevent damage to forests, especially forest fires, closer cooperation must be established with local municipalities and other organizations concerned for taking all possible measures to prevent forest fires by, for instance, installing signs, carrying out public relations for forest fire prevention, raising awareness of users, as well as enhancing patrol for forest conservation.

Effort to prevent illegal dumping of waste must also be exerted through enhanced cooperation between local municipalities and other relevant organizations, the Waste Management Council, Forest Conservation Patrollers, and volunteer organizations.

(Omitted)

(4) Other necessary matters

As the area is inhabited by several Nationally Endangered Species of Wild Fauna or Flora, such as the Noguchi-gera woodpecker, Yanbaru-tenaga-kogane gold beetle, and Yanbaru-kuina water rail, forests there must be actively patrolled to maintain and preserve environments of their habitats. For mountain streams and surrounding areas, which have crucial roles to play for preserving biodiversity as habitats and migration routes for wildlife and source of seeds, effort must be exerted to maintain continuity of vegetation that should naturally thrive there from the upper reaches through the lower, so that a network of ecosystems will be formed with finer meshes.

(Omitted)

3 Matters concerning utilization of national forests

(Omitted)

(3) Other necessary matters

In this Planning Area, natural forests must be used effectively with measures taken to achieve harmonization with public-benefit functions they perform, such as protection of rare wild animals and plants, preservation of rich natural environments, and conservation of water sources, as well as

arrangements made for necessary coordination with other plans for land use in this Area, among others.

5. Matters related to the forest maintenance through public participation

(1) Matters related to national participation forests

Maintenance of forests with any voluntary participation of people must be performed in an appropriate manner in cooperation with volunteer organizations and other relevant stakeholders.

(Omitted)

(3) Other necessary matters

As requested to actively make available national forests, rich in diversity and natural environment, as a place for a variety of activities for experience, "Yuyu-no-Mori" (Forest for Play) projects to be carried out to offer regular opportunities of experience under an agreement concluded for that purpose, and other initiatives must be effectively used to promote forest environment education.

The District Forest Offices and other relevant organizations must strive to perform the functions as a base for providing people with information on participate in maintenance and preservation of forests, counseling them, and helping them with participation.

4-6 Regional Administration and Management Plan (The Miyako-Yaeyama Forest Planning Area): Excerpts

1. Basic Matters Related to the Administration and Management of National Forests

(1) Basic Policy on Administration of National Forests

This Plan has the Miyako-Yaeyama Forest Planning Area as its jurisdiction, covering 25,034 hectares of national forests, including 560 hectares of those retired from forestry business, lying mostly in Iriomote-jima, Taketomi Town, the largest island among the Yaeyama Islands, which has 88 percent of the land covered with national forests. The Area is also dotted with Yonaguni-jima (Yonaguni Town), Hateruma-jima (Taketomi Town), two of the Yaeyama Islands, among others.

Iriomote-jima, the core of the Plan, has at its central part Mt. Komi-dake (470 meters), Mt. Tedo-san (442 meters), Mt. Ogura-dake (421 meters), Mt. Hateruma-mori (447 meters), Mt. Haigishi-dake (425 meters), and other mountains lying more than 400 meters above sea level, forming a gentle ridge, many of which extend wide coastal terraces into the sea, while some in the southwestern part are rimmed with cliffs dropping more than 200 meters just along the coast.

From the mountainous area, several rivers, including Urauchi-gawa River, Nakama-gawa River, and Kuira-gawa River, flow out meandering, with deep-cleft valleys lying upstream, forming terrains with a large variety of surface features, while getting wider around the mouths, as plenty of water runs through flat land.

The Area is inhabited by precious wild animals, such as iriomote-yamaneko cat (*Prionailurus bengalensis iriomotensis*) and kanmuri-washi eagle (*Spilornis cheela*), both designated by the national government as Special Natural Monuments and Nationally Endangered Species of Wild Fauna or Flora, in and around the Hoshitate and Nakamagawa Nature Reserves, and plant communities in Ubundoru of yaeyama-kashi oak (*Satakentia liukiensis*) and those in Funaura of nippa-yashi palm (*Nypa fruticans Wurmb*), both designated by the national government as Natural Monuments. The greater part of the Area is covered with national forests; the central part of the island, together with some area surrounding it, is designated as Iriomote-jima Forest Ecosystem Reserve (20,471 hectares) as well as a Special Zone in Iriomote-Ishigaki National Park, expected to serve for preservation and formation of natural environments, especially for protection of rare wild animals and plants.

The basins of the Urauchi-gawa, Nakama-gawa River, and Hinai-gawa River, running along the largest mangrove forests in Japan, form an important part of the Iriomote-jima Forest Ecosystem Reserve, designated also as Iriomote Nature Recreation Forest, visited by an increasing number of users, which makes it critical to classify the area into several zones appropriate for maintaining their natural environments and helping them fulfill the functions for health and culture.

(Omitted)

(A) Iriomote-jima Eastern Area (Forest compartment No. 116 - No. 126 & No. 170 - No. 203)

As the basin of the Nakama-gawa River is designated as Iriomote Nature Recreation Forest (Nakama-gawa River Area) while the inland part and southern coast of the Area are designated as Iriomote-jima Forest Ecosystem Reserve, as well as Iriomote-Ishigaki National Park, both expected especially to perform the functions of preservation and formation of natural environments, with conservation and preservation of forest ecosystems and use of forests there for recreation taken into account, this Plan classifies them as "Nature Conservation Type" for their administration and management.

Districts lying from the coastline to settlements and around farmland, being expected to perform the functions of preventing forest disasters and conserving water sources, are classified as "Forest Disaster Prevention Type" and "Water Conservation Type" for their administration and management.

(B) Iriomote-jima Western Area (Forest compartment No. 101 - No. 115, No. 127 - No. 169, & No. 204 - No. 209)

As the basins of the Urauchi-gawa River and Hinai-gawa River are designated as Iriomote Nature Recreation Forest (Urauchi-gawa River and Hinai-gawa River Area) while the part around the mouth of the Urauchi-gawa River and the inland area are designated as Iriomote-jima Forest Ecosystem Reserve, and the basins of the Urauchi-gawa River and Kuira-gawa River are designated as Iriomote-Ishigaki National Park, all expected to serve for preservation and formation of natural environments, including conservation and preservation of forest ecosystems and use of forests for recreation, this Plan classifies them as "Nature Conservation Type" for their administration and management.

Districts lying from the coastline to settlements and around farmland, as well as a Long-Term Profit-Sharing Afforestation district located in the center of the Area, together with districts around it, being expected to perform the functions of preventing forest disasters and conserving water sources, are classified as "Forest Disaster Prevention Type" and "Water Conservation Type" for their administration and management.

(Omitted)

(2) Matters Related to the Administration and Management Corresponding to Functional Types

With a view to administering and managing national forests in a manner that the functions they should perform for public benefit will be maintained and facilitated, they must be classified into the function types listed below:

- Forest Disaster Prevention Type (Land Erosion and Collapse Control Area, and Weather Disaster Control Area);
- Nature Conservation Type

- Forest Space Usage Type
- Comfortable Environment Creation Type; and
- Water Conservation Type;

so that they will be administered and managed to be able to fully perform the type of function each is expected to.

(Omitted)

- (i) Policy for administration and management of the Forest Disaster Prevention Type, and other matters related to the Type

Forests are classified into the Forest Disaster Prevention Type when they are primarily expected to perform the functions of controlling erosion and collapse of land, fall of rock, and/or other forest disasters that may cause damage to human life and/or facilities, and other functions for developing national land infrastructure resilient to disasters; they must be administered and managed in an appropriate manner, with attention given to matters stated below, based on, among others, relationship in location between a forest and its conservation target, their site conditions, such as geological and geographical features, and the current state of the forest.

- (A) Land Erosion and Collapse Control Area, and Weather Disaster Control Area

In the Land Erosion and Collapse Control, and Weather Disaster Control Areas, forests must be grown to have deep and wide root systems, and maintain layers of fallen leaves, with moderate sunlight pouring in, understory vegetation growing well, and facilities constructed for forest conservation and other purposes when necessary to prevent erosion and/or collapse of land, as their target for development.

- (B) Weather Disaster Control Area

In the Weather Disaster Control Areas, forests must be grown to consist of types of trees with greater shielding capability, such as those having larger height, and/or higher density of lower branches, to be more resistant to various types of damage, as their target for development.

Area of Forest Disaster Prevention Type

(in hectares)

Type	Forest Disaster Prevention	Land Erosion and Collapse Control	Weather Disaster Control
Area	1906	1,755	151

- (ii) Policy for administration and management of the Nature Conservation Type, and other matters related to the Type

Forests are classified into the Nature Conservation Type when they are primarily expected to perform the functions of conserving natural environments, such as maintenance of natural environments composed of primeval forest ecosystems, protection of animals and plants, and preservation of genetic resources; in principle, they must be left going through natural transition while administered and managed with care paid to preservation of biodiversity, among others.

Area of Nature Conservation Type

(in hectares)

Type	Nature Conservation Type	Protected forest
Area	20,682	20,476

- (iii) Policy for administration and management of the Forest Space Usage Type, and other matters related to the Type

Forests are classified into the Forest Space Usage Type when they are primarily expected to perform the functions of providing places for sport or recreation, education and culture, relaxation, or other activities, and excellent landscape, and maintaining scenic beauty in or around urban areas; they must be administered and managed in a manner relevant to their form of use for health and cultural purposes.

Area of Forest Space Usage Type

(in hectares)

Type	Forest Space Usage Type	Recreation Forest
Area	1	–

- (iv) Comfortable Environment Creation Type

Forests are classified into the Comfortable Environment Creation Type when they are primarily expected to perform the functions of keeping living environments good for humans, such as reducing noise and purifying air, as well as mitigating severe weather conditions by, for instance, providing trees that give shade while administered and managed in manners relevant to the functions.

Area of Comfortable Environment Creation Type
(in hectares)

Type	Comfortable Environment Creation Type
Area	–

- (v) Policy for administration and management of the Water Conservation Type, and other matters related to the Type

Forests are classified into the Water Conservation Type when they are primarily expected to perform the functions of supplying plenty of quality water people need for their lives; for better performing the function of water conservation, which includes drought mitigation and water quality preservation, forests there must be grown to maintain forest soil with greater capabilities of water permeability and storage, and root systems and understory vegetation developed enough to resist various types of damage, as their target for development. Care must also be paid to effective use of forest resources to the extent that the conditions stated above can be satisfied.

Area of Water Conservation Type

(in hectares)

Type	Water Conservation Type
Area	1,885

2. Matters related to maintenance and preservation of national forests

(1) Matters related to patrol

- (i) Forest conservation patrol for forest fire prevention and other purposes

Parts of the area covered by this Plan are designated as National Parks or other similar districts, with many visitors coming to forests there for recreation. Closer cooperation must be established with local municipalities and other organizations concerned for taking all possible measures to prevent forest fires by, for instance, installing signs, carrying out public relations for forest fire prevention, raising awareness of users, and conducting fire drills, as well as enhancing patrol for forest conservation.

Effort to prevent illegal dumping of waste must also be exerted through enhanced cooperation between local municipalities and other relevant organizations, Forest Conservation Patrollers, and volunteer organizations.

(Omitted)

(3) Matters related to forests that require special protection

This Planning Area is covered with many natural forests offering precious natural environments, and given that they have important roles to play in efforts to preserve biodiversity, they must be designated as protected forests for appropriate protection and conservation, with patrol and monitoring conducted for them for facilitating appropriate preservation and administration.

1) Protected forest

Type	No. of sites	Area (hectares)
Forest Ecosystem Reserve	1	20,471
Forest for Preserving Genetic Resources of Forest Life	–	–
Forest for Preserving Genetic Resources of Forest Trees	–	–
Plant Communities Protection Forest	1	4
Total	2	20,475

(Omitted)

3. Matters related to the supply of forest products

(Omitted)

(2) Other necessary matters

Forest products must be supplied with great effort to achieve effectiveness and efficiency. Use of trees cut down for thinning must be promoted through efforts made to establish more efficient and lower-cost work systems that combine line thinning and road networks and high-performance forestry machinery, so that more of the thinning timber can be sold as material. Now that lower-quality wood, which formerly had little use, turns out to be marketable as woody biomass resource, effort must also be made to enhance the stability of its supply.

Initiatives for encouraging use of more wood must also be carried out; for instance, more timber from thinning should be used for construction of wooden buildings for government agencies or other purposes, engineering works for forests, and other public works.

4. Matters concerning utilization of national forests

(1) Policy for promoting utilization of national forests

Effective and efficient use of national forests must be actively promoted in full coordination with their administration and management, with social and economic conditions of local communities and opinions of people there taken into account, in a manner to help promote local industries and improve welfare of the people.

Iriomote-shima Island, the central part of this Planning Area, has 88 percent of its territory covered by national forests, and the district cannot be developed without making the best of the national forests. They must be used, therefore, in an effective manner to improve the structure of agriculture and forestry and develop farm and other public roads, among others, as part of efforts to promote local industries.

Recreation Forest

Type	No. of sites	Area (hectares)
Nature Recreation Forest	3	2,052
Nature Observation & Education Forest	—	—
Landscape Forest	—	—
Sports Forest	—	—
Outdoor Sports Area	—	—
Sight-seeing Forest	—	—
Total	3	2,052

(2) Detailed method of utilization of national forests

When any road or other land for public use or public work is offered for effective use of national forests, it must be leased or transferred. When any water forests are developed, the system of profit sharing forests must be actively applied.

(3) Other necessary matters

In this Planning Area, effective use of forests must be promoted with measures taken to achieve harmonization with public-benefit functions they perform, such as protection of rare wild animals and plants, and preservation of rich natural environments, as well as arrangements made for necessary coordination with other plans for land use, among others.

Recreation Forests must be developed to be attractive fields for promoting effective use.

5. Matters related to the construction of forest roads based on the Agreement for the Maintenance and Enhancement of Public Benefit Functions, and other matters related to the maintenance and preservation of private forests where it is considered to be appropriate to regard them as an integral part of national forests for maintenance and preservation

(1) Basic matters related to conclusion of an agreement for the Maintenance and Enhancement of Public Benefit Functions

Some of the private forests lying adjacent to, or between, national forests are left uncared-for by owners, as they are too small in size and isolated or scattered in unfavorable locations; in some cases, earth and sand flowing out of such private forests have harmful impact on functions national forests should perform for public benefit, such as national land conservation, or exotic trees that have grown too thick in private forests make operations less effective when carried out to wipe out the type of plants from national forests around them.

For such private forests, the system of Agreement for the Maintenance and Enhancement of Public Benefit Functions must be used in an effective manner, so that, as an effective and appropriate way to maintain and enhance functions national forests should perform for public benefits, construction of forest and forestry work roads designed to integrate forest operations, as well as effective use of the road networks, and work to wipe out exotic trees from national forests in a region, when needed to preserve biodiversity there, among others, can all be carried out together with that for private forests around them in an integrated manner to help the private forests also maintain and enhance functions they should perform for public benefit, as well.

(Omitted)

6. Matters related to the forest maintenance through public participation

(1) Matters related to national participation forests

"Fureai-no-Mori" (Forest for Contact) projects to be carried out in cooperation with volunteer and other organizations under an agreement concluded with them, and other initiatives must be implemented to promote voluntary participation of people in maintenance of forests and other activities.

(Omitted)

(3) Other necessary matters

"Yuyu-no-Mori" (Forest for Play) projects to be carried out to offer regular opportunities of experience under an agreement concluded for that purpose, and other initiatives must be effectively used to make available national forests, rich in natural environment, as a place for a variety of activities for experience, and promote forest environment education.

Active efforts must also be exert to provide teachers and volunteer leaders with learning and awareness-raising opportunities and technical guidance, and offer programs and teaching materials for forest environment education.

The District Forest Offices and other relevant organizations must strive to perform the functions as a base for providing people with information on participate in maintenance and preservation of forests, counseling them, and helping them with participation.

(Omitted)

4-7 Conservation Management Plan for the Amami Islands Forest Ecosystem Reserve (Excerpts)

Introduction

Many wild ecosystems and precious wildlife habitats still remain in national forests. As part of national forestry business, these precious forests are designated as protected forests and managed in accordance with the changes in the natural environment and also in accordance with the intention for the designation, and as necessary, vegetation restoration measures are implemented or protective fences are installed in order to appropriately conserve and manage the precious natural environment.

The Amami Islands, lying in a subtropical maritime climate, have a huge annual precipitation of 2,000 to 3,000 millimeters on average. In the islands, with poor water-retaining capacity, forests cover 66 percent of the total area, serving very effectively in the water conservation and forest disaster prevention functions. National forests there, covering six percent of Amami-oshima Island and about 15 percent of Tokuno-shima Island in total area, are composed of subtropical evergreen broad-leaved trees, such as suda (ita)-jii chinquapin (*Castanopsis sieboldii*), iju camellia (*Schima liukiensis Nakai*), isunoki witch hazel (*Distylium racemosum*), and Okinawa-urajirogashi oak (*Quercus miyagii*). Dotted with forests quite similar to primeval woods in terms of the combination of species found in the entire plant community there and quite valuable from the scientific standpoint, Kinsakubaru, Kamiya, Hatsuno, and Northern and Central Tokuno-shima Island were designated in March 2013 as a Forest Ecosystem Reserve after deliberation by the Amami Islands Forest Ecosystem Reserve Designation Committee, so that they would be conserved and preserved in an appropriate manner.

The Amami Islands belong to the Ryukyu Islands, which were recognized in 2003 by the Review Committee on Candidate Natural Sites for Nomination to the World Heritage List of Japan as one of the regions that are highly likely to satisfy criteria for registration and conditions of integrity set by the World Heritage Convention, as they have unique geological history in their relation with the continent, and hold a great diversity, especially in indigenous semitropical forest and coral reef ecosystems, offer wonderful scenery both on the land and in the sea, and are inhabited by endangered species. At a meeting held in January 2013, the Inter-Ministerial/Agency Co-ordination Committee for World Natural Heritage decided to enter "Amami-Ryukyu" in the World Heritage Tentative List of Japan as natural heritage. With a view to having the area carried on the World Natural Heritage Tentative List, the Science Committee for the Amami-Okinawa World Natural Heritage Candidate was set up in May 2013, and at the third meeting in December 2013, they selected four districts, Amami-oshima, Tokuno-shima, Northern Okinawa-to, and Iriomote-jima, as candidates for World Natural Heritage sites. With this, parties concerned are expected to address challenges that must be solved to get Amami-oshima and Tokuno-shima qualified for registration as a World Natural Heritage site.

For this area, it is feared that human activities and other factors may deteriorate natural environments, and coordination between conservation and usage must be facilitated with consensus built between stakeholders based on scientific grounds.

Against backdrops as stated above, this Conservation Management Plan has been prepared based on deliberation of the Conservation Management Review Committee as comprehensive guidance for implementing a series of initiatives in a systematic manner, making clear how national forests in the Amami Islands should be conserved and managed, with their distinctive features taken into consideration.

2. Basic Matters Related to Conservation and Management

The Amami Islands Forest Ecosystem Reserves have been designated, as a part of national forest conservation and management activities, for the purpose of bequeathing their unique forest ecosystems. These designated reserves are divided into "Preservation Zones" and "Conservation and Utilization Zones." In Preservation Zones, forests must be left with no work done for them by humans, except for operations essential for conservation and rehabilitation. Conservation and Utilization Zones must serve as the buffer for Preservation Zones. The total area of Preservation Zones is 2,253 hectares, and the total area of Conservation and Utilization Zones is 2,567 hectares.

(1) Preservation Zones

(i) Forest management

In Preservation Zones, forest ecosystems must be preserved in a rigorous manner, and in principle left with no work done for them by humans, going through natural transition.

Note, however, the following actions can be taken notwithstanding the description above, when needed to maintain forest ecosystems:

- (A) Actions that are approved as being necessary for academic research, or other public welfare reasons, such as monitoring and use of biological genetic resources;
- (B) The following actions that are carried out as emergency measures:
 - (a) Extinction of forest fires, etc.; and
 - (b) Implementation of restoration measures after disasters such as large-scale forest collapse and mudslides;
- (C) Installation of signs and other similar objects;
- (D) Actions recognized based on scientific knowledge as necessary to conserve and/or restore indigenous biodiversity and forest ecosystems (Ex.: Actions carried out to lead artificial forests lying scattered in a Preservation Zone into becoming natural forests there)
- (E) Other actions that conform to relevant laws and ordinances

In addition, to rigorously preserve forest ecosystems, surveillance systems must be developed, while building cooperation with stakeholders.

(ii) Forest use

Preservation Zones may be used for acts regarded as necessary for public benefit reasons, such as academic research related to ecology investigation and use of biological genetic resources.

(2) Conservation and Utilization Zone

(i) Forest management

Conservation and Utilization Zones must have roles to play as buffers to prevent any change in external environments from giving direct impact on forest ecosystems in a Preservation Zone.

In any forest in the Conservation and Utilization Zones, no forest operation should be performed for the purpose of timber production, provided, however, that cedar stands that should be conserved and managed in an integrated manner to preserve natural forests may undergo operations for growing multi-storied forests, among others, so that they will be transformed into natural forests in the future.

Note, however, the following actions can be taken notwithstanding the description above:

- (A) The same forest management procedures as applied to Preservation Zones;
- (B) Environmental education activities inside a forest that are approved as necessary;
- (C) Conservation works and other ancillary works that are necessary for national land conservation; and
- (D) Logging and removal of dead or damaged trees;

(ii) Forest use

Conservation and Utilization Zones must in principle be used in the same manner as Preservation Zones, while they may be used for educational purposes in a manner relevant to their natural conditions to the extent that the purpose of their designation as Conservation of Utilization Zone may not be compromised. Facilities needed for such use may also be constructed or installed there.

(3) Other national forests

Specific Animal Habitat Protected Forests and other national forests lying adjacent to the Amami Islands Forest Ecosystem Reserve must be administered and managed with full attention paid to conservation and management of the Reserve, with the greatest possible effort exerted to conserve indigenous wildlife species and other natural conditions.

(4) Forests along mountain streams

The Islands, despite their relatively small water catchment areas, have mountain stream areas with riversides that are regularly inundated with frequent rains. Quite humid at all times there, indigenous and rare dwarf plant groups, such as kobano-amami-fuyuichigo strawberry (*Rubus amamianus var. minor Hatus*), amami-sumire violet (*Viola amamiana*), amami-katabami oxalis (*Oxalis exilis A.Cumm*), are specifically distributed and differentiated in those mountain stream areas. High humidity environment is always maintained in these areas, so that trees are covered with mosses, lichens, orchids, and vine plants in

high density. Along mountain streams, therefore, Preservation, and Conservation and Utilization Zones, as well as other national forests must all be administered with special care.

(5) Approach to Forest Conservation and Management, and Important Matters

The forest ecosystems in the Amami Islands cannot be protected without cooperation with people living there, tourists and other users of the forests, and agencies concerned, among others. Based on the approach to forest management and forest use as described above in (1) through (4), they must be administered in an adaptive manner through work for driving away alien species and regular monitoring to keep impact of human activities to the lowest possible level. With the long-term target set as turning the Islands into a place with rich forest ecosystems that foster biodiversity, which should include endemic species and other rare wildlife, policy measures necessary and relevant to features of each island must be implemented with cooperation with agencies concerned and other stakeholders.

Below are examples of issues that monitoring surveys and other operations should especially focus on:

- (i) Survey of forests and vegetation, etc. (tree census, vegetation survey, fixed-point photo shooting, etc.);
- (ii) Survey of habitation of wildlife (rare and/or endemic species, such as Amami-no-kurousagi hare, etc.);
- (iii) Survey of alien species (survey of state of invasion, evaluation of impact on rare species, prioritization between countermeasures);
- (iv) Survey of actual use (No. of users, ways of use, places used, etc.);
- (v) Survey of weather, etc. (temperature, humidity, etc.);

3. Specific Matters Related to Conservation and Management

(1) Common Approaches to Management and Usage for the Islands, and Important Matters

Amami-oshima and Tokuno-shima are inhabited by many precious wildlife species, such as Amami-no-kurousagi hare, designated by the national government as Nationally Endangered Species of Wild Fauna or Flora and Special Natural Monuments, and Amami-togenezumi spiny rat (*Tokudaia osimensis*) and Tokuno-shima spiny rat (*Tokudaia osimensis*), both designated as Natural Monuments.

For some of the wildlife, it is feared that habitat conditions are deteriorating with illegal digging of rare orchids or other plants, poaching for insects, invasion into forests of goats, dogs, and cats that have gone wild (feral goats, dogs, and cats), and alien species, and traffic accidents that claim lives of Amami-no-kurousagi hares, frogs, and other animals prowling on the ground. It is also feared that in Kinsakubaru and some other areas, increased tourists and concentrated visits may end up with forest ecosystems being overused, and consequently deteriorated.

To preserve precious forest ecosystems in Amami-oshima and Tokuno-shima, work must be done in cooperation with organizations concerned to limit impact of human activities on them to the lowest possible

level by performing regular monitoring of impact of alien species and utilization, so that any findings will be evaluated and reviewed to implement necessary measures ("adaptive administration"). For other important issues, such as eradication of exotic animals, appropriate husbandry of reared animals, and countermeasures against illegal digging and poaching of rare orchids and insects, cooperation must be built between relevant administrative agencies, landowners, and residents to carry out enhanced surveillance, monitoring of rare species, and other appropriate solutions under the prefectural ordinance for protection of rare species or other regulations.

Around the tops of Mt. Yuwan-dake, Mt. Amagi-dake, and Mt. Inokawa-dake lies vegetation similar to the mist forest, serving as important habitat for rare plants. As these environments may be sensitive to climate change, shifts in vegetation and weather conditions must be monitored over years to take measures for adaptation when necessary.

When used for tourism, areas that expect a large number of visitors must be surveyed to recognize current conditions for preventing excessive use from giving damage to precious natural environments, and taking necessary measures in cooperation with agencies concerned and other stakeholders.

Specific measures must be planned and implemented based on the policy of the Conservation Management Plan, in coordination with agencies concerned.

(2) Points to Note on Management and Use in Individual Islands

(i) Amami-oshima

In Amami-oshima, the Forest Ecosystem Reserve is composed of three small stretches of land, Kinsakubaru, Kamiya, and Hatsuno, separated between them and surrounded by private forests. They are relatively easy to access from urban areas, with forest roads running through each of them down the middle. That leads to worries about excessive use of the Reserve for tourism that may burden natural environments there, and illegal digging and/or poaching of rare species, such as orchids and other plants, and insects. To address these potential problems, effort must be exerted to enhance monitoring surveys and surveillance activities in cooperation with agencies concerned, and conduct public relations and awareness raising activities for local people and other stakeholders. Artificial forests of cedar and stands of Ryukyu-matsu pine must be surveyed to recognize the state of vegetation transition and take appropriate measures when necessary.

(ii) Tokuno-shima

In Tokuno-shima, the Forest Ecosystem Reserve is composed of two stretches of land, Northern and Middle Tokuno-shima, separated between them and surrounded by private forests, with sugar cane fields and other sites lying close to them at some parts. Both have forest roads going through them, but vastness of the stretches leaves some parts less accessible or conspicuous. The forests are inhabited by many endemic and rare species, such as Amamino-kurousagi hare, and it is feared that illegal digging and poaching of rare species, illegal dumping, and other acts may give harmful impact on the forest ecosystems. To address these potential problems, effort must be exerted to enhance monitoring surveys and surveillance activities

in cooperation with agencies concerned, and conduct public relations and awareness raising activities for local people and other stakeholders.

4. Specific Challenges for Forest Conservation and Management

(1) Issues Related to Management

(i) Protection of Rare and Endemic Species

For Amami-oshima and Tokuno-shima, what is important is measures to address illegal digging of rare orchids or other plants, poaching for insects, invasion into forests of goats, dogs, and cats that have gone wild (feral goats, dogs, and cats), and alien species, and traffic accidents that claim lives of Amami-no-kurousagi hares, frogs, and other animals prowling on the ground. For that purpose, effort must be exerted to conserve and manage forest environments, so that rare and endemic species will continue living and growing there, and patrol and monitoring surveys must be conducted to recognize habitat conditions and the current state of forests, and measures must be taken for protection and conservation when necessary. As measures to prevent illegal digging and poaching, a legal framework of regulation has been built with local ordinances with a view to enhanced deterrent. Further effort must be taken for raising awareness of compliance, facilitating detection and reporting of illegal acts, and enhancing the setup for surveillance and crackdown in cooperation with agencies concerned and other stakeholders.

(ii) Measures to control alien species

In Amami-oshima and Tokuno-shima, several exotic plants (trees and bamboos) - shinaabura-giri paulownia (*Vernicia cordata*), sennenboku palm (*Cordyline fruticosa*), futomomo myrtle (*Myrtaceae*), kusunoki camphor tree (*Cinnamomum camphora*), and horaichiku bamboo (*Bambusa multiplex*) — are identified. Many alien herbs are also identified there, and some of them - America-hamaguruma creeping-oxeyes (*phagneticola trilobata*), ookinkei-giku tickseed (*Coreopsis lanceolata*), botan-ukikusa water lettuce (*Pistia stratiotes*), and hotei-aoi water hyacinth (*Eichhornia crassipes*) - are designated as Specified or Monitored Foreign Organisms. Among introduced animals identified there are furi mongoose (*Herpestes auropunctatus*), inoshishi wild boar (*Sus scrofa*), feral goat, dog, and cat, suppon soft-shelled turtle (*Pelodiscus sinensis*), ushi-gaeru frog (*Rana catesbeiana*), and haiirogoke-gumo widow spider (*Latrodectus geometricus*).

In the Forest Ecosystem Reserve, most of the alien plants have so far invaded only into gaps or other places altered by humans, such as those along forest roads, with only a few having taken hold inside forests. Measures to control alien species must be implemented with a view to reducing their impact on native species. For that purpose, surveillance must be conducted in cooperation with agencies concerned to keep watch on further invasion into natural environments. For species that have already come and settled, measures to eradicate them, or to control in some other way, must be carried out according to the order of priority set between them based on their impact on natural environments and ecosystem services.

Eradication or any other solution must be carried out with a well-defined, realistic target set for it, while reviews must also be performed along the process to verify its effectiveness. Care must also be paid to the possibility that eradication of a specific alien species might cause increases of others.

To prevent people from bringing any alien species into the Forest Ecosystem Reserve or other places in the course of their activities, intentionally or by accident, public relations and awareness raising activities must also be performed in cooperation with agencies concerned.

(iii) Treatment of artificial cedar forests

The Amami Islands Forest Ecosystem Reserve has about 130 hectares of artificial cedar forests lying in it. To restore them into natural vegetation, forest management, which should also include maintenance of habitat environments for rare wildlife, must be implemented for the Reserve, which, for that purpose, must be divided into, for instance, areas shown below, with locations of the forests, composition of tree species, geographic distribution of rare wildlife, expected time frame needed for restoration, and other relevant factors taken into account in a comprehensive manner:

- (A) Area of forests that should be restored through forest operations; and
- (B) Area of forests that should be left going through natural transition;

Specific ways of restoration must in principle be picked out among methods that make the best of the potential nature itself has for restoration, instead of artificial sowing or planting. When restoration is difficult to achieve in such a manner, some appropriate measures must be considered to facilitate restoration.

A restoration method adopted for each area must be reviewed in model districts for that purpose by examining transition of vegetation after operations, habitation of endangered species, and other conditions. For the review, experts must be consulted.

(iv) Measures to control pests

Pine weevils, which harm Ryukyu-matsu pine trees, must be eradicated, or trees damaged by the insect must be cut down, or other necessary measures must be taken to prevent damage from further spreading and/or damaged trees from helping cause other disasters. Once such steps are completed, damaged sites must be left going through natural transition, while monitoring surveys or other inspections must be carried out for places inhabited by rare species which it is feared have been impacted by the damage or those conspicuously invaded by alien species as a result of the damage, to take additional measures for them when necessary. Monitoring surveys or other inspections must also be carried out on damage caused by other pests, such as kashino-nagakikuimushi wood borer (*Platypus quercivorus*) to take action when necessary.

(v) Conservation of water resources

The Amami Islands, despite frequent typhoons passing through and a large amount of precipitation, are poor in water-retaining capacity, which makes the Forest Ecosystem Reserve all the more important for functions it has to perform in water conservation and forest disaster prevention. Islands characteristically

give the highest priority to conservation of water resources, and for Amami as well, forests lying around rivers must be included in initiatives to be carried out for that purpose.

(2) Issues Related to Usage

The Amami Islands Forest Ecosystem Reserve is used for many activities, including recreation, environmental education, commerce, research and survey, and regional development and succession of tradition. Impact of the usage on indigenous ecosystems there must be mitigated with measures that should be adopted and implemented in cooperation with agencies concerned to keep a good balance between usage and protection. Especially great care must be paid when the Reserve is used for environmental education, research and survey, and regional development and succession of tradition, among others, to avoid any harmful impact on rare wildlife species or forest ecosystems.

(i) Usage by ordinary people

From the viewpoint of mitigating impact on natural environments and securing safety, tourists and other ordinary people coming there to climb a mountain or for any other purpose must use designated pathways only, which must be a public road or other land under the control of an identified administrator, with lease or other necessary procedures completed for that purpose.

(ii) Usage for research and survey

Researchers and any other people who would like to enter a forest there for research or survey must file an Application for Entrance into National Forests and other necessary documents for permission before going there, and once allowed to, they must in principle go on pathways only up to the destination, and conduct research and survey according to conditions with which the permission has been granted.

(iii) Usage for forest environment education

Those who would like to enter a forest there for forest environment education must file an Application for Entrance into National Forests and other necessary documents for permission before going there, and once allowed to doing so, they must go on pathways only. In Conservation and Utilization Zones, however, they may use routes other than pathways, only when circumstances compel it, according to conditions for the permission. (In Preservation Zones, they are not allowed to go out of pathways.)

(iv) Usage for regional development and succession of tradition

Entrance into forests for regional development and succession of tradition, including hunting, is allowed in principle only when they are located in a Conservation and Utilization Zone, and those allowed to enter must, despite no specific route designated for them, act according to conditions with which the permission has been granted.

Those entering a forest for hunting or other similar purposes must file a Forest Entrance Notification, and carry a Receipt for it in their vehicle or in other appropriate manners. Those who would like to enter a forest for regional development and succession of tradition other than hunting must file an Application for

Entrance into National Forests and other necessary documents for permission, and may go there only when successfully permitted to.

(v) Entrance into forests in case of emergency

No restriction is placed on routes used to enter forests in case of emergency, such as searching for victims of an accident.

(vi) Others

Bonfires are prohibited in the entire area of the Forest Ecosystem Reserve. However, stoves or other burners that use no naked flame on the ground may be used only in places with no surface vegetation or fallen leaves piled on the ground, and therefore there is no fear of a forest fire occurring.

5. Promotion Systems

(1) Review Committee

Issues related to implementation or review of the Conservation Management Plan for the Amami Islands Forest Ecosystem Reserve must be deliberated by the Review Committee for Conservation Management of the Amami Islands Forest Ecosystem Reserve, set up according to the Guidelines for the Establishment of the Review Committee for Conservation Management of the Amami Islands Forest Ecosystem Reserve.

(2) Monitoring Survey and Patrol

For conservation of forest ecosystems, monitoring surveys, patrols, and other necessary activities must be conducted in a systematic manner. Plans for monitoring surveys and other activities, and their findings, must be reviewed by panels of experts or other relevant persons, so that conservation and management will be performed in an appropriate manner. Monitoring surveys and other activities must be conducted in cooperation with agencies concerned, research organizations, and volunteers, among others, and/or in other productive ways, and data and information obtained there must be shared and stored in an appropriate manner to keep them available into the future.

Among other tasks that must also be performed in cooperation with agencies concerned and other stakeholders are patrol for examining the state of habitation of Amamino-kurousagi hares and other rare wildlife species, maintenance and improvement of their habitat environments, and patrol for preventing illegal digging of rare species.

(3) Public Relations and Awareness Raising

For collecting and managing a range of data, and making available outlines of survey results, achievements of initiatives, and other information for ordinary people to raise their awareness, work must be performed, as part of public relation, to install signs and markings, issue PR magazines, carry the information on websites, and provide forest environment education or other opportunities in cooperation with agencies concerned and other stakeholders.

Information about locations of rare species must be managed in an appropriate manner for preventing illegal digging and/or poaching by, for instance, keeping it secret in principle.

(4) Cooperation with Agencies Concerned, Volunteers, and Other Stakeholders

Conservation and management of the Forest Ecosystem Reserve requires cooperation with government agencies concerned, research institutions, local organizations, and other stakeholders as an essential element. Closer cooperation must be developed with them, and volunteers must also be offered opportunities to play active roles in, for instance, patrols to guard wildlife species.

Cooperation must be offered to the Council for Promotion of Ecotourism in the Amami Islands in their effort to build and promote an Eco-tour Guide Qualification System they are preparing.

(5) Alignment with the World Heritage Conservation and Management Plan

Now that Amami-oshima and Tokuno-shima are listed as a World Natural Heritage candidate site, measures for conservation and management of the islands are being considered. They must be implemented in coordination with this Plan, as well as the Convention on Biological Diversity (Aichi Targets), the Montreal Process, and other international frameworks, and in cooperation with agencies concerned.

6. Others

(1) Continuity to be secured between forest ecosystems

In the Amami Islands, national forests are each small in size, lying scattered, and one of the challenges to be addressed for the islands is securing continuity between forest ecosystems there. For that purpose, coordination must be promoted between national forests in Preservation Zones and private forests lying adjacent to them in forest conservation management. Specific Animal Habitat Protected Forests surrounded by private forests which turn out to have been managed at a level similar to that of Forest Ecosystem Reserves must be designated as Forest Ecosystem Reserves after prescribed procedures for designation have been completed.

4-8 Conservation Management Plan for the Iriomote-jima Island Forest Ecosystem Reserve (Excerpts)

Introduction

Many wild ecosystems and precious wildlife habitats still remain in national forests. As part of national forestry business, these precious forests are designated as protected forests and managed in accordance with the changes in the natural environment and also in accordance with the intention for the designation. When necessary, vegetation restoration measures are implemented or protective fences are installed in order to appropriately conserve and manage the precious natural environment.

Iriomote-jima Island is covered by national forests in some 90 percent of its surface, and they are composed mainly of mangroves, as well as sudajii chinquapin (*Castanopsis sieboldii*), Okinawa-urajirogashi oak (*Quercus miyagii*), and tabunoki camphor tree (*Machilus thunbergii*), vegetation of continental relict: temperate zone plants, and tropical plants growing side by side. Dotted with forests quite similar to primeval woods in terms of the combination of species found in the entire plant community there and quite valuable from the scientific standpoint, the Urauchi-gawa River basin (excluding Long-Term Profit-Sharing Afforestation districts and farmland, etc.) and the Nakama-gawa River basin, as well as the northern precipice zone stretching from around Mt. Komi-dake to Urauchi, and an area surrounding Haimi Beach were designated in March 1991 as a Forest Ecosystem Reserve after deliberation by the Reserve Designation Committee. Some 20 years after the designation, secondary forests, with no or little work done for them by humans, have also grown out of the Reserve. People living on the island traditionally hunt wild boars and collect wild vegetables in national forests there as part of their livelihood. In recent years, areas lying along the Urauchi-gawa and Nakama-gawa Rivers, both flowing through the Ecosystem Reservation, and other smaller rivers running out of the Reserve, are visited for eco-tours. With these changes seen in conditions of the Island, the Iriomote-jima Island Forest Ecosystem Reserve Designation Committee was set up in January 2009, and met several times to deliberate what should be done not only to conserve primeval natural forests but also to pay good attention to securing integrated management of protected forests on small islands. As a result, the existing Forest Ecosystem Reserve was extended in area in 2012 and 2015. The two extensions were intended to maintain and conserve primeval natural forests, and woods rich in natural features, as well as habitats for rare species, which cover almost all the national forests in the island, except Long-Term Profit-Sharing Afforestation districts and farmland, etc., as Forest Ecosystem Reserve in good balance achieved with wild boar hunting and wild vegetable collection by local people, forest environment education, and use for forest recreation, which should be conserved and managed.

Iriomote-jima Island belongs to the Ryukyu Islands, which were recognized in 2003 by the Review Committee on Candidate Natural Sites for Nomination to the World Heritage List of Japan as one of the regions that are highly likely to satisfy criteria for registration and conditions of integrity set by the World Heritage Convention, as they have unique geological history in their relation with the continent, and hold a

great diversity of especially indigenous semitropical forest and coral reef ecosystems, as well as offer wonderful scenery both on the land and in the sea, and are inhabited by endangered species. In December 2013, the Science Committee for the Amami-Okinawa World Natural Heritage Candidate decided to recommend four islands (areas), which include Iriomote-jima, as candidate sites. Parties concerned are expected to address challenges that must be solved for their registration. For this area, it is feared that human activities and other factors may give impact on ecosystems there, and coordination between conservation and usage must be facilitated with consensus built among stakeholders based on scientific grounds.

Against backdrops as stated above, the Conservation Management Plan for the Iriomote-jima Island Forest Ecosystem Reserve has been prepared based on the deliberation of the Review Committee for Conservation Management of the Iriomote-jima Island Forest Ecosystem Reserve as comprehensive guidance for implementing a series of initiatives in a systematic manner, making clear how national forests in Iriomote-jima Island should be conserved and managed, with their distinctive features taken into consideration.

2. Basic Matters Related to Conservation and Management

The Iriomote-jima Island Forest Ecosystem Reserves have been designated, as a part of national forest conservation and management activities, for the purpose of bequeathing their unique forest ecosystems. These designated reserves are divided into "Preservation Zones" and "Conservation and Utilization Zones." In Preservation Zones, forests must be left with no work done for them by humans, except for operations essential for conservation and rehabilitation. Conservation and Utilization Zones must be the buffer for Preservation Zones. The Forest Ecosystem Reserves stretch over 22,367 hectares, of which Preservation Zones and Conservation and Utilization Zones cover 9,999 hectares and 12,368 hectares, respectively.

(1) Approach to Forest Conservation and Management, and Important Matters

The forest ecosystems on Iriomote-jima Island cannot be handed down to posterity without understanding of, and cooperation with, people living there, tourists and other users of the forests, and agencies concerned, among others. Based on approaches to management and usage stated below in sections 2, 3, and 4, work must be done to limit impact of human activities on them to the lowest possible level by performing regular monitoring of impact of alien species and utilization, so that any findings will be evaluated and reviewed to implement necessary measures ("adaptive administration"). Environmental education must also be promoted to help people better understand how precious forest ecosystems are.

The long-term target must be set as turning the Island into a place where forest ecosystems will be sustainable into the future with great biodiversity, which should include endemic species and other rare wildlife. For that purpose, measures that are necessary and relevant to each site must be implemented in cooperation with agencies concerned and other stakeholders.

(2) Preservation Zones

(i) Forest management

In Preservation Zones, forest ecosystems must be preserved in a rigorous manner, and in principle left with no work done for them by humans, going through natural transition.

Note, however, the following actions can be taken notwithstanding the description above, when needed to maintain forest ecosystems:

- (A) Monitoring and other research and survey
- (B) The following actions that are carried out as emergency measures for extraordinary disasters:
 - (a) Extinction of forest fires, etc.; and
 - (b) Implementation of restoration measures after disasters such as large-scale forest collapse and mudslides;
- (C) Installation of signs and other similar objects;
- (D) Actions recognized based on scientific knowledge as necessary to conserve and/or restore indigenous biodiversity and forest ecosystems
- (E) Other actions that conform to relevant laws and ordinances

(ii) Forest use

Preservation Zones may be used only for activities listed below:

- (A) Actions that are approved as being necessary for public welfare reasons, such as those performed in relation to usage of biological genetic resources for academic research;
- (B) Usage, maintenance, and repair of existing pathways, etc.; and
- (C) Installation of signs and other similar objects for actions mentioned in (A) and (B);

(3) Conservation and Utilization Zone

(i) Forest management

Conservation and Utilization Zones must have roles to play as buffer to prevent any change in external environments from giving direct impact on forests in a Preservation Zone.

In any forest in the Conservation and Utilization Zones, no forest operation should be performed for the purpose of timber production, Artificial forests must be treated, so that they will be transformed into natural forests in the future.

Note, however, the following actions can be taken notwithstanding the description above:

- (A) The same forest management procedures as applied to Preservation Zones;
- (B) Logging and removal of dead or damaged trees;

(ii) Forest use

Conservation and Utilization Zones may be used only for acts listed below:

- (A) The same acts for use as those allowed in Preservation Zones;
- (B) The following acts, when performed to the degree that they avoid going against the purpose of designation as Conservation and Utilization Zone;
 - (a) Forest environment education, and forest recreation;
 - (b) Construction of roads, buildings, and other facilities needed for acts mentioned in (a); and
 - (c) Wild boar hunting and wild vegetable collection performed by local people;

(4) Other national forests

Other national forests lying adjacent to the Iriomote-jima Island Forest Ecosystem Reserve must be administered and managed with full attention paid to conservation and management of the Reserve, with the greatest possible effort exerted to conserve indigenous wildlife species and other natural conditions. For Long-Term Profit-Sharing Afforestation districts managed under contracts (Forest Compartment No. 132 - No. 134, and No. 139 - No. 142), coordination must be secured with contracting parties through careful communication with them, so that they will be managed and operated with full attention paid to conservation and management of the Forest Ecosystem Reserve.

3. Specific Matters Related to Conservation and Management

(1) Issues Related to Management

(i) Issues Related to Rare and Endemic Spices

Iriomote-jima Island is inhabited by many precious wildlife species, such as Iriomote-yamaneko wildcat (*Prionailurus bengalensis iriomotensis*), designated by the national government as a Nationally Endangered Species of Wild Fauna or Flora and Special Natural Monument.

For some of the wildlife, it is feared that habitat conditions are deteriorating with illegal digging of rare plants, and traffic accidents of animals, among others.

For such rare and endemic spices, measures stated below must be taken.

(A) For plants

For rare and endemic species, patrol and monitoring surveys must be conducted to recognize conditions of their habitats, and take measures for protection and conservation when necessary.

To prevent illegal digging of rare and endemic species, surveillance activities and other measures must be performed in cooperation with agencies concerned.

(B) For animals

For Iriomote-yamaneko wildcat and other rare and endemic species, patrol and monitoring surveys must be conducted to recognize conditions of their habitats, and take forest maintenance and other measures for improving and/or recovering the habitats, when necessary, in cooperation with agencies concerned.

(C) Treatment of the former Heimi Forest for Preserving Genetic Resources of Forest Trees

The former Heimi Forest for Preserving Genetic Resources of Forest Trees was designated as protected forest in fiscal 1992 to preserve genetic resources of Ryukyu-matsu pine (*Pinus luchuensis*) there, before being delisted in fiscal 2012 and consolidated into the Iriomote-jima Island Forest Ecosystem Reserve.

In the district, according to the purpose set when it was designated as protected forest, adan screw pines (*Pandanus odoratissimus*) and broad-leaved trees, among others, have been cut down to preserve Ryukyu-matsu pines and their habitats, with Ryukyu-matsu stands kept in relatively good conditions.

Forest operations must be continued in the region as far as they are necessary to preserve genetic resources of Ryukyu-matsu.

(ii) **Issues Related to Alien Species**

(A) Principles for Measures to Control Alien Species in the Iriomote-jima Island Forest Ecosystem Reserve

To protect forest ecosystems on Iriomote-jima Island, measures must be taken to mitigate impact on them from invasion of new alien species that threaten habitat environments of native ones, replacement of the latter with exotic species that have invaded so far, and crossing between them, among others. For that purpose, introduction of new species or individuals must be prevented in cooperation with agencies concerned, with continued surveillance of invasion into natural environments from outside the Island. Any alien species detected at an earlier stage of invasion must be eradicated, or controlled with other measures. For those which have already taken hold, their impact on natural environments and/or ecosystem services must be evaluated to fix an order of priority between possible measures that should be taken.

Eradication or any other solution must be carried out with a well-defined, realistic target set for it, while reviews must also be performed along the process to verify their effectiveness. Care must also be paid to the possibility that eradication of a specific alien species might cause increases of others.

To prevent people from bringing any alien species into the Forest Ecosystem Reserve or other places in the course of their activities, on purpose or by accident, public relations and awareness raising activities must also be performed in cooperation with agencies concerned.

(B) Alien plants identified on Iriomote-jima Island

Among alien plants that have been identified so far on the island are sousiju acacia (*Acacia confusa* Merr), America hamaguruma daisy (*Sphagneticola trilobata*), sendangusa Spanish needles (*Bidens*), ginnemu leadtree (*Leucaena leucocephala*), shurogayatsuri papyrus (*Cyperus alternifolius* L.), tokusabamokumaou sheoak (*Casuarina equisetifolia*), and tsuruhiyodori bitter vine (*Mikania micrantha*).

Most of the alien plant species that have been found there grow only in and around places developed by humans, such as roads, sites prepared for development, and abandoned farmland, and only a few have

invaded into natural environments. Invasion of tokusabamokumaou sheoaks, ginnemu leadtrees, and America hamaguruma daisies into some parts of the Forest Ecosystem Reserve has been confirmed.

(C) Alien animals identified on Iriomote-jima Island

Forest areas are inhabited by inobuta boars (cross between wild and domestic boars) and feral cats. In rivers, kadayashi mosquitofish (*Gambusia affinis*), guppy (*Poecilia reticulata*), tilapia, and carp (*Cyprinus carpio*) are identified. Among species detected in and around paddy fields and settlements are sukumiringogai applesnail (*Pomacea canaliculata*) and Africa-maimai snail (*Achatina fulica*). For o-hikigaeru toad (*Rhinella marina*) and shiro-agogaeru toad (*Polypedates leucomystax*), which have both settled on Ishigaki-jima Island, there is a great risk that they may be brought to Iriomote-jima Island when they happen to lie in materials delivered to the island. Focusing on prevention of their introduction from outside, patrols have been conducted over a broad area of the island. However, in 2015, introduction of shiro-agogaeru toads was confirmed. To prevent their reproduction and settlement on the island, early-stage actions have got started quickly. Shiro-agogaeru toads spawn in the same places as Yaeyama-aogaeru toads (*Rhacophorus owstoni*), a source of worry about possible competition between them.

(2) Issues Related to Usage

The Iriomote-jima Island Forest Ecosystem Reserve is used for a range of activities, such as recreation, environment education, commerce, and research and survey, and it is feared that in some areas, such as those along the Hinai-gawa River, increased tourists and concentrated visits may end up with forest ecosystems being overused, and consequently deteriorated. Some measures must be introduced to mitigate impact of use of the forests on their ecosystems, and a good balance must be established between usage and protection in cooperation with agencies concerned to maintain and recover the forest ecosystems.

(i) Pathways and other facilities offered to ordinary people for their usage

(A) Preservation Zones

(a) Mountain trails, etc.

Ordinary people, including climbers and local residents, may only use roads and other facilities under the control of an identified administrator, with lease or other necessary procedures completed for that purpose. For safety reasons, ordinary climbers or other users should desirably be escorted by a person with a certain level of expertise on conservation of the Iriomote-jima Island Forest Ecosystem Reserve, such as a nature guide.

In principle, no tent may be set up in the Reserve. This may not apply, however, in case of emergency. For safety of users and necessity for search operations, public relations efforts must be made to offer information about sites that are relatively safe and easy to search, and therefore can serve as evacuation spots in case of emergency.

(b) Other areas

The other areas may not be used by ordinary people, in principle.

(B) Conservation and Utilization Zone

(a) Mountain trails, etc.

Ordinary people, including climbers and local residents, may use roads and other facilities under the control of an identified administrator, with lease or other necessary procedures completed for that purpose, as well as existing routes that have been used local residents or others only when the following conditions are satisfied:

- That the route falls under neither of the two below:
 - (i) A site where it is feared that rare species may be impacted by any usage; or
 - (ii) A site with danger of collapse or any similar risk.

For safety reasons, ordinary climbers or other users should desirably be escorted by a person with a certain level of expertise on conservation of the Iriomote-jima Island forest ecosystems, such as a nature guide.

In principle, tents must be set up only in designated sites. This may not apply, however, in case of emergency.

(b) Other areas

Ordinary climbers or other users entering the Iriomote-jima Island Forest Ecosystem Reserve, in principle, must be escorted by a person with a certain level of expertise on conservation of the Reserve, such as a nature guide.

Local residents may hunt wild boars, collect wild vegetables, and conduct other acts needed for succession of traditional culture and promotion of local industry. However, rare species designated as Nationally Endangered Species of Wild Fauna or Flora or Natural Monument must not be collected.

(ii) Usage for research and survey

Researchers or other people who would like to enter a forest for research and survey purposes must file an Application for Research of Protected Forests for permission, and may go there only when successfully permitted to. In principle, they must walk on pathways to reach a destination. Research must be conducted according to terms and conditions of the permission, with care paid to avoid any harmful impact on forest ecosystems there.

(iii) Public Relations for Usage Rules

Public relations must be conducted in an effective manner to help users recognize locations of Preservation Zones and Conservation and Utilization Zones in the Forest Ecosystem Reserve, and rules for using them in cooperation with agencies concerned. As part of the effort for public relations, location maps and other necessary facilities must be installed, for instance, along crossing roads.

(iv) Others

Bonfires are prohibited in the entire area of the Forest Ecosystem Reserve. However, only in places with no understory vegetation, including tent or evacuation sites, burners, including lanterns and heaters, that use no naked flame may be used, with care paid to danger of forest fire.

4. Promotion Systems

(1) Review Committee

Issues related to implementation or review of the Conservation Management Plan for the Iriomote-jima Island Forest Ecosystem Reserve must be deliberated by the Review Committee for Conservation Management of the Iriomote-jima Island Forest Ecosystem Reserve, set up according to the Guidelines for the Establishment of the Review Committee for Conservation Management of the Iriomote-jima Island Forest Ecosystem Reserve.

(2) Monitoring Survey, etc.

For conservation of forest ecosystems, monitoring surveys, and other necessary activities must be conducted in a systematic manner. Plans for monitoring surveys and other activities, and findings of them, must be reviewed by panels of experts or other relevant meetings, so that conservation and management will be performed in an appropriate manner. Effort must be exerted to make information on findings of monitoring surveys or other activities widely available. Monitoring surveys and other activities must be conducted in an effective manner in cooperation with agencies concerned and volunteers, among others.

Below are examples of issues that monitoring surveys and other operations should especially focus on:

- (i) Survey of forests and vegetation (stands and vegetation survey, etc.);
- (ii) Survey of habitation of wildlife (rare and/or endemic species, such as Iriomote-yamaneko wildcat, etc.);
- (iii) Survey of alien species (survey of state of habitation, evaluation of impact on rare species, prioritization between countermeasures, etc.);
- (iv) Survey of actual use (No. of users, ways of use, places used, impact on vegetation, etc.);

Among other tasks that must also be performed in cooperation with agencies concerned and other stakeholders are patrol for examining the state of habitation of Iriomote-yamaneko wildcat and other rare wildlife species, and patrol for preventing illegal digging or collecting of rare species.

(3) Public Relations and Awareness Raising

For collecting and managing a range of information on forest ecosystems in Iriomote-jima Island, and making it publicly available, when necessary, or disseminating it among people for raising their awareness, work must be performed to install signs and markings, issue PR magazines, and carry the information on websites, among others, in cooperation with agencies concerned and other stakeholders. For public

relations, arrangements must be made to render contact points easier to find and help users readily access to a variety of new information.

(4) Cooperation with Agencies Concerned, and Other Stakeholders

Closer cooperation must be developed with NPOs and other stakeholders, and volunteers must also be offered opportunities to play active roles in, for instance, patrols to guard wildlife species.

(5) Alignment with the World Heritage Conservation and Management Plan

Now that Iriomote-jima Island is listed as World Natural Heritage candidate site, measures for conservation and management of the islands are being considered. They must be implemented in coordination with this Plan and in cooperation with agencies concerned. This Plan must be reviewed and modified when necessary, based on administration policy for World Natural Heritage and conditions of the Reserve.

4-9 Protected Forests and Green Corridors: Outlines of Their Position among Japan's National Forests

1. Japan's National Forests: Outline

Japan, a land of 37.79 million hectares, has forests of 25.08 million hectares, covering about two-thirds of the national land area, ranking one of the most-forested countries in the world. Forestry Agency administers and manages 7.58 million hectares of national forests, or about 20% of total national territory (37.79 million hectares), and about 30% of the entire forest area (25.08 million hectares). Broad areas of the national forests are located around mountainous backbones and reservoir areas, and have important functions to perform for public benefit, such as soil loss prevention and watershed conservation. National forests also deliver a great diversity of ecosystems, both planted forests and primeval forests serving as habitats for a wide variety of wildlife, including rare species. Ecosystems formed in national forests, which serve in different forms, including satoyama (managed forests around human settlements), riparian forests, coastal forests, interact with other ecosystems, such as farmland, rivers, and the sea. As a core of the ecosystem network covering the entire national land, national forests hold a key position for conserving biodiversity there.

2. "Protected forests" and "Green corridors" among national forests

(i) Protected forest

For National Forest Management, parts of national forests that are precious as a core for biodiversity, such as primeval forests and habitats for rare wildlife, are designated as "protected forests."

As of April 2015, 855 sites, covering an area of 968,000 hectares, or 13 percent of the national forests, are designated as protected forests. In the World Natural Heritage sites located in Japan, Shiretoko, Shirakami-Sanchi, Ogasawara Islands, and Yakushima, almost the entire land surface, or 95 percent, is covered by national forests, most of which are designated as "Forest Ecosystem Reserve" a category of protected forests. Forest Ecosystem Reserve is recognized as a guarantee to preserve the value of World Natural Heritage sites into the future.

(ii) Green corridor

A "green corridor" is a network of areas set up around protected forests to secure the wildlife passageways connecting their habitats for promoting interaction between populations and conservating the diversity of species and genes. In green corridors, great care to environments of habitats for wildlife is to be paid. For instance, to secure raptors' better feeding and habitat environments, clearing open operations are conducted to dense forests, and/or deliberately reserve broad-leaved trees growing in artificial forests.

As of April 2015, 24 green corridors have been set up, covering an area of 583,000 hectares, eight percent of the entire national forest.

(iii) Protection and administration of protected forests and green corridors

For protected forests and green corridors, matters concerning policy for their protection and administration, designation, and modification are decided in reference to opinions provided by the

Committee for Administration of Protected Forests, a council of experts on the forests, the forestry industry, and the natural environment. Monitoring surveys are also conducted for protected forests and green corridors to observe and understand changes in the state of forest ecosystems and wildlife there, and capture useful data to review protection and administration policy and/or area coverage.

3. Protected forest system: Its history and revise

(i) History from inauguration to the present

The protected forest system was set up in 1915 with a notification issued by the Director General of the Mountains and Forests Bureau, the Ministry of Agriculture and Commerce, “On the Establishment of Protected Forest.” It was an epoch-making initiative at that time as, in addition to protection forests, etc. having restrictions by law, the system required the government, the operator of national forest management, to work to protect forests valuable for scientific research, maintenance of scenic beauty, conservation of alpine plants, and other purposes. Most of the protected forests designated within 20 to 30 years after 1915, the year the system was set up, have also been designated as natural parks or natural monuments, systems that were set up later. The system of protected forest could be called a harbinger of protection area initiatives Japan has adopted so far. With growing interest in protection of the natural environment in the years that followed, and a policy turnaround made in 1973 for maintaining and enhancing functions national forests should perform for public benefit, the area of protected forests grew to 140,000 hectares in 1975. In 1989, some modifications were made to the system of protected forests, with the concept of “zone category” adopted as a tool for protection and administration, connecting to popularize the zoning idea of protected areas. The “Forest Ecosystem Reserve,” one of the new zone categories introduced at that time, is also recognized as a mechanism working to preserve the value of the World Natural Heritage sites and UNESCO Biosphere Reserves into the future. Almost the entire land area of the World Natural Heritage sites in Japan, Shiretoko, Shirakami-Sanchi, Ogasawara Islands, and Yakushima, has been designated as protected forest.

As of April 2015, 855 sites covering an area of 968,000 hectares are designated as protected forests.

As seen above, the system of protected forest has gone through several modifications for adapting to the times to clarify which part of the forests should be developed and which should be protected. It has been serving as a model of forest management that enables forest management and conservation to go together, one of the successes it has achieved so far.

(ii) Revise of the protected forest system

The protected forest system has so far greatly served to protect primeval natural forests and precious wildlife. With growing interest of people in biodiversity and an accumulation of scientific knowledge built up through research, both remarkable in recent years, the Expert Council on the Protected Forest System and Other Initiatives, set up in June 2014, met several times by February 2015 to review and sort out issues concerning, among others, designation of protected forests, and challenges to address for protection and administration. The protected forest system was revised in September 2015 based on a report provided by the council.

As part of the revise, several new zone categories and biodiversity conservation methodologies, such as “restoration,” were designated with arrangements to develop simpler and more efficient administration.

The categories of protected forests have been replaced by a more concise and effective classification, focusing on sustainability of forest ecosystems and populations there. The existing seven categories have been restructured to three: “Forest Ecosystem Reserve,” primeval natural forests representative of climates or forest zones observed in Japan; “Biocenosis Protection Forest,” for forests with an endemic biological community; and “Rare Population Protection Forest,” for forests necessary for inhabitation of rare wildlife.

New methodologies were adopted for treatment of protected forests in line with advancement of scientific knowledge on conservation of biodiversity. For Biocenosis Protection Forests, “restoration” has been admitted. For forests that have lost the ability of self-sustained rehabilitation, long-term forest operation is implemented according to opinions provided by experts based on their scientific knowledge to lead them to grow to be biocenoses composed basically of their potential natural vegetation. For Rare Population Protection Forests, when a specific population to be protected needs a group of other populations (meta-population) for its survival, and their habitats are located as enclaves around a core forest, they can be included as part of the protected forest for preserving and administering them all in an integrated manner. When any disturbance, such as temporary appearance of bare area, needs to take place through the process of transition, necessary forest operations can be conducted to create such environments.

The scheme for administration of protected forests has been made more efficient by consolidating several existing committees into the Committee for Administration of Protected Forests, a unified organization set up for each of the Regional Forest Offices, with subcommittees to be formed under it, when needed. Greater effectiveness and efficiency has been achieved in the monitoring of protected forests by allowing different intervals to be set between surveys, depending on their own conditions.

Seven categories of protected forests used before the reform, including “specific topography protected forest” and “hometown forest,” will be reorganized in a few years, based on opinions of experts.

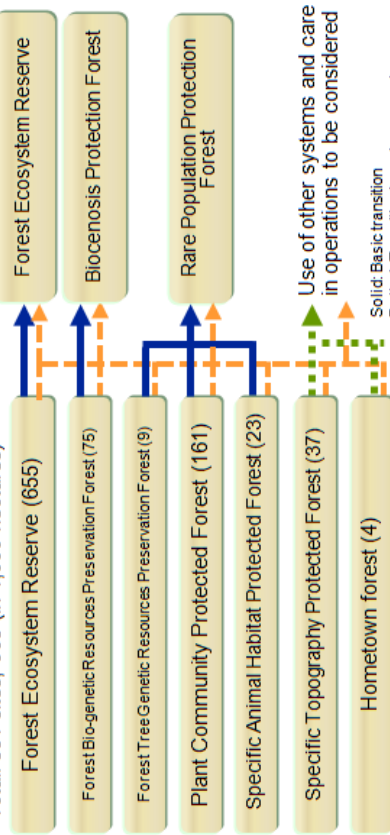
Under the new scheme, the Forestry Agency will continue working to conserve biodiversity of national forests, and striving especially to reform the way of conducting monitoring surveys of national forests, and get the protected forests registered with international databases, with the aim of making the Agency’s effort better understood by the people and recognized by the international community through endeavoring to protect and administer protected forests in an appropriate manner.

Reform of the Protected Forest System: Key Points

Purpose: To review and reform the existing system of protected forests for adapting to sophistication of scientific knowledge on conservation of biodiversity and methodologies for administration of protected areas, and rebuild an easier-to-understand and more efficient administration system that pays attention to conservation of biodiversity.

1. Restructured classification of protected forests

Total: 851 sites; 968 (in 1,000 hectares)



2. Restructured administration scheme

(1) Reorganization of committees: Existing committees consolidated, replaced by an integrated one

YY Forest Ecosystem Reserve Designation Committee
 ZZ Committee for Designation as Forest Bio-genetic Resources Preservation Forest
 WW Green Corridor Designation Committee
 XX Monitoring Committee
 VV Rare Species Committee

UU Regional Forest Office Committee for Administration of Protected Forests

* Sub-committees etc. to be set up when necessary.

(2) Modification in intervals between monitoring surveys

All protected forests are monitored every five years, in principle.

The interval is set at <5 / 5 / 10 years depending of conditions of the protected forest.

Sophistication of biodiversity conservation methods

3. Introduction of restoration (Biocenosis Protection Forest)

For forests that have lost the ability of self-sustained rehabilitation, forest operation is conducted for a long term according to opinions offered by experts based on their scientific knowledge.



4. Introduction of wildlife conservation & administration methods (Rare Population Protection Forest)

(1) Human interventions for creating habitats, etc.

When any disturbances, such as temporary appearance of bare area, needs to take place through the process of transition for sustainable inhabitation of population, necessary forest operations may be conducted to create such environments.



Photos: deliberation by the Administration Committee, stands lying adjacent to a habitat are cut down to create lighting environments more favorable for regeneration and multiplication.

(2) Conservation of a group of populations (meta-population) needed for the wildlife to survive

To protect a population that may disappear, other populations with some genetic connection and their habitats found around it are included in the same protected forest for protecting them all in an integrated manner.

Preserved in an integrated manner

Population with fear of disappearing

Populations with some genetic connection

Habitat

Places favorable for regeneration

4-10 On Designation of National Forests as Green Corridor

March 22, 2000 Rin/Ya/Kei No. 10 of 2000

Issued by the Director-General of the Forestry Agency to the Director-Generals of the Regional Forest Offices, and the Director-Generals of the Regional Forest Branch Offices

Last Revised on: November 9, 2015 by Rin/Koku/Kei No. 53 of 2015

The Basic Plan for Administration and Management of National Forests, established as of December 25, 1998 to transform the policy for administration and management of national forests into that designed to help maintain and facilitate functions they have for public benefits, states that as one of the measures to protect and conserve forest ecosystems in national forests over a broad range in an effective manner, Green Corridors were to be established.

Now that the Guidelines for Establishment of Green Corridors, shown in the accompanying sheets, have been produced to start working to establish Green Corridors.

(Accompanying Sheets)

The Guidelines for Establishment of Green Corridors

Section 1 Purpose

The national forests, shared possessions of people, mostly lie around mountainous backbones, maintaining rich forest ecosystems that offer excellent landscape, and habitats for precious wildlife. National forests with these features are designated as several types of protected forests, such as Forest Ecosystem Reserve, which is composed of primeval forest ecosystems, to maintain natural environments, protect animals and plants, and preserve genetic resources, among others, as part of efforts to protect and preserve national forests with excellent natural environments.

In recent years, meanwhile, need has arisen to carry out new initiatives, including further promotion of sustainability in management of forests in line with the Declaration of Forest Principle, among others, and preservation of biodiversity based mainly on the National Biodiversity Strategy of Japan.

To deal with such developments by establishing Green Corridors in national forests to secure passageways for wildlife, expand their habitats, and encourage them to interact between themselves as part of effort to protect forest ecosystems over a broader range in a more effective manner, these Guidelines have been produced to specify criteria for designation as Green Corridor, policy for treatment, and procedures for designation, among others.

Section 2 Policy for designation

1. Criteria for designation

Green Corridors are to be selected among national forests all around Japan, taking fully into account functions they each should have to perform for regions they are located in, and the state of land around them, after examining significance and urgency from the standpoint of forest ecosystems protection, and considering each of the following items:

- (1) That, given that protected forests have already been established for protection of wildlife, preservation of genetic resources, and other purposes, Green Corridors are to be selected, in principle, in a manner that they will link existing protected forests together, and that they will have a size and a form considered to be appropriate for forest ecosystems that should be protected and conserved;
- (2) That a Green Corridor, after a candidate location and its area is roughly determined based on distribution of wild animals and plants and locations of protected forests around it to consider where the Corridor should run, taking into consideration geographic conditions favorable for movements of wild animals, among others, is to be established as a set of forest sub-compartments demarcated by mountain ridges, streams, or other distinctive geographical lines;
- (3) That the width and length of a Green Corridor are to be determined, taking into account the distribution of habitats for wild animals, their behavioral characteristics, and characteristics of plants in fertilization and seed dispersal, among others; and
- (4) That when a Green Corridor to be established falls under either of the following items, expansion of existing protected forests or establishment of new protected forests are to be considered, if necessary:

- (A) That the Corridor would fail to have an enough width to avoid edge effect (affect given to internal habitat caused by exposing most peripheral part of fragmented habitats directly to completely different external environments); or
- (B) That the Corridor is feared to fail to ensure its function properly caused by long distance between protected forests it should link or no existing protected forests it should link, without any protected forest established for it.

2. Policy for treatment

- (1) To enable forests designated as Green Corridors to perform functions for wildlife with migration, resting, and feeding, among others, they are to be maintained and improved as stated in the following items:
 - (A) When the forests are in suitable conditions to function as Green Corridors, the current state is to be maintained in an appropriate manner; and
 - (B) When the forests need to be improved as other conditions stated in (A), their under-story vegetation is to be developed and prevented denudation, depending on the state of the vegetation, with forest operations conducted to prevent any extreme unevenness in the distribution of conifers and broad-leaved trees over the entire Green Corridor, and instead facilitate diversity in tree type, age, and crown, among others.
- (2) As part of administration of Green Corridors, patrols are to be carried out to protect precious wildlife, and public relations and awareness raising activities are to be conducted, together with efforts that are to make them as a place for forest environmental education and for other purposes.
- (3) Facilities are to be installed or constructed when they are necessary for observation, flood control, or other appropriate purposes, with care paid to prevent them from giving any harmful impact on habitat environments of wildlife there.
- (4) For Green Corridors, monitoring (regular observation and recording) are to be conducted to recognize actual movements of wildlife there, and impact that forest operations may give to them, among others.

Findings of the monitoring are to be reflected by designation as Green Corridors and treatment, and relevant departments of prefectural governments, universities, and research institutions are to be provided with the data and information.

Section 3 Procedures for designation

1. Procedures for designation

- (1) The Director-General of the Regional Forest Office is to, when intending to establish a Green Corridor, previously collect data of the site to be designated and conduct necessary surveys on target wildlife for the Corridor, among other issues, to prepare, based on them, (Draft) Policy for Green Corridor Establishment ("Establishment Policy (Draft)"), which is to contain:
 - (A) Location and area of the Green Corridor;
 - (B) Issues related to its maintenance and improvement;
 - (C) Issues related to its administration;

- (D) Issues related to its monitoring; and
 - (E) Other points to note;
- (2) The Director-General of the Regional Forest Office is to, when intending to establish a Green Corridor, consult the Committee for Administration of Protected Forests, which is stipulated in "On Reform of the Protected Forest System" (Notification of the Director-General of the Forestry Agency issued on September 28, 2015; Rin/Ya/Kei No. 49 of 2015) or a subcommittee set up under it (collectively "Committees") on the Establishment Policy (Draft). When a Green Corridor to be established stretches over jurisdictions of two or more Regional Forest Offices, the related Regional Forest Offices are to maintain good communication between them to demarcate and treat the Corridor in an integrated manner by securing opportunities to exchange opinions between the Committees of the related Regional Forest Offices or making other appropriate arrangements.
 - (3) The Director-General of the Regional Forest Office is to consult related agencies before establishing a Green Corridor, if necessary.
 - (4) The Director-General of the Regional Forest Office is to consult the Committees on the Establishment Policy (Draft), and make coordination between the related Regional Forest Offices , when necessary, to finalize the Establishment Policy, and have it reflected by the Regional Administration and Management Plan and the National Forests Operation Plan, based on which a Green Corridor is established.

2. Modification of the area, and other issues

- (1) The Director-General of the Regional Forest Office is to modify the area of an existing Green Corridor, or abolish its designation when it falls under either of the following items:
 - (A) That findings of monitoring or other surveys indicate need to modify the area or take other measures; or
 - (B) That the Green Corridor turns out to be hard to maintain for public benefit or other compelling reasons.
- (2) For any Green Corridor, modification of the area or abolition of its designation is to follow the procedures stated above in 1-(2) through (4), in principle.

Section 4 Points to note

In addition to what has been stated above, training and other arrangements for persons in charge must be made to develop their abilities and help them treat Green Corridors in manners appropriate for the purposes of establishment of the Corridors.

In designating national forests with private forests lying scattered between them as Green Corridors, or treating such Corridors, effort is to also be made to ask prefectural and municipal governments and owners of the forests for understanding and cooperation for establishment of the Corridors will be fulfilled.

4-11 Revised Plan for Mt. Yuwandake National Wildlife Protection Area (Excerpt)

November 1, 2005

The Ministry of the Environment

1. Guidelines

(1) Name of the National Wildlife Protection Area

Mt. Yuwandake National Wildlife Protection Area

(2) Area comprising the National Wildlife Protection Area

As shown in the figure 5-1-3 in the nomination documents

(3) Duration as the National Wildlife Protection Area

From November 1, 2005 to October 31, 2025 (20 years)

(4) Guidelines concerning protection in the National Wildlife Protection Area

(i) Designation category for the National Wildlife Protection Area

Habitat for threatened wildlife

(ii) Purpose for designation as the National Wildlife Protection Area

Amami-Oshima Island lies 300 km south of Sata Cape, Kagoshima Prefecture. Measuring 719 km² in area, Amami-Oshima Island is, after Okinawa Island, the second largest of the Nansei Islands. The Mt. Yuwandake Wildlife Protection Area lies in a central mountainous area at altitudes of 230 m to 694 m, centering on Mt. Yuwandake, the island's highest peak. The central mountainous area is dominated by evergreen broad-leaved forest, including *Castanopsis sieboldii*, *Quercus miyagii*, *Machilus thunbergii*, and *Distylium racemosum*. The island is known to have been isolated from the continent relatively early, some 1 million to 1.5 million years ago.

Reflecting the island's natural environment and geological history, several birds listed in the *Threatened Wildlife of Japan - Red Data Book 2nd ed. - Volume 2, Aves* (edited by the Ministry of the Environment) have been confirmed to live here, including the Amami thrush (*Zoothera dauma major*; CR), the Amami woodcock (*Scolopax mira*; EN), the white-backed woodpecker (*Dendrocopos leucotos owstoni*; EN), the

Japanese pygmy woodpecker (*Dendrocopos kizuki amamii*; VU), the ashy minivet (*Pericrocotus divaricatus*; VU), the Ryukyu robin (*Luscinia komadori*; VU), and the Amami jay (*Garrulus lidthi*; VU). Mammals included in the *Threatened Wildlife of Japan - Red Data Book 2nd ed. - Volume 1, Mammalia* (edited by the Ministry of the Environment) have also been confirmed to live on the island, including the Yanbaru whiskered bat (*Myotis yanbarensis*; CR), the Amami rabbit (*Pentalagus furnessi*; EN), the Ryukyu long-haired rat (*Diplothrix legata*; EN), and the Ryukyu tube-nosed bat (*Murina ryukyuna*; EN).

This area serves as habitat and feeding grounds for various wildlife species, including the threatened species. For this reason, it is recognized as a protected area for threatened wildlife habitat and designated a National Wildlife Protection Area, as defined under Article 28 (1) of the Wildlife Protection and Proper Hunting Act, for the purpose of protecting threatened wildlife species.

Management policies

- Gather information on the status of wildlife in the area concerned, based on bird and mammal monitoring surveys.
- Prevent the population impact of road kills through on-site patrols and coordinated action with local governments, relevant organizations, and local residents, including efforts to raise public awareness.

2. Reason for update

The current population and distribution status of species including the Amami rabbit, Amami woodcock, Amami thrush, white-backed woodpecker, Amami jay, and Ryukyu robin merit continuing protection. (All are National Endangered Species, as defined under the Act on Conservation of Endangered Species of Wild Fauna and Flora.)

3. The land (by land-use) and water surface area of the National Wildlife Protection Area

Total area: 320 ha

Breakdown

A. Breakdown according to land-use type

Forest: 318 ha

Agricultural land: 2 ha Amami Forest Polis

Water surface: - ha

Other: - ha

4-12 Designation Plan for Mt. Yuwandake National Wildlife Protection Area, Mt. Yuwandake Special Protection Zone (Excerpt)

November 1, 2005

The Ministry of the Environment

1. Guidelines

(1) Name of the Special Protection Zone

Mt. Yuwandake Special Protection Zone

(2) Area comprising the Special Protection Zone

As shown in the figure 5-1-3 in the nomination documents

(3) Duration as the Special Protection Zone

From November 1, 2005 to October 31, 2025 (20 years)

(4) Guidelines concerning protection in the Special Protection Zone

(i) Designation category for the Special Protection Zone

Habitat for threatened wildlife

(ii) Purpose for designation as a Special Protection Zone

Amami-Oshima Island lies 300 km south of Sata Cape, Kagoshima Prefecture. Measuring 719 km² in area, Amami-Oshima Island is, after Okinawa Island, the second largest of the Nansei Islands. The Mt. Yuwandake Wildlife Protection Area lies in a central mountainous area at altitudes of 230 m to 694 m, centering on Mt. Yuwandake, the island's highest peak. The central mountainous area is dominated by evergreen broad-leaved forest, including *Castanopsis sieboldii*, *Quercus miyagii*, *Machilus thunbergii*, and *Distylium racemosum*. The island is known to have been isolated from the continent relatively early, some 1 million to 1.5 million years ago.

Reflecting the island's natural environment and geological history, several birds listed in the *Threatened Wildlife of Japan - Red Data Book 2nd ed. - Volume 2, Aves* (edited by the Ministry of the Environment) have been confirmed to live here, including the Amami thrush (*Zoothera dauma major*; CR), the Amami woodcock (*Scolopax mira*; EN), the white-backed woodpecker (*Dendrocopos leucotos owstoni*; EN), the

Japanese pygmy woodpecker (*Dendrocopos kizuki amamii*; VU), the ashy minivet (*Pericrocotus divaricatus*; VU), the Ryukyu robin (*Luscinia komadori*; VU), and the Amami jay (*Garrulus lidthi*; VU). Mammals included in the *Threatened Wildlife of Japan - Red Data Book 2nd ed. - Volume 1, Mammalia* (edited by the Ministry of the Environment) have also been confirmed to live on the island, including the Yanbaru whiskered bat (*Myotis yanbarensis*; CR), the Amami rabbit (*Pentalagus furnessi*; EN), the Ryukyu long-haired rat (*Diplothrix legata*; EN), and the Ryukyu tube-nosed bat (*Murina ryukyuna*; EN).

In the Mt. Yuwandake Wildlife Protection Area, forests ranging from altitudes of 430 m to 694 m in the central mountainous area, centering on Mt. Yuwandake, offer the most crucial breeding and foraging grounds on Amami-Oshima Island for the Yanbaru whiskered bat and Ryukyu tube-nosed bat. The former species was recorded as a new species in 1998. Recognized as a particularly important area within the Mt. Yuwandake Wildlife Protection Area, this area is designated a Special Protection Zone, as defined under Article 29 (1) of the Wildlife Protection and Proper Hunting Act, for the purpose of protecting the habitats of the threatened wildlife species that occur here.

Management policies

- Maintain current habitat conditions to allow mountain streams and forests to continue serving as resting, feeding, and breeding grounds for threatened wildlife species.
- Take coordinated action to maintain and build roads in the area and to repair forest trails in joint efforts with local governments and relevant organizations to demonstrate due consideration for the conservation of natural habitats.

2. The land (by land-use) and water surface area of the Special Protection Zone

Total area: 103 ha

Breakdown

A. Breakdown according to land-use type

Forest: 103 ha

Agricultural land: - ha

Water surface: - ha

Other: - ha

4-13 Designation Plan for Yambaru (Ada) National Wildlife Protection Area (Excerpt)

November 1, 2009

The Ministry of the Environment

1. Outlines of the National Wildlife Protection Area

(1) Name of the National Wildlife Protection Area

Yambaru (Ada) National Wildlife Protection Area

(2) Area comprising the National Wildlife Protection Area

As shown in the figure 5-1-8 in the nomination documents

(3) Duration as the National Wildlife Protection Area

From November 1, 2009 to October 31, 2029 (20 years)

(4) Designation category for the National Wildlife Protection Area

Habitat for threatened wildlife

(5) Purpose for designation as the National Wildlife Protection Area

Located in Ada Ward, Kunigami Village, Kunigami County, Okinawa Prefecture in the northern part of Okinawa Island, this area consists of a National Forest centering on Mt. Ibudake (elevation 353 m) 2.5 km northwest of a community in Ada Ward; a village forest; and land stretching to the eastern shore, including the communities.

Most of this area is covered by subtropical broad-leaved forest, primarily *Castanopsis sieboldii*. The slope of Mt. Ibudake halfway to the peak features a *Quercus miyagii* tree estimated to be 300 years in age.

Reflecting such natural environment, this region is home to various rare birds that are National Endangered Species, as defined under the Act on Conservation of Endangered Species of Wild Fauna and Flora (Act No. 75 of 1992), and listed on the Red List prepared by the Ministry of the Environment, including the Okinawa woodpecker (*Sapheopipo noguchii*; CR), the Okinawa rail (*Gallirallus okinawae*; CR), and the Ryukyu robin (*Luscinia komadori namiyei*; EN). This area is also home to several rare mammals, including the Okinawa least horseshoe bat (*Rhinolophus pumilus pumilus*; EN) and the Ryukyu long-haired rat (*Diplothrix legata*; EN).

As for the Okinawa rail, its occurrence is confirmed within and around the communities.

As such, the area is an important habitat for threatened wildlife species, including the Okinawa rail, and is designated a National Wildlife Protection Area, as defined under Article 28 (1) of the Wildlife Protection and Proper Hunting Act (Act No. 88 of 2002), for the purpose of protecting threatened wildlife species that occur here.

2. Guidelines concerning protection in the National Wildlife Protection Area

(1) Protection and management policies

(i) Gather information on the status of wildlife in the area concerned, based on bird and mammal monitoring surveys and on-site patrols.

(ii) Prevent inadvertent human activities that may threaten wildlife habitats and adverse effects of scattered waste that may impact bird species, through on-site patrols and coordinated action with relevant local governments, NPOs, and local residents, including public awareness activities.

(iii) Implement activities to control the Javan mongoose and other alien species that pose a threat to the survival of native species.

(2) The objectives of the conservation program

Concerns in the Yambaru (Ada) Wildlife Protection Area include rising rates of road kill incidents and emerging threats to the Okinawa rail and other species due to the presence of alien species such as the Javan mongoose, feral dogs, and feral cats.

The objectives of the program are to appropriately manage habitat environment, as well as to maintain and improve habitat for threatened wildlife species, including the Okinawa rail, for the continuing survival of such species.

(3) Areas covered by conservation program

Entire Yambaru (Ada) Wildlife Protection Area

(4) Description of the conservation program

The Ministry of the Environment will undertake necessary operations to maintain and restore natural habitats for the threatened wildlife species in this area, and consolidate the facilities required to implement these activities. These activities include installing facilities to prevent intrusion of the animals that may pose a threat to the protection of wildlife habitat. The Ministry will also monitor the status of the threatened wildlife species and evaluate progress toward the program objectives at periodic intervals.

The local government of Kunigami Village will implement, including maintaining and managing protective shelters for the Okinawa rail and public awareness campaigns targeting local residents, based on plans for “*The Home of the Okinawa Rail*” initiative, whose purpose is to ensure the harmonious coexistence of the Okinawa rail and local residents.

(5) Overview of environmental changes

Through predation and competition for habitats, alien species introduced to northern areas of Okinawa Island have significantly impacted native species in recent years.

Not found here in the 1960s when the area was first designated as the Ibudake Wildlife Protection Area by Okinawa Prefecture, the Javan mongoose has now been reported in this area and is degrading the habitat environment.

(6) Change in wildlife status

No significant changes have been observed in the status of the Okinawa rail in this Wildlife Protection Area. However, the range of the Okinawa rail has gradually shrunk towards the north as populations of Javan mongoose encroach upon its range. When first discovered in the 1980s, the Okinawa rail occurred close to the area from Shioya Bay in Ogimi Village to Taira in Higashi Village. In recent years, the southernmost limit of its range appears to have retreated north, closer to this Wildlife Protection Area, from the boundary of Kunigami Village and Ogimi Village to Takae in Higashi Village.

Reports indicate the Javan mongoose is now present within the Wildlife Protection Area itself, indicating habitat decline for the Okinawa rail.

Mortality due to road kills has been another major issue in recent years in the north of Okinawa Island, including in this Wildlife Protection Area.

3. The land (by land-use) and water surface area of the National Wildlife Protection Area

Total area: 1,279 ha

Breakdown

A. Breakdown according to land-use type

Forest: 932 ha

Agricultural land: 63 ha

Water surface: - ha

Other: 284 ha

4-14 Designation Plan for Yambaru (Ada) National Wildlife Protection Area, Yambaru (Ada) Special Protection Zone (Excerpt)

November 1, 2009

The Ministry of the Environment

1. Outlines of the Special Protection Zone

(1) Name of the Special Protection Zone

Yambaru (Ada) Special Protection Zone

(2) Area comprising the Special Protection Zone

As shown in the figure 5-1-8 in the nomination documents

(3) Duration as the Special Protection Zone

From November 1, 2009 to October 31, 2029 (20 years)

(4) Designation category for the Special Protection Zone

Habitat for threatened wildlife

(5) Purpose for designation as the Special Protection Zone

Located 2.5 km northwest of the town of Ada Ward, Kunigami Village, Kunigami County, Okinawa Prefecture, this area includes Mt. Ibudake (elevation 353 m) to the southeast and abuts the Fungawa River to the west. It approaches the Gaji-Sate Forest Road to the north, the Kunigami Village forest to the east, and the trailhead for the Mt. Ibudake mountain trail to the south. Virtually the entire area is covered by forest composed of *Castanopsis sieboldii*. The slope of Mt. Ibudake halfway to the peak features a *Quercus miyagii* tree estimated to be 300 years in age.

Reflecting such natural environment, this region is home to various rare birds that are National Endangered Species, as defined under the Act on Conservation of Endangered Species of Wild Fauna and Flora (Act No. 75 of 1992), and listed on the Red List prepared by the Ministry of the Environment, including the Okinawa woodpecker (*Sapheopipo noguchii*; CR), the Okinawa rail (*Gallirallus okinawae*; CR), and the Ryukyu robin (*Luscinia komadori namiyei*; EN). This area is also home to several rare mammals, including

the Okinawa least horseshoe bat (*Rhinolophus pumilus pumilus* ;EN) and the Ryukyu long-haired rat (*Diplothrix legata*; EN).

As such, the area is an important habitat for threatened wildlife species, including the Okinawa rail, and is designated a Special Protection Zone, as defined under Article 28 (1) of the Wildlife Protection and Proper Hunting Act (Act No. 88 of 2002), for the purpose of protecting threatened wildlife species that occur here.

Offering ideal habitat for the Okinawa woodpecker and Okinawa rail, within the Yambaru (Ada) Wildlife Protection Area, this area is recognized particularly important for protection, and designated a Special Protection Zone as defined under Article 29 (1) of the Wildlife Protection and Proper Hunting Act, for the purpose of protecting threatened wildlife species that occur here.

2. Guidelines concerning protection in the Special Protection Zone

(1) Protection and management policies

(i) Gather information on the status of wildlife in the area concerned, based on bird and mammal monitoring surveys and on-site patrols.

(ii) Prevent inadvertent human activities that may threaten wildlife habitats and adverse effects of scattered waste that may impact bird species, through on-site patrols and coordinated action with relevant local governments, NPOs, and local residents, including public awareness activities.

(iii) Implement activities to control the Javan mongoose and other alien species that pose a threat to the survival of native species.

(2) The objectives of the conservation program

Concerns in the Yambaru (Ada) Wildlife Protection Area include rising rates of road kill incidents and emerging threats to the Okinawa rail and other species due to the presence of alien species such as the Javan mongoose, feral dogs, and feral cats.

The objectives of the program are to appropriately manage habitat environment, as well as to maintain and improve habitat for threatened wildlife species, including the Okinawa rail, for the continuing survival of such species.

(3) Areas covered by conservation program

Entire Yambaru (Ada) Special Protection Zone

(4) Description of the conservation program

The Ministry of the Environment will undertake necessary operations to maintain and restore natural habitats for the threatened wildlife species in this area, and consolidate the facilities required to implement these activities. These activities include installing facilities to prevent intrusion of the animals that may pose a threat to the protection of wildlife habitat. The Ministry will also monitor the status of the threatened wildlife species and evaluate progress toward the program objectives at periodic intervals.

The local government of Kunigami Village will implement, including maintaining and managing protective shelters for the Okinawa rail and public awareness campaigns targeting local residents, based on plans for “*The Home of the Okinawa Rail*” initiative, whose purpose is to ensure the harmonious coexistence of the Okinawa rail and local residents.

(5) Overview of environmental changes

Through predation and competition for habitats, alien species introduced to northern areas of Okinawa Island have significantly impacted native species in recent years.

Not found here in the 1960s when the area was first designated as the Ibudake Wildlife Protection Area by Okinawa Prefecture, the Javan mongoose has now been reported in this area and is degrading the habitat environment.

(6) Change in wildlife status

No significant changes have been observed in the status of the Okinawa rail in this Wildlife Protection Area. However, the range of the Okinawa rail has gradually shrunk towards the north as populations of Javan mongoose encroach upon its range. When first discovered in the 1980s, the Okinawa rail occurred close to the area from Shioya Bay in Ogimi Village to Taira in Higashi Village. In recent years, the southernmost limit of its range appears to have retreated north, closer to this Wildlife Protection Area, from the boundary of Kunigami Village and Ogimi Village to Takae in Higashi Village.

Reports indicate the Javan mongoose is now present within the Wildlife Protection Area itself, indicating habitat decline for the Okinawa rail.

Mortality due to road kills has been another major issue in recent years in the north of Okinawa Island, including in this Wildlife Protection Area.

3. The land (by land-use) and water surface area of the Special Protection Zone

Total area: 220 ha

Breakdown

A. Breakdown according to land-use type

Forest: 220 ha

Agricultural land: - ha

Water surface: - ha

Other: - ha

4-15 Designation Plan for Yambaru (Aha) National Wildlife Protection Area (Excerpt)

November 1, 2009

The Ministry of the Environment

1. Outlines of the National Wildlife Protection Area

(1) Name of the National Wildlife Protection Area

Yambaru (Aha) National Wildlife Protection Area

(2) Area comprising the National Wildlife Protection Area

As shown in the figure 5-1-8 in the nomination documents

(3) Duration as the National Wildlife Protection Area

From November 1, 2009 to October 31, 2029 (20 years)

(4) Designation category for the National Wildlife Protection Area

Habitat for threatened wildlife

(5) Purpose for designation as the National Wildlife Protection Area

This site is located in Aha Ward, Kunigami Village, Kunigami County, Okinawa Prefecture, in the northern part of Okinawa Island, north of the central portion of the reservoir impounded by Aha Dam. The Aha River runs along the west, while the Fungawa River runs along the east. The area is covered by subtropical evergreen broad-leaved forest consisting mainly of *Castanopsis sieboldii*.

Reflecting such natural environment, this region is home to various rare birds that are National Endangered Species, as defined under the Act on Conservation of Endangered Species of Wild Fauna and Flora (Act No. 75 of 1992), and listed on the Red List prepared by the Ministry of the Environment, including the Okinawa woodpecker (*Sapheopipo noguchii*; CR), the Okinawa rail (*Gallirallus okinawae*; CR), and the Ryukyu robin (*Luscinia komadori namiyei*; EN).

This area is also home to several rare mammals, including the Okinawa least horseshoe bat (*Rhinolophus pumilus pumilus*; EN) and the Ryukyu wild boar (*Sus scrofa riukiuanus*; EN).

As such, the area is an important habitat for threatened wildlife species and is designated a National Wildlife Protection Area, as defined under Article 28 (1) of the Wildlife Protection and Proper Hunting Act (Act No. 88 of 2002), for the purpose of protecting threatened wildlife species that occur here.

2. Guidelines concerning protection in the National Wildlife Protection Area

(1) Protection and management policies

(i) Gather information on the status of wildlife in the area concerned, based on bird and mammal monitoring surveys and on-site patrols.

(ii) Prevent inadvertent human activities that may threaten wildlife habitats and adverse effects of scattered waste that may threaten bird species, through on-site patrols and coordinated action with relevant local governments, NPOs, and local residents, including public awareness activities.

(iii) Implement activities to control the Javan mongoose and other alien species that pose a threat to the survival of native species.

3. The land (by land-use) and water surface area of the National Wildlife Protection Area

Total area: 465 ha

Breakdown

A. Breakdown according to land-use type

Forest: 407 ha

Agricultural land: 18 ha

Water surface: 37 ha

Other: 3 ha

4-16 Designation Plan for Iriomote National Wildlife Protection Area (Excerpt)

November 1, 2011

The Ministry of the Environment

1. Outlines of the National Wildlife Protection Area

(1) Name of the National Wildlife Protection Area

Iriomote National Wildlife Protection Area

(2) Area comprising the National Wildlife Protection Area

As shown in the figure 5-1-12 in the nomination documents

(3) Duration as the National Wildlife Protection Area

From November 1, 2011 to October 31, 2031(20 years)

(4) Designation category for the National Wildlife Protection Area

Habitat for threatened wildlife

(5) Purpose for designation as the National Wildlife Protection Area

Located on Iriomote Island in the western portion of Yaeyama Islands, this area consists of land stretching from the south shore to the central part of the island, including Mt. Komidake (elevation 469.5 m), Mt. Tedo (elevation 441.2 m), and Mt. Gozadake (elevation 420.4 m), the highest peaks in Okinawa Prefecture; part of the Sakiyama Peninsula; and the northwest portion of the island.

The regions stretching from the center of the island to the south shore and part of the Sakiyama Peninsula are covered by pristine large subtropical evergreen broad-leaved forest, dominated by *Castanopsis sieboldii* and *Quercus miyagii*. A portion of the island's northwest lies abuts the estuary of the Urauchi River, where a large mangrove forest develops.

Reflecting such natural environment, various parts of the island are home to rare species that are National Endangered Species as defined under the Act on Conservation of Endangered Species of Wild Fauna and Flora (Act No. 75 of 1992) and listed on the Red List prepared by the Ministry of the Environment,

including the Iriomote cat (*Prionailurus bengalensis iriomotensis*; CR), the crested serpent eagle (*Spilornis cheela perplexus*; CR), and the emerald dove (*Chalcophaps indica yamashinai*; EN).

This is a crucial habitat for various threatened wildlife species, including the Iriomote cat, and is designated a Wildlife Protection Area as defined under Article 28 (1) of the Wildlife Protection and Proper Hunting Act (Act No. 88 of 2002).

2. Guidelines concerning protection in the National Wildlife Protection Area

(1) Protection and management policies

(i) Appropriately manage as a protected area for threatened wildlife species habitat to protect threatened species such as Iriomote cat.

(ii) Gather information on the status of wildlife in the area concerned, based on bird and mammal monitoring surveys and on-site patrols.

(iii) Prevent activities that may threaten wildlife habitats and impact of scattered waste that may impact bird species, through on-site patrols and coordinated action with local governments, NPOs, and relevant local residents, including public awareness activities.

3. The land (by land-use) and water surface area of the National Wildlife Protection Area

Total area: 10,218 ha

Breakdown

A. Breakdown according to land-use type

Forest: 10,218 ha

Agricultural land: - ha

Water surface: - ha

Other: - ha

4-17 Designation Plan for Iriomote National Wildlife Protection Area, Iriomote Special Protection Zone (Excerpt)

November 1, 2011

The Ministry of the Environment

1. Outlines of the Special Protection Zone

(1) Name of the Special Protection Zone

Iriomote Special Protection Zone

(2) Area comprising the Special Protection Zone

As shown in the figure 5-1-17 in the nomination documents

(3) Duration as the Special Protection Zone

From November 1, 2011 to October 31, 2031(20 years)

(4) Designation category for the Special Protection Zone

Habitat for threatened wildlife

(5) Purpose for designation as the Special Protection Zone

Located on Iriomote Island in the western portion of Yaeyama Islands, this area consists of land stretching from the south shore to the central part of the island, including Mt. Komidake (elevation 469.5 m), Mt. Tedo (elevation 441.2 m), and Mt. Gozadake (elevation 420.4 m), the highest peaks in Okinawa Prefecture; part of the Sakiyama Peninsula; and the northwest portion of the island.

The regions stretching from the center of the island to the south shore and part of the Sakiyama Peninsula are covered by pristine large subtropical evergreen broad-leaved forest, dominated by *Castanopsis sieboldii* and *Quercus miyagii*. A portion of the island's northwest lies abuts the estuary of the Urauchi River, where a large mangrove forest develops.

Reflecting such natural environment, various parts of the island are home to rare species that are National Endangered Species as defined under the Act on Conservation of Endangered Species of Wild Fauna and Flora (Act No. 75 of 1992) and listed on the Red List prepared by the Ministry of the Environment,

including the Iriomote cat (*Prionailurus bengalensis iriomotensis*; CR), the crested serpent eagle (*Spilornis cheela perplexus*; CR), and the emerald dove (*Chalcophaps indica yamashinai*; EN).

Past surveys have confirmed particularly frequent occurrence of Iriomote cats and a bountiful supply of prey species in this area, indicating that the area harbors a good feeding ground and habitat for the species.

This is a crucial habitat for various threatened wildlife species, including the Iriomote cat, and is designated a Wildlife Protection Area as defined under Article 28 (1) of the Wildlife Protection and Proper Hunting Act (Act No. 88 of 2002).

2. Guidelines concerning protection in the Special Protection Zone

(1) Protection and management policies

(i) Appropriately manage as a protected area for threatened wildlife species habitat to protect threatened species such as Iriomote cat.

(ii) Gather information on the status of wildlife in the area concerned, based on bird and mammal monitoring surveys and on-site patrols.

(iii) Prevent activities that may threaten wildlife habitats and impact of scattered waste that may impact bird species, through on-site patrols and coordinated action with local governments, NPOs, and relevant local residents, including public awareness activities.

3. The land (by land-use) and water surface area of the Special Protection Zone

Total area: 9,999 ha

Breakdown

A. Breakdown according to land-use type

Forest: 9,999 ha

Agricultural land: - ha

Water surface: - ha

Other: - ha

4-18 Protection and Recovery Program for the Amami Rabbit (*Pentalagus furnessi*)

November 19, 2004

Ministry of Education, Culture, Sports, Science and Technology

Ministry of Agriculture, Forestry and Fisheries

Ministry of the Environment

I. Objectives of the Program

The Amami rabbit (*Pentalagus furnessi*) is a monospecific species endemic to Japan and found only on Amami-Oshima Island and Tokunoshima Island. This species digs burrows mainly on slopes in virgin forest, and feeds near adjacent streams and secondary forests where the herbaceous plants, which that make up its diet, are abundant.

In the first half of the 1990s, the total population of the Amami rabbit was estimated to be 2,600 to 6,200 on Amami-Oshima Island and 120 to 290 on Tokunoshima Island. However, deforestation accompanying development and the invasion of alien species have contributed to a decrease in areas suitable for its habitation and reduced its distributional range on both islands. As of 2003, estimates put populations at 2,000 to 4,800 on Amami-Oshima Island and around 200 on Tokunoshima Island. Increasingly, the habitats on these islands tend to be fragmented, and certain geographically isolated populations are present in low densities. The risk of local extinction in these habitats is considered to be significant.

The objectives of this program is to ensure the stable survival of the rabbit in a natural state by clarifying the status of the species; maintaining and improving the environments necessary for the species; mitigating and removing factors that pose threats to the species; and exploring measures to recover wild populations, including reintroducing captive-bred animals.

II. Program Areas

The distribution areas of this species on Amami-Oshima Island and Tokunoshima Island in Kagoshima Prefecture (including past habitats), as well as captive breeding areas described in Item 3 of Section III below.

III. Overview of the Program

1. Understanding the status of the species and accumulation of knowledge on ecology and other matters

The following surveys will be undertaken to appropriately and effectively implement the program, and to investigate emergency countermeasures in the event of alarming changes. These surveys will gather information on the status and trends of this species and accumulate knowledge on the ecology of the species and other aspects.

(1) Surveying and monitoring the status of the species

The program will include fecal pellet surveys to estimate density and to monitor distributions. It will also collect and organize information on the status of the populations, including reports of sightings.

(2) Clarifying the biological characteristics

The program will collect and organize knowledge on the species already available. Using trail cameras and radio telemetry, the program will also seek to gather more information on the home range of individual animals, typical home environments, breeding status, and feeding habits.

(3) Monitoring habitats

The program will monitor the state of habitat invasion and predation by species likely to disturb the populations of this species, including mongooses, feral dogs, and feral cats, as well as disturbances attributable to viruses and other diseases and disease vectors, including black rats and domestic rabbits.

The program will monitor and collect information on anthropogenic changes in habitats, including deforestation and road construction.

(4) Understanding suitable environments and potential threats

The program will analyze the results of surveys (1), (2), and (3) above to understand environmental factors that are suitable for the species or potentially affect the species. It will also seek to geographically elucidate the relationship between these environmental factors and the status of the species.

2. Habitat maintenance and improvement

The stable survival of this species in its natural state will require a balanced combination of virgin forest, streams, and secondary forest. Human activity and predation by alien species, such as the mongoose, threaten the survival of this species, although the actual extent of the damage to date is not completely understood. For this reason, the program will implement the following measures based on the knowledge acquired through Item 1 above.

(1) Clarifying the distribution of alien species and investigating countermeasures

The program seeks to clarify the distribution of alien species and their impacts on this species. It will also investigate countermeasures, including efforts to eliminate these species, and implement the appropriate measures. The program incorporates measures to improve the management of domestic animals such as cats and dogs (including hunting dogs).

(2) Habitat maintenance and improvement

Based on knowledge provided by experts, particularly experts in the ecology of this species, the program will seek to maintain and improve suitable habitats and breeding conditions for this species; expand these habitats by ensuring the continuity of fragmented habitats; and investigate other effective measures to address the degradation of the natural habitat and declining populations.

3. Captive breeding, etc.

The total population of this species is currently in decline. Some geographically isolated populations are critically endangered at the local level. In these cases, simply strengthening protective measures in natural habitats may be insufficient to recover wild populations. For this reason, based on knowledge provided by experts, particularly in the ecology of this species, the program will seek to establish techniques for captive breeding and to recover wild populations through reintroduction. These efforts will rely on individual animals rescued from injury or disease, or captured in the field and transported to the appropriate facilities.

The necessary individuals will be captured with due care to minimize impacts on wild populations. When using captive-bred individuals for species reintroduction, the program will account for genetic diversity issues to prevent the adverse effects of inbreeding.

When reintroducing individuals, the program will take special note of the irreversible effects on the survival of the wild population, including any changes in behavior attributable to captive breeding and infections by pathogens carried by reintroduced individual animals. Before these efforts, drawing on the knowledge of experts in the ecology or other aspects of this species, the program will thoroughly assess the need for reintroduction, along with various other issues, including methods, effects, and follow-up monitoring. At the same time, to optimize its actions, the program will seek to build consensus among the concerned parties.

4. Measures for effective promotion of the program

(1) Promotion of education and awareness-raising activities

To achieve effective progress with the program, understanding and cooperation is crucial on the parts of the national government, relevant local governments, parties carrying out various business activities, and the citizens including local residents. The program will promote public awareness on the need for protecting the species and the progress of the program. It will help foster better understanding and cooperation in

protecting the species, as well as to facilitate the development of voluntary conservation activities of the community,

(2) Patrol, etc. of the habitat

To prevent actions leading to the adverse effects on the species survival, whether due to indiscreet entry into the habitat, anthropogenic changes in the habitat, release of alien species, or other actions, the program will monitor the species' habitats and surrounding areas, collect information, and take appropriate countermeasures.

(3) Consideration for business activities

The knowledge, which is gained through Items 1 and 2 of Section III, will be used when business activities are conducted in the habitats of this species and surrounding areas to ensure that sufficient consideration be given to the conditions required for its continuing survival.

(4) Cooperation to achieve effective progress with the program

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, relevant local governments, experts in the ecology or other aspects of this species, local residents and landowners in the species' habitats and adjacent areas.

4-19 Protection and Recovery Program for the Iriomote Cat (*Prionailurus bengalensis iriomotensis*)

July 17, 1995

Environment Agency

Ministry of Agriculture, Forestry and Fisheries

I. Objectives of the Program

The Iriomote cat (*Prionailurus bengalensis iriomotensis*) is a feline species found only on Iriomote Island in Okinawa Prefecture. The total population of this species is estimated to be about 100 in this habitat, mainly in the lowland areas of the island. This species was confirmed to represent a new species relatively recently, in 1967*. Subsequent surveys do not suggest precipitous population declines.

However, given the restricted range and small population, many factors may affect the steady survival of the current wild population. These factors include the progressive shrinking and fragmentation of the natural habitat in the lowland areas critical to its survival, frequent roadkills, and the risks of introduction and outbreak of contagious disease.

The objectives of this program is to ensure the stable survival of the cat in a natural state by monitoring and gathering information on the status of the species; maintaining and improving the environmental conditions necessary for the species; and mitigating and removing factors that pose threats to the species.

II. Program areas

Mainly on Iriomote Island (Okinawa Prefecture)

III. Overview of the Program

1. Understanding the species status and monitoring

The following surveys will be undertaken to appropriately and effectively implement the program, based on regular observations of the species status.

* The Iriomote cat was formerly treated as a distinct species. However, it is now considered to be a subspecies of *Prionailurus bengalensis*.

(1) Ascertaining current distribution on the island

Given the scarcity of information on current distribution and the difficulty of gaining access to much of the species habitat, including inland areas, the south coast, and Sakiyama Peninsula, the program will seek to gather more specific information on species distribution, especially in the preceding areas, using trail cameras and field trace assessments. The program will also seek to continuously gather information on distribution changes on the island.

(2) Monitoring the status of the species

The program will monitor and accumulate information on the status of this species, including data on the number of individuals, home range, breeding, migration, and dispersal. The survey plots will be set based on what is known about the distribution of the species. Tools such as trail cameras and radio tracking will be used to identify individual animals and to continuously track and monitor individual animals.

Emergency surveys and other countermeasures will be implemented in the event of alarming changes in the population.

(3) Gathering information on the health of individual animals

The program will also assess the health of individual animals through pathological and parasite examinations (animals dead, rescued, or captured for study) to monitor the introduction and outbreak of contagious diseases. Should these studies identify a pathogen or contagious disease that potentially threatens the survival of this species, plans call for implementing emergency surveys and other countermeasures.

To accumulate additional biological data, dead animals will be collected and preserved appropriately, where possible. In addition to pathological and parasite examinations, the survey will collect and analyze information to shed light on the genetic diversity of this species.

2. Habitat maintenance and improvement

The stable survival of this species in its natural state will require efforts to maintain the health of the entire ecosystem, including various prey animals and the food chain, in which this species is the apex predator.

For this reason, efforts will seek to preserve favorable conditions in areas where environmental conditions suit the species. In areas where changes in land use or agricultural management have degraded species habitat and affected maintenance of the population, efforts will seek to restore or improve habitat conditions, according to the degree of degradation, to render them suitable for feeding, resting, and breeding, as well as migration, dispersal, and contact between individual animals.

The following specific measures will be undertaken based on the current species range and habitat:

(1) In areas that feature ideal conditions for this species, and where good living conditions are observed, efforts will focus on maintaining and/or improving the habitat as necessary. These regions stretch from the coastal areas and estuaries to lowland areas comprised of a complex stream and valley topography. In these regions, efforts will seek to preserve or restore the continuity of the natural habitat, which tends to feature diverse plant species in lowland forest environments: mangroves and powder-puff trees (*Barringtonia racemosa*); wetlands including rice paddy fields; hinterland forests of subtropical Castanopsis and oak forests, etc.; and an abundant supply of prey animals, including the white-breasted waterhen (*Amaurornis phoenicurus*), Kishinoue's giant skink (*Plestiodon kishinouyei*), and frogs.

(2) In regions where the species occurs in habitat already degraded but still required to maintain the population on the island from the standpoint of the expansion of suitable habitats and the migration and dispersal of individual animals, efforts will focus on improving or restoring habitat. Based on natural and social conditions, wetlands will be improved where appropriate, and vegetation unsuitable for species habitat remediated. Such areas include abandoned cropland covered with Chinese silver grass (*Miscanthus sinensis*) and Cogongrass (*Imperata cylindrica*) and abandoned grassland for grass sampling and grazing. Additionally, in open spaces such as farmland falling within the habitat range, efforts will focus on maintaining and cultivating forests along rivers and between farm plots to ensure the routes needed by this species for migration, dispersal, and contact between individuals.

These program activities will account for the ecological characteristics of this species and the effects of various activities on biological communities of this and other species. These activities will proceed based on a long-term vision, with assessments of current methods and corresponding readjustments. In the process, the program will seek to establish local frameworks for cooperation.

Where land is used or business activities conducted within the species habitat and surrounding areas, the program will seek to ensure the conditions needed for the survival of this species, including important feeding grounds and migration routes.

3. Semi-wild breeding

Due to the cat's solitary habits and extensive range in forests, little is known about breeding habits or requirements in the wild. Improving on this understanding poses major challenges. Progressive shrinking or subdivision of habitat and range, and the introduction and outbreak of contagious disease may affect the sound reproduction of this species.

To better understand breeding habits and to establish captive breeding techniques, the program will conduct studies involving semi-wild captive breeding in an outdoor rearing facility based on the natural environment and located within the species habitat on the island.

Here, animals will be collected by capturing wild specimens or by interning rescued sick and injured animals. The field individuals will be captured with a focus on minimizing the effects on current wild population; for example, by avoiding capturing residents of breeding age.

To prepare for sudden declines in the wild population due to the introduction and outbreak of a contagious disease, the program will also assess the necessity of maintaining and expanding captive population.

4. Other

(1) Measures to prevent roadkill incidents

To minimize road kill incidents, the program will collect reports of sightings on or along roads. In areas where road kills are estimated to be relatively common, the program will implement measures in partnership with relevant organizations, including efforts to improve facilities and install warning signs for motorists.

(2) Rescue and rehabilitation of sick and injured individuals

The program will prepare and enhance systems for the rescue and rehabilitation of sick and injured individuals. Individual animals that recover to a stage that would allow them to survive in the wild will be, in principle, returned to their natural habitat. At the same time, recovered individuals will be assessed for suitability if the semi-wild captive breeding program described in Item 3 above is in need of animals.

(3) Measures to prevent predation on poultry

To minimize predation by this species on chickens and aigamo ducks and species dependence on anthropogenic food sources, which may disturb the mode of life of this species, the program will investigate measures to prevent these incidents and implement appropriate countermeasures: for example, installing invasion prevention fences.

(4) Patrol of the habitats

Habitats will be monitored to safeguard against adverse effects on the conditions required for species survival and reproduction.

(5) Preventing the impacts of alien species

The program will monitor the invasive status and impacts of feral dogs, feral cats, and other invasive species that may compete against the species or pass on infectious disease. It will also investigate various preventive measures, including comprehensive management of domestic animals and their removal from wild habitats. These countermeasures will be implemented as necessary.

Since domestic cats are an especially likely source of infection and disease, the program will examine the domestic cats found on the island at periodic intervals to identify the presence of contagious pathogens and

implement appropriate countermeasures if these examinations confirm the presence of such a pathogen or the onset of a contagious disease threatening the survival of this species.

(6) Promotion of education and awareness-raising activities

To achieve effective progress with the program, understanding and cooperation is crucial on the parts of the parties carrying out various business activities, relevant administrative organs, and the citizens including local residents. The program will promote public awareness on the status of the species, the need for protection, and the progress of the protection and recovery program. These activities will help foster better understanding and cooperation in protecting the species. The awareness-raising activities are expected to take place at public facilities in relevant areas so as to facilitate the development of voluntary conservation activities of the community.

(7) Consolidation of collaboration for effective promotion of the program

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, local governments of Okinawa Prefecture and Taketomi Town at all levels, experts with expertise on biology, ecology or other aspects of this species, as well as local residents in the species' habitats and adjacent areas.

4-20 Protection and Recovery Program for the Amami Woodcock (*Scolopax mira*)

August 31, 1999

Environment Agency

Ministry of Agriculture, Forestry and Fisheries

I. Objectives of the Program

The Amami woodcock (*Scolopax mira*), a bird in the Scolopacidae family, is found in parts of the Nansei Islands. The species inhabits forests dominated by *Castanopsis sieboldii* and other species, but degradation of suitable environments and other factors have reduced both the distributional range and overall population of this species.

The objectives of this program is to ensure the stable survival of the bird in a natural state by clarifying and monitoring the status of the species; maintaining and improving the environments necessary for the species; and mitigating and removing factors that pose threats to the species.

II. Program Areas

The distribution areas of this species in the Amami Island Group, Kagoshima Prefecture, and in Okinawa Prefecture

III. Overview of the Program

1. Understanding the species status and monitoring, etc.

The following surveys will be undertaken to appropriately and effectively implement the program.

(1) Understanding the species status and monitoring

Based on automobile-based route censuses and other surveys undertaken in the range of this species during breeding season and non-breeding season, the program will continuously gather information on the status and trends of this species, including its distribution and breeding status. The program will also collect and organize reports of sightings.

(2) Clarifying the biological characteristics

Using banding, radio tracking, and other identification/tracking methods, the program will gather information on characteristics of the species' biology, including migration of individual birds, actual

dispersion status, and behavior and home range during breeding and non-breeding season. The program will also conduct research to elucidate breeding status based on fecal analysis, feeding habits, and the structure of ecosystems in which this species occurs, including current predation status.

(3) Understanding suitable environments and potential threats

The results gained in (1) and (2) above will be used to clarify suitable environments for this species. Surveys will be implemented to better understand the factors that pose potential threats to the current population and countermeasures to remove those impacts.

2. Habitat maintenance and improvement

The stable survival of this species in its natural state will require efforts to maintain the health of the entire ecosystem, including the forests that serve as the species' crucial breeding sites.

Based on the results of Item 1 above, the program will explore effective countermeasures against degradation of the habitats and population declines, thereby maintaining and improving environments suitable for the habitat and breeding.

When land use or business activity on species habitat arises, the program will seek to ensure the environmental conditions needed for the survival of the species.

3. Captive breeding

Species conservation will focus on the maintenance and growth of wild populations in their habitats.

However, to safeguard against precipitous declines in the wild populations, the program will explore the possibility of captive breeding.

4. Patrol, etc. of the habitat

To prevent human interactions that may adversely affect the populations, including illegal hunting and indiscreet entry into the habitats, the program will establish a patrolling system in the species habitats.

5. Promotion of education and awareness-raising activities

To achieve effective progress with the program, understanding and cooperation is crucial on the part of the parties carrying out various business activities, relevant administrative organs, and citizens including community residents. The program will promote public awareness on the species status, the need for protection, and the progress of the protection and recovery program. These activities will help foster better understanding and cooperation in protecting the species. The program will also seek to facilitate the development of voluntary conservation activities of the community through efforts such as fostering a deeper understanding of the species in the concerned area.

To minimize population losses due to road kills, the program will investigate accident prevention measures in partnership with relevant organizations, including installing warning signs for motorists.

6. Consolidation of collaboration for effective promotion of the program

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, Kagoshima Prefecture, Okinawa Prefecture and relevant municipalities, experts in ecology or other aspects of this species, and local residents.

4-21 Protection and Recovery Program for the the Amami Thrush (*Zoothera dauma major*)

August 31, 1999

Environment Agency

Ministry of Agriculture, Forestry and Fisheries

I. Objectives of the Program

Occurring only on Amami-Oshima Island and Kakeroma Island, the Amami thrush (*Zoothera dauma major*) is the largest of the Japanese thrushes. This species mainly inhabits mature or old growth laurel forests featuring closed canopies and sheltered from the wind.

Degradation of suitable environments and other factors have dramatically reduced both the distributional range and overall population of this species.

The objectives of this program is to ensure the stable survival of the bird in a natural state by clarifying and monitoring the status of the species; maintaining and improving the environments necessary for the species; and mitigating and removing factors that pose threats to the species.

II. Program Areas

The distribution areas of this species in the Amami Island Group in Kagoshima Prefecture.

III. Overview of the Program

1. Understanding the species status and monitoring, etc.

The following surveys will be undertaken to appropriately and effectively implement the program.

(1) Understanding the species status and monitoring

Using fixed-point observations, route censuses, and other techniques to track the birdsong during the breeding season, the program will continuously gather information on the status and trends of this species.

The program will also collect and organize reports of sightings.

(2) Clarifying the biological characteristics

The program will also consider tracking methods, whether involving banding or other identification methods, to gather information on behavior and home ranges of individual birds.

Sick or injured individuals that recover after rescue but are poorly suited for return to their original habitats will be used for captive behavioral observations to deepen understanding of physiology and ecology of the species.

(3) Understanding suitable environments and potential threats

The results gained in (1) and (2) above will be used to clarify suitable environments for this species. Surveys will be implemented to better understand the factors that pose potential threats to the current population and their impacts.

2. Habitat maintenance and improvement

The stable survival of this species in its natural state will require efforts to maintain the health of the entire ecosystem, including preserving the laurel forests with a closed canopy that provide shelter from wind. Based on the results of Item 1 above, the program will explore effective countermeasures against degradation of the habitats and population declines, thereby maintaining and improving environments suitable for the habitat and breeding.

When land use or business activity on species habitat arises, the program will seek to ensure the environmental conditions needed for the survival of the species.

3. Captive breeding

Species conservation will focus on the maintenance and growth of wild populations in their habitats. However, to safeguard against precipitous declines in the wild populations, the program will explore the possibility of captive breeding.

4. Patrol, etc. of the habitat

To prevent human interactions that may adversely affect the populations, including illegal hunting and indiscreet entry into the habitats, the program will establish a patrolling system in the species habitats.

5. Promotion of education and awareness-raising activities

To achieve effective progress with the program, understanding and cooperation is crucial on the part of the parties carrying out various business activities, relevant administrative organs, and citizens including community residents. The program will promote public awareness on the species status, the need for protection, and the progress of the protection and recovery program. These activities will help foster better understanding and cooperation in protecting the species. The program will also seek to facilitate the development of voluntary conservation activities of the community through efforts such as fostering a deeper understanding of the species in the concerned area.

6. Consolidation of collaboration for effective promotion of the program

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, Kagoshima Prefecture and relevant municipalities, experts in ecology or other aspects of this species, and local residents.

4-22 Protection and Recovery Program for the Okinawa Rail

(Gallirallus okinawae)

November 19, 2004

Ministry of Education, Culture, Sports, Science and Technology

Ministry of Agriculture, Forestry and Fisheries

Ministry of Land, Infrastructure, Transport and Tourism

Ministry of the Environment

I. Objectives of the Program

The Okinawa rail (*Gallirallus okinawae*) is a bird in the family Rallidae, first described as a new species in 1981. It is found only in the northern part of Okinawa Island. Current threats to its survival include predation by feral cats; rapid shrinking of the species range, likely due to the mongoose invasion; shrinking habitat due to land development; death or injury caused by motor vehicles; and adverse effects associated with improvident human interactions with the species, whether for observations or photographing of individuals.

The objectives of this program is to ensure the stable survival of the bird in a natural state by clarifying the status of the species; maintaining and improving the environments necessary for the species; mitigating and removing factors that pose threats to the species; establishing artificial breeding techniques to safeguard against rapid declines in wild population; and exploring methods for reintroducing captive-bred animals.

II. Program areas

Okinawa Island in Okinawa Prefecture and captive breeding areas described in Item 3 of Section III below.

III. Overview of the Program

1. Understanding the status of the species

The following surveys will be undertaken to appropriately and effectively implement the program and to gather information on the species and its current situation.

(1) Surveying and monitoring the status of the species

The program will conduct surveys and undertake regular monitoring to gather information on the status of the population, including distributional range and habitat density.

In addition, the program will gather information from local residents on Okinawa rail and on alien and other species that prey on the rail, including reports of sightings, with animals categorized as dead or alive. It will gather information on the status of the species, actual incidents involving death or injury of this species, particularly due to contact with motor vehicles, and the invasion status of alien species.

(2) Ascertaining ecology

Much about this species remains unknown, including its basic ecology. The program will implement surveys to gather basic facts essential for this program, including feeding habits; foraging behavior; migration of the individuals; population dispersal; behavior during breeding and non-breeding seasons; and home range.

The program will also analyze DNA from samples acquired from individual animals found in the past and present ranges to better understand current diversity levels and changes in genetic diversity.

(3) Understanding suitable environments

Based on the results of the surveys described in (1) and (2) above, the program will gather information on suitable environments for this species, with the object of maintaining wild population. It will also investigate the relationship between this species and the surrounding ecosystem.

2. Habitat maintenance and improvement

The stable survival of this species in its natural state will require efforts to maintain the health of the entire ecosystem, including the trees it uses as roosts and animals that make up its diet.

Based on the knowledge acquired in Item 1 above, the program will take the following actions to explore effective countermeasures against the degradation of the habitats and population declines, thereby maintaining and improving environments suitable for the habitat and breeding.

When land use or development on species habitat arises, the program will seek to ensure the environmental conditions needed for the survival of the species.

(1) Preventing the impacts of alien and other species

The program will monitor the invasion status and impacts of feral cats, mongoose, and other alien species that pose major threat to the species, whether through predation or competition for food resources. This includes the jungle crow (*Corvus macrorhynchos*), whose effects on the species are also of concern. These alien and other species will be eliminated from native habitats and adjacent areas.

The program will also entail other measures, including appropriately managing domestic animals to prevent the introduction or dispersion of feral cats and other species into species habitat.

(2) Patrol, etc. of the habitat

To prevent human interactions that may adversely affect the population and their breeding, including indiscreet entry into the habitats, the program will establish a patrolling system and install notices in the species habitats.

(3) Countermeasures to prevent accidents

To prevent death or injury of individual animals due to motor vehicles and fatal accidents involving young falling into roadside ditches, the program will gather information, including reports of sightings on and around roadways. In areas where these accidents are likely to occur, the program will take measures in cooperation with relevant organizations, including improving road structures (for example, installing side ditches that do not endanger small animals); weeding to improve visibility; and installing signs urging motorists to proceed with caution.

The months of the year in which breeding and brooding occur require special attention, since such accidents are especially common during this period.

3. Captive breeding and reintroducing individuals

Studies show the distribution of this species has declined, likely due to alien species. Based on the likelihood that the population is in rapid decline, the program will prepare the systems and facilities needed to captive-breed individual animals and implement captive breeding in order to establish effective captive breeding techniques, gather information on ecology of animals observed in captivity, and maintain stable population.

In addition, the program will explore the reintroduction into the wild of individual animals following captive breeding efforts if necessary. In captive-breeding and reintroduction efforts, the program will monitor various factors capable of affecting the survival of captive-bred and wild populations, including potential changes in behavior attributable to captive breeding and the potential infections of contagious pathogens among captive-bred animals as well as infections from captive-bred populations to wild populations. With these considerations, it will establish appropriate captive breeding and reintroduction methods.

4. Promotion of education and awareness-raising activities

To achieve effective progress with the program, understanding and cooperation is crucial on the part of the parties carrying out various business activities, the national government, relevant local governments, and citizens including local residents and tourists. The program will promote public awareness on the species status, the need for protection, the necessity of eliminating and preventing alien species, and the progress of

the protection and recovery program. The program will provide education programs at schools to foster better understanding and cooperation in protecting the species.

With the cooperation of experts in ecology of this species, and local parties participating in activities to protect this species, the program will facilitate the development of voluntary conservation activities of the community through efforts such as fostering a deeper understanding of the species in the program area.

5. Consolidation of collaboration for effective promotion of the program

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, relevant local governments in ecology of this species, parties participating in activities to protect this species, and local residents.

4-23 Protection and Recovery Program for the Okinawa woodpecker (*Sapheopipo noguchii*)

July 28, 1998

Environment Agency

Ministry of Agriculture, Forestry and Fisheries

I. Objectives of the Program

The Okinawa woodpecker (*Sapheopipo noguchii*) is a monospecific species of medium-sized woodpecker occurring only in the northern part of Okinawa Island. This species lives in forest dominated by *Castanopsis sieboldii* and other species but degradation of suitable environments and other factors have reduced both the distributional range and overall population of this species.

The objectives of this program is to ensure the stable survival of the bird in a natural state by clarifying and monitoring the status of the species; maintaining and improving the environments necessary for the species; and mitigating and removing factors that pose threats to the species.

II. Program Area

The distribution area of this species in the northern part of Okinawa Prefecture

III. Overview of the Program

1. Understanding the species status and monitoring

The following surveys will be undertaken to appropriately and effectively implement the program.

(1) Understanding the species status and monitoring

Through surveys of the distribution of nesting trees and breeding status, the program will continuously gather information on the status and trends of this species.

(2) Clarifying the biological characteristics

Using marking, radio tracking, and other identification/tracking methods, the program will gather information on migration of individual animals, population dispersal, behavior during breeding and non-breeding seasons, and home range.

The program will also conduct research to better understand feeding habits and other aspects of the ecosystems in which this species occurs.

(3) Understanding suitable environments and potential threats

The results gained in (1) and (2) above will be used to clarify suitable environments for this species. Surveys will be implemented to better understand the factors that pose potential threats to the current population and their impact.

2. Habitat maintenance and improvement

The stable survival of this species in its natural state will require efforts to maintain the health of the overall ecosystem, including the large-diameter *Castanopsis sieboldii* trees used for nesting and plants and animals used for forage.

Based on the results of Item 1 above, the program will explore effective countermeasures against degradation of the habitats and population declines, thereby maintaining and improving habitat and breeding conditions.

When land use or business activity on species habitat arises, the program will seek to ensure the environmental conditions needed for the survival of the species.

3. Captive breeding

Species conservation will focus on the maintenance and growth of wild population in their habitats. However, to safeguard against precipitous declines in the wild population, the program will explore the possibility of captive breeding and will seek to establish captive breeding techniques.

4. Patrol, etc. of the habitat

To prevent human interactions that may adversely affect the population including indiscreet entry into the habitats, the program will establish a patrolling system in the species habitats.

5. Promotion of education and awareness-raising activities

To achieve effective progress with the program, understanding and cooperation is crucial on the part of the parties carrying out various business activities, relevant administrative organs, and citizens including community residents. The program will promote public awareness on the species status, the need for protection, and the progress of the protection and recovery program. These activities will help foster better understanding and cooperation in protecting the species. The program will also seek to facilitate the development of voluntary conservation activities of the community through efforts such as fostering a deeper understanding of the species in the concerned area.

6. Consolidation of collaboration for effective promotion of the program

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, local governments of Okinawa Prefecture and relevant municipalities, experts in ecology or other aspects of this species, and local residents.

4-24 Protection and Recovery Program for the Yanbaru long-armed scarab beetle (*Cheirotonus jambar*)

April 3, 1997

Ministry of Education, Science and Culture

Ministry of Agriculture, Forestry and Fisheries

Environment Agency

I. Objectives of the Program

The largest Japanese beetle, the Yanbaru long-armed scarab beetle (*Cheirotonus jambar*), was described as a new species in 1984. Occurring in the northern part of Okinawa Island, this species is found in forests that feature large trees, such as *Castanopsis sieboldii*, with hollows that serve as living space for eggs and larvae. Degradation of suitable environments and other factors have reduced the distributional range of this species. In addition, illegal collection and the destruction of breeding environments by maniac amateur collectors have raised concerns, with incidents of illegal collection confirmed to occur even today. Very few confirmed sightings have been recorded in recent years.

The objectives of this of the program is to ensure the stable survival of the beetle in a natural state by clarifying and monitoring the status of the species; maintaining and improving the environments necessary for the species; and establishing captive breeding techniques and implementing captive breeding programs.

II. Program Area

The distribution area of this species in the northern part of Okinawa Prefecture.

III. Overview of the Program

1. Understanding the species status and monitoring

To ensure appropriate and effective implementation of the protection and recovery program for this species, surveys will continuously monitor the status of the species, including recent fluctuations in population and breeding status, as well as habitat conditions. The program will also accumulate any other pertinent information. In the event of alarming changes in the species status or habitat, countermeasures will be implemented as needed to preserve this species, including research to clarify the cause of the problem.

The program will also involve research and studies to better understand the biological characteristics of the species and the structure of the ecosystems in which this species occurs, and to gather information on the current status of various factors that pose potential threats to the current population and their impacts.

2. Habitat maintenance and improvement

The stable survival of this species in its natural state will require efforts to maintain the health of the entire ecosystem, including large specimens of *Castanopsis sieboldii* and *Quercus miyagii*, which provide the hollows needed for egg-laying and larva growth.

In particular, the tree hollows required for habitat appears to be in decline. Based on the results of Item 1 above, the program will explore effective methods for filling hollows with humic substances, and creating and setting artificial hollows based on a due consideration of the ecological characteristics of this species, thereby maintaining and improving suitable environments for habitat and breeding.

When land use or business activity on species habitat arises, the program will seek to ensure the environmental conditions needed for the survival of the species.

3. Captive breeding and reintroduction

Species conservation will focus on the maintenance and growth of wild population in their habitats. However, given the very low numbers of the current population confirmed, an aggressive captive breeding program may be required. For this reason, the program will also seek to establish captive breeding techniques and to proceed with captive breeding programs based on the techniques established.

If deemed necessary, the program will seek to strengthen current population by reintroducing individual beetles over the current range of the species by the appropriate method. If so, special care will be taken to avoid genetic disturbances that may threaten the survival of existing wild population.

4. Preventing illegal collection

Habitats will be patrolled to prevent illegal collection, a major threat to the species survival.

5. Promotion of education and awareness-raising activities

To achieve effective progress with the program, understanding and cooperation is crucial on the part of the parties carrying out various business activities, relevant administrative organs, and citizens including community residents. The program will promote public awareness on the species status, the need for protection, and the progress of the protection and recovery program. These activities will help foster better understanding and cooperation in protecting the species. The program will also seek to facilitate the development of voluntary conservation activities of the community through efforts such as fostering a deeper understanding of the species in the concerned area.

6. Consolidation of collaboration for effective promotion of the program

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, Okinawa Prefecture and relevant municipalities, experts in ecology or other aspects of this species, and local residents.

4-25 A 10-year Action Plan for the Amami Rabbit Protection and Recovery Program (2014 to 2024)

December 2014

Naha Nature Conservation Office

Ministry of the Environment

I. Background

1. Scientific classification and ecology

The Amami rabbit (*Pentalagus furnessi*) is a monospecific species endemically distributed only on Amami-Oshima and Tokunoshima Islands. The species is estimated to have diverged from a group of the Leporidae family in the Middle Miocene (roughly 10 million years ago) (F. Yamada et al. 2002, Matthee 2004); since that time, it has evolved a unique lifestyle while maintaining its primitive morphology. Amami-Oshima and Tokunoshima Islands were separated from the continent by the early Pleistocene of the Quaternary Period (roughly 2 million to 1.7 million years ago), and the rabbit is consequently a relict endemic species for which there are no known related species living in nearby continental areas. The species digs its burrows mostly in the slopes of primeval forests and uses neighboring mountain streams, secondary forests, and other places with ample herbaceous plants as feeding grounds. The rabbit produces one young per birth, most likely from around September to February and from around March to June (2006 to 2013 Ministry of the Environment survey). Population size of the species is estimated to be somewhere between 2,000 and 4,800 individuals on Amami-Oshima Island and around 200 individuals on Tokunoshima Island (Sugimura and Yamada 2004); the population is considered to be in a serious situation, especially on Tokunoshima Island.

2. Legal position, etc.

Act on Conservation of Endangered Species of Wild Fauna and Flora

- Designated as a National Endangered Species in 2004
- A plan for the species' Protection and Recovery Program was drawn up in 2004.

Wildlife Protection and Proper Hunting Act

- Part of the species' habitat was designated the Mt. Yuwandake National Wildlife Protection Area in 1965.

Act on Protection of Cultural Properties

- Designated a Special National Natural Monument in 1963
- Part of the species' habitat was designated the Kamiya–Yuwandake Natural Monument in 1968

Other

- Listed as Endangered (EN) on the IUCN Red List of Threatened Species (2013)
- Listed as Endangered (EN) on the 4th version of the Red List of Japan (2012)

3. Present results of the Protection and Recovery Program (Attachment; omitted)

(1) Understanding the status of the species and accumulation of knowledge on ecology and other matters

Fecal pellets along mountain streams on Amami-Oshima Island and Tokunoshima Island have been surveyed since FY 2005.

On Amami-Oshima Island, the species seems to be in a recovery trend in recent years as a result of, for example, a mongoose control program that began in FY 2000. On the other hand, on Tokunoshima Island, no feces have been found along some mountain streams for several years, suggesting that the rabbit's existence there is declining (Attachment Figure 1; omitted).

Information on the existence of the species, obtained from monitoring surveys using trail cameras and other means was compiled and the area of distribution of the species was clarified (Attachment Figure 2; omitted).

Information on such characteristics as the species' home range, use of the environment, and genetic characteristics is now understood owing to a wide range of research by researchers and others.

The state of invasion of the species' habitat by small Indian mongooses (*Herpestes auropunctatus*), feral cats (*Felis catus*), feral dogs (*Canis familiaris*), and black rats (*Rattus rattus*) was confirmed. Predation of the rabbits by small Indian mongooses, feral cats, and feral dogs was confirmed through analyses of feces and stomach contents and from the results of the trail camera surveys (Attachment Figure 3; omitted).

Invasion of the species' habitat by domestic rabbits has not been confirmed.

Dead individuals of the species found on forest roads and in other places were collected and analyzed to determine the causes of death. The results showed that, among those cases in which the cause of death could be determined, the number one cause was collisions with motor vehicles, followed by predation by feral cats and feral dogs (Attachment Figure 4; omitted).

(2) Habitat maintenance and improvement

With the aim of maintaining and improving environments suited for the habitation and breeding of the species, data on important areas were extracted and the area to be designated a protection area (National Park) was examined on the basis of such factors as the status of the species and expert opinion. The work needed for the designation was then undertaken.

The distribution status of the small Indian mongooses, feral cats, and feral dogs confirmed to be preying on the species was grasped and measures aimed to eliminate these predators were taken.

With the aim of promoting appropriate keeping of pet dogs and cats, a microchipping support project (from FY 2008 onwards) and a variety of education and awareness-raising activities were implemented with the collaboration of relevant organizations.

(3) Captive breeding, etc.

Information needed for rearing the species has been accumulated through the care of sick or injured individuals.

(4) Measures for effective promotion of the program (education and awareness-raising activities and collaboration with relevant organizations)

Upon the launch of a roadkill-prevention campaign in FY 2009, accident prevention signs were placed at the locations of frequent wildlife collisions with motor vehicles and in other locations where it was deemed necessary. Since then, roadkill numbers have been declining (Attachment Figure 5; omitted).

Education and awareness-raising activities regarding such factors as the species' status, the need for its protection, and the current state of implementation of the Protection and Recovery Program have been promoted through the distribution of pamphlets and other means.

The area including the rabbit's habitat has been routinely monitored and information collected with the collaboration of local concerned parties, national and local public organizations, and many others.

4. Points of concern in relation to protection of the species

A workshop on the Amami Rare Species Protection and Recovery Program was held with the participation of representatives from such organizations as universities, research institutes, administrative bodies, and NPOs on August 9 and 10, 2013. At this workshop, the Protection and Recovery Program that has been implemented since FY 2005 was reviewed and points of future concern in relation to protection of the species were identified. The points identified are summarized as follows:

(1) Understanding the status of the species and accumulating of knowledge on ecology and other matters

The target population size for the species has not been specified.

A population size estimation method needs to be established and implemented.

Further elucidation of behavioral and breeding ecology is necessary.

Genetic investigation of, and research into, for example, genetic diversity and phylogenetic relationships is needed.

(2) Habitat maintenance and improvement

Important areas have not been identified on the basis of an understanding of suitable environmental conditions for the species, nor are such areas assured of protection.

The negative impacts of human activities such as development and of small Indian mongooses, feral cats, etc. must be understood; elimination or mitigation measures for these impacts need to be implemented.

The species' habitat is fragmented in some parts of Amami-Oshima and Tokunoshima Islands.

The factors causing a decline in the species' population on Tokunoshima Island have not been elucidated.

(3) Captive breeding, etc.

There is no rescue system for sick or injured individuals.

The measures for those individuals that cannot be returned to the wild need to be clarified.

(4) Measures for effective promotion of the program (education and awareness-raising activities and collaboration with relevant organizations)

Coordination with a wide range of research done by relevant organizations is necessary.

Collaboration with local governments and others needs to be strengthened, and roles and responsibilities need to be assigned accordingly.

In any developments, careful consideration must be given to Amami rabbits through prior information sharing.

Rules need to be created for observing Amami rabbits in ecotourism, etc.

Education and awareness-raising activities are needed regarding preventing damage by feral dogs and cats and roadkill.

5. Background leading to the creation of the Action Plan

More than 10 years have passed since the launch of the Protection and Recovery Program. Through this program, results have been achieved in a wide range of areas. These include improved understanding of the status and biological characteristics of the species; understanding of the environmental factors, such as small Indian mongooses, that may place pressure on the population; implementation of roadkill-prevention measures; and promotion of education and awareness-raising activities. One of the most important outcomes of the program has been the accumulation of knowledge on, for example, the status and biological characteristics of the species. Information on both of these factors is elemental to planning for species conservation and has been collected through the cooperation and collaboration of researchers and many others. Furthermore, on Amami-Oshima Island, as a result of the mongoose control program, the population size and the distribution area of the species are in a recovery trend.

However, as summarized above in “4. Points of concern in relation to protection of the species,” to succeed in maintaining a stable population of the species some of these points of concern still require attention. Included in the National Biodiversity Strategy of Japan 2012–2020 is National Target C-2: “Increase the number of threatened species whose status on the Red List of Japan has been changed to a lower category of threat.” In addition, with the ultimate aim of having “Amami-Oshima, Tokunoshima, the northern part of Okinawa Island, and Iriomote Island” inscribed on the Natural World Heritage List, Japan decided to add this property to the Tentative World Heritage List at the end of January 2013 and submitted the documents required to the UNESCO World Heritage Centre in February. Amami-Oshima and Tokunoshima Islands are candidate sites as part of the nomination of this property for inscription on the Natural World Heritage List. The Amami rabbit provides indispensable proof of the Outstanding Universal Value of these sites. To be able to meet the target set in the National Biodiversity Strategy of Japan 2012–2020, as well as to have these sites inscribed on the Natural World Heritage List, and to ensure and strengthen their protection, the Protection and Recovery Program must be implemented in such a way that the intended results can be more effectively achieved.

In light of the above, a decision was made to draw up a 10-year plan (from 2014 to 2024) titled “A 10-year Action Plan for the Amami Rabbit Protection and Recovery Program (hereinafter referred to as “the Action Plan”).

II. Objectives of the Action Plan

The objectives of the Action Plan are the elimination or mitigation of factors that cause species decline, including alien species, roadkills, and development; expansion of the distribution areas and population size of the species on Amami-Oshima and Tokunoshima Islands; and ranking in a category lower than Vulnerable (VU), or removal of ranking, on the Red List of Japan by the end of March 2024.

III. Action period

December 1, 2014 to March 31, 2024

IV. Details of activities needed to achieve the Action Plan objectives, and their expected results and indicators

1. Understanding the status of the species and accumulation of knowledge on ecology and other matters

Target 1: Along with continuation of the present monitoring survey, new survey methods will be established so that information on the species, including status, ecology, and genetics, will be more effectively collected and accumulated and then used to assess the population size, etc. Factors causing the reduction in population size of the species, and the extent of their impact, will be clarified.

Activity 1

Activity 1-1: Understand the status and ecology of the species through continued implementation of the present monitoring survey and through the establishment and introduction of a more effective survey method.

Activity 1-1-1: Continue the fecal pellet counts along mountain streams and the monitoring survey using trail cameras and other means to accumulate information on the status and ecology of the species
From FY 2014 to 2023: Accumulate information on the species status through continued implementation of the monitoring survey.

Activity 1-1-2: Reevaluate past monitoring results; revise the survey method, including the survey content, period, and route; and conduct more accurate and effective monitoring.
From FY 2014 to 2015: Evaluate the monitoring results and revise the survey method.
From FY 2016 onwards: Conduct the survey by using the new survey method.

Activity 1-1-3: Examine whether or not new survey techniques such as GPS tracking and digital sound recording need to be introduced to obtain detailed information on the species' home range, habitat use, etc.; introduce viable survey methods; and collect new ecological data.
From FY 2014 to 2015: Study the survey techniques.
From FY 2016 onwards: Introduce and implement new survey methods.

Activity 1-1-4: Set a target population size for the species, examine and develop a more accurate and efficient population-size estimation method, and assess the population size of the species.
From FY 2014 to 2015: Set a target population size for the species and examine and develop a population-size estimation method.
From FY 2016 onwards: Assess the population size of the species by using the new population-size estimation method.

Activity 1-1-5: Use tissues sampled from dead and rescued individuals to determine the genetic diversity and phylogenetic relationships of the species, assess the health of the population, set the unit of conservation on the basis of phylogenetic relationships, determine the causes of death, and so on.
FY 2014: Establish a framework for tissue sampling, preservation, and genetic analysis.
From FY 2015 to 2018: Gain an understanding of the genetic diversity and phylogenetic relationships of the species.

Activity 1-2: Investigate the primary negative factors and the seriousness of their negative effects on the existence of the species on Tokunoshima Island, where reduction in the species' population size is especially of concern.
From FY 2014 to 2016: Conduct the above-described investigation and elucidate the negative factors.

Result 1

Result 1-1-a: Reports and academic papers are published on the status, ecology, and genetics of the species and on the factors causing the decline in population.

Result 1-1-b: Survey methods are improved or newly introduced to determine the status of the species with greater accuracy; survey reports are produced by using these methods.

Result 1-2: Reports are published on the factors placing pressure on the species' existence and the seriousness of these factors on Tokunoshima Island.

Results indicator 1: The number of reports and academic papers published in relation to Result 1

Effect 1

Effect 1: Accumulated knowledge on the status, ecology, genetics, etc. of the species is utilized in conservation measures.

Effect indicator 1: The type of conservation measures and the number of cases in which data and results based on Result 1 are used.

2. Habitat maintenance and improvement

Target 2-1: Important areas with environmental conditions suitable for the species will be maintained, with adequate protection and management. Especially on Tokunoshima Island, the distribution area and population size of the species will be increased through the implementation of measures that aim to, for example, expand the otherwise small buffer zone surrounding the mountain areas. In addition, the issue of whether or not to connect habitats fragmented by roads, farms, etc. with a corridor will be examined as necessary.

Activity 2-1

Activity 2-1-1: Designate habitat with conditions suitable for the species as a National Park and maintain the species' living environment through adequate protection and management of the wildlife protection area and National Park.

Activity 2-1-1-1: Designate, as far as possible, habitat with suitable conditions for the species as a National Park Special Protection Zone or a Class I Special Zone; designate the rest of the species' habitat as National Park so that the species can be adequately protected and managed.
From FY 2014 onwards: Implement the work required for National Park designation.

Activity 2-1-1-2: Regulate development plans and activities that may have an impact on the species' living environment through proper enforcement of the Natural Parks Act and other legislation.

From FY 2014 onwards: Properly enforce the Wildlife Protection , Control and Proper Management Act and the Natural Parks Act (after the designation as a National Park).

Activity 2-1-2: Especially on Tokunoshima Island, expand the buffer zone by, for example, promoting forest restoration of abandoned fields and other land areas surrounding the mountain areas and creating feeding grounds for the species in coordination and collaboration with relevant organizations.

Activity 2-1-2-1: By considering their usability as habitat for the species, from among the areas that surround the mountain areas, extract those that are suitable as buffer zones (e.g. abandoned fields). Then, discuss methods that can be used to restore the areas as habitat and create feeding grounds for the species in coordination and collaboration with relevant organizations.

From FY 2015 to 2016: Extract candidate buffer zone areas and examine methods of forest restoration and creation of feeding grounds for the species.

Activity 2-1-2-2: In coordination and collaboration with relevant organizations, restore the areas extracted as buffer zones as the species' habitat and create feeding grounds for the species.

From FY 2017 onwards: Restore forests and create feeding grounds for the species.

Activity 2-1-3: In relation to the creation of a corridor that connects the fragmented habitat, review the need for corridor creation from genetic and ecological perspectives. If a corridor is judged necessary, study the location, size, structure, etc. of the corridor in coordination with the relevant organizations, local governments, land owners, and other concerned parties.*

From FY 2015 to 2017: Accumulate the genetic and ecological knowledge needed to examine the need for corridor creation.

From FY 2017 to 2018: Discuss the need for corridor creation.

* If corridor is judged necessary, draw up a creation plan and include it within the scope of this Action Plan.

Result 2-1

Result 2-1-1-1: The National Park designation plan designates the habitat as a National Park.

Results indicator 2-1-1-1: The percentage of habitat designated as a National Park

Result 2-1-1-2: Development plans and activities that have negative impacts on the species' survival are regulated on the basis of the National Park designation plan.

Results indicator 2-1-1-2: The number of adequate prior adjustments, authorizations, and law enforcement cases processed in relation to development plans and activities that could have an impact on the species' survival, as determined by examination of the National Park designation plan

Result 2-1-2: A method of extracting areas that can be used to expand the buffer zone is developed; these areas are extracted by using this method and the buffer zone is expanded.

Results indicator 2-1-2: The size of the buffer zone.

Result 2-1-3: Genetic and ecological data related to the creation of a corridor are accumulated and a decision is made on the need for its creation. If creation of a corridor is considered necessary, review meetings are held to discuss its location, size, structure, etc. and the drawing-up of a plan. A corridor creation plan is drawn up.

Results indicator 2-1-3: Data on corridor creation; the decision of the review meeting on the need for corridor creation; and a corridor creation plan (if it is decided that a corridor is necessary)

Effect 2-1

Effect 2-1-1: The size of the species' habitat and population within the confines of the area designated as a National Park is maintained or increased.

Effects indicator 2-1-1: The species' habitat size and population density and the size of the population inside the National Park.

Effect 2-1-2: The size of species' habitat and population are increased as a result of expansion of the buffer zone. Recognition of the importance of a buffer zone in maintaining and increasing the species' population size is improved among relevant organizations, local governments, and concerned parties through discussions and work on expansion of the buffer zone and leads to inclusion of the expansion of buffer zones in the policy.

Effects indicator 2-1-2: The size of the buffer zone and the size of the species' habitat and population inside the buffer zone.

Effect 2-1-3: Recognition of the importance of a corridor in maintaining and increasing the species' population size is improved among relevant organizations, local governments, and concerned parties through discussions on corridor creation. If corridor creation is judged necessary, it is accordingly adopted in the relevant organizations' and local governments' policies.

Effects indicator 2-1-3: The level of recognition of the importance of a corridor and the incorporation of corridor creation in the policy (if corridor construction is judged necessary).

Target 2-2: Elimination of alien species and other factors reducing the population of the species will increase the species' population size and its area of distribution.

Activity 2-2

Activity 2-2: Eliminate, or implement mitigation measures against, alien species such as small Indian mongooses and feral cats so as to increase the species' population size and expand its area of distribution.

Activity 2-2-1: As scheduled in the Phase 2 Small Asian Mongoose Control Plan for Amami-Oshima Island, completely eliminate small Indian mongooses by FY 2022.

From FY 2014 to 2022: Completely eliminate small Indian mongooses.

Activity 2-2-2: Draw up a policy for the capture and handling of feral cats in coordination with local governments, veterinary medical associations, and concerned bodies. Capture feral cats in accordance with this policy and reduce their population size.

FY2014: Discuss and decide on a feral cat capture and handling policy.

From FY 2015 onwards: Implement capture of feral cats in accordance with the policy.

Result 2-2

Result 2-2-1: Completely eliminate small Indian mongooses.

Results indicator 2-2-1: The population size, relative density, and distribution area of small Indian mongooses.

Result 2-2-2: The policy to capture feral cats is decided on, and capture is implemented in accordance with the policy. The population size of feral cats is reduced.

Results indicator 2-2-2: The policy to capture feral cats, the number of feral cats captured, and the capture effort.

Effect 2-2

Effect 2-2-1: Complete elimination of small Indian mongooses results in an increase in the population density and population size of Amami rabbits.

Effects indicator 2-2-1: The population density and population size of Amami rabbits in areas where the density of small Indian mongooses has been reduced or where small Indian mongooses have been completely eliminated.

Effect 2-2-2: Elimination of feral cats results in an increase in the population density and population size of Amami rabbits.

Effects indicator 2-2-2: The population density and population size of Amami rabbits in areas where the population size of feral cats has been reduced.

3. Captive breeding, etc.

Target 3: A rescue system for sick or injured individuals will be constructed. Discussions will be held on a system for rearing those individuals that may never be returned to the wild, and on the policy for collecting ecological, physiological, and pathological information by using reared individuals. Discussions will also be held on the policy for education and awareness-raising activities using live exhibitions and on the policy for captive breeding.

Activity 3

Activity 3-1: In cooperation with relevant organizations, local governments, veterinary medical associations, and concerned bodies, discuss and decide on a policy for the rescue of sick or injured individuals and their return to the wild, and construct a rescue and return system accordingly.

From FY 2014 to 2015: Discuss and decide on a policy for the rescue and return to the wild of sick or injured individuals and construct a rescue system accordingly.

From FY 2016 onwards: Implement the rescue and return to the wild of sick or injured individuals in accordance with the policy.

Activity 3-2: Discuss a policy (and whether it is needed) for the collection of ecological, physiological, and pathological information from reared individuals; education and awareness-raising activities using live exhibitions; and captive breeding, in coordination with relevant organizations, local governments, and concerned parties.

From FY 2014 to 2015: Discuss the policy for the collection of ecological, physiological, and pathological information from reared individuals and education and awareness-raising activities using live exhibitions.

FY 2016: Discuss practical plans on the purpose and mechanism of rearing, construction of facilities, etc. in accordance with the policy document on utilization of reared individuals.

Note: The Action Plan for FY 2017 onward will be discussed later in accordance with the policy document on utilization of reared individuals and the rearing plan.

Result 3

Result 3-1: A policy that lays out, among other things, the rescue system and the criteria for the sick or injured individual's return to the wild is decided on, and rescue is implemented in accordance with this policy.

Results indicator 3-1: A policy document on the rescue and return to the wild of sick or injured individuals; a rescue system; actual results of the rescue and return to the wild of sick or injured individuals; the amount of pathological data; the number of reports and papers published on the rescue and return to the wild of sick or injured individuals; and the number of reports and papers published on pathological data.

Result 3-2: Decisions on the policy for the collection of ecological, physiological, and pathological information from reared individuals; for education and awareness-raising activities using live exhibitions; and for captive breeding.

Results indicator 3-2: A policy document on utilization of reared individuals.

Effect 3

Effect 3-1: The survival rate of rescued individuals and the rate of their return to the wild are increased owing to fast and adequate rescue of sick or injured individuals. Pathological data are also accumulated and used.

Effects indicator 3-1: The survival rate and rate of return to the wild of rescued individuals.

Effect 3-2: A rearing plan, including a plan for the construction of a rearing system and facility, is drawn up with the collaboration of relevant organizations in accordance with the policy document on utilization of reared individuals.

Effects indicator 3-2: Development of a rearing plan in accordance with the policy to utilize reared individuals.

4. Measures for effective promotion of the program

Target 4-1: Education and awareness-raising activities aimed at conservation of the species will be promoted so that not only will local residents' and others' understanding of the measures aimed at mitigating pressure factors (such as damage due to feral cats and dogs and roadkill) be increased, but also their understanding of conservation as a whole will be increased.

Activity 4-1

Activity 4-1-1: Deepen local residents' and tourists' understanding of conservation of the species by implementing a campaign against the damage wrought by feral cats and dogs and another campaign on the roadkill prevention; setting up a website; creating and distributing pamphlets; and carrying out education and awareness-raising activities via press releases aimed at mass media.

From FY 2014 onwards: Implement a roadkill-prevention campaign every year, set up and update a website, and create and distribute pamphlets.

Activity 4-1-2: Conduct a questionnaire survey every five years targeting local residents and tourists to measure the level of their understanding of the conservation of the species.

FY 2015, 2018, and 2023: Conduct the questionnaire survey.

Result 4-1

Result 4-1: The roadkill prevention campaigns are launched, a website is created and updated, pamphlets are created and distributed, and questionnaire surveys are conducted.

Results indicator 4-1: The number of times the campaign is launched; the website interpretation and the number of times it is updated; the number of pamphlets issued; the number of times the questionnaire survey is conducted; and the number of questionnaires collected.

Effect 4-1

Effect 4-1: The number of roadkills is reduced, damage due to feral cats and dogs is lessened, and the level of awareness and understanding among local residents and tourists regarding the factors pressuring the survival of the species, and the conservation of the species, is increased.

Effects indicator 4-1: The number of roadkills; the number of cases of feral cat or dog attack; the level of awareness and understanding of pressure factors and conservation; the number of times covered by newspapers, television, etc.; and the results of the questionnaire survey on levels of awareness and understanding of conservation.

Target 4-2: Collaboration among relevant organizations and bodies, local governments, and concerned parties will be strengthened so that conservation measures for the species can be effectively promoted.

Activity 4-2

Activity 4-2: Through relevant meetings such as review committee meetings on the Amami Rabbit Protection and Recovery Program, and through coordination meetings and other ad hoc meetings held as needed, share and consolidate a wide range of survey results held by, and information on protection measures taken by, relevant organizations and bodies, local governments, and concerned parties, to strengthen collaboration on conservation measures and also to strengthen the consideration that needs to be given to conservation of the species in connection to development plans, etc.

From FY 2014 onwards: Hold review meetings and other necessary meetings such as coordination meetings; consolidate data such as those on habitat distribution that are held by concerned parties, convert them to GIS, publish them, and share survey and other reports.

Result 4-2

Result 4-2: Information on survey results, protection measures, development plans and other matters is shared and review, coordination, and other meetings aimed at collaboration are held. Data on distribution, etc. are consolidated and converted to GIS and reports on the survey results are shared.

Results indicator 4-2: The number of review and coordination meetings held; the amount of GIS and other data consolidated; and the number of shared reports of survey results.

Effect 4-2

Effect 4-2: The number of cases in which development plans and others are revised out of consideration to the species is increased. The number of protection measures implemented through the collaboration of relevant organizations and bodies is increased. The use of data such as GIS and survey results by relevant organizations and bodies and by others is increased.

Effects indicator 4-2: The number of development plans and other plans revised out of consideration for the species; the number of protection measures implemented through the collaboration of relevant organizations and bodies; and the amounts of information on the species status and GIS data shared.

Target 4-3: In addition to annual reporting on the progress of the Action Plan at the Protection and Recovery Program review committee meeting, the state of progress of the Action Plan will be evaluated every five years and the Action Plan will be revised accordingly.

Activity 4-3

Activity 4-3-1: Annually report the implementation results of the Action Plan for the Amami Rabbit Protection and Recovery Program at the Protection and Recovery Program review committee meeting; seek the review committee members' advice on points that need to be improved and on other matters; and make the improvements needed for more effective and efficient implementation of the program.

Activity 4-3-2: In FY 2018, comprehensively evaluate the state of the progress of the Action Plan on the basis of the results and the effect indicators, and revise the Action Plan if necessary. In the final fiscal year, FY 2023, similarly evaluate the level of target achievement of the program's 10-year Action Plan and draw up a new 10-year plan.

Result 4-3

Result 4-3-1: The implementation results are reported annually at the Protection and Recovery Program review committee meeting, and implementation of the program is appropriately improved as advised by the committee members.

Results indicator 4-3-1: Annual holding of the review committee meeting and the improvements made to the program in response to the committee members' advice.

Result 4-3-2: The progress of the program's Action Plan is evaluated comprehensively on the basis of the results and the effect indicators; the Action Plan is revised; and a new Action Plan is drawn up.

Results indicator 4-3-2: Results of progress evaluation of the Action Plan on the basis of the results and the effect indicators; revisions made to the Action Plan; and formulation of a new Action Plan.

Effect 4-3

Effect 4-3-1: The program is implemented with increased effectiveness and efficiency.

Effects indicator 4-3-1: Improvement of the results and the effect indicators in the case of those activities that have been improved.

Effect 4-3-2: The level of target achievement of the Action Plan is comprehensively evaluated according to each result and effect indicator; revisions deemed necessary from the perspective of effectiveness and efficiency are made to the Action Plan; and a new Action Plan is drawn up.

Effects indicator 4-3-2: Improvement of the results and the effect indicators, and improvement of the level of target achievement of the Action Plan.

V. Activity implementation schedule (thickness of the arrow indicates the activity's level of importance)

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1-1-1: Fecal pellet counts and monitoring by using trail cameras	→	→	→	→	→	→	→	→	→	→
1-1-2: Reevaluation of past survey results and revision of the survey method	→	→								
	Examine the method to be introduced									
1-1-3: Collection of new ecological information	→	→								
1-1-4: Population size estimation and assessment of the species status	→	→	→	→	→	→	→	→	→	→
	Establish a new data-collection system									
	Assessment									
1-1-5: Study using dead individuals	→	→	→	→	→					
	Establish a new data-collection system									
1-2: Surveys to identify species population-reduction factors (on Tokunoshima Island)	→	→	→							
2-1-1-1: Work toward designation as a National Park	- - →									
2-1-1-2: Enforcement of regulations	→	→	→	→	→	→	→	→	→	→
2-1-2: Extraction of buffer zones, examination of methods, and expansion of buffer zones		→	→	→	→	→	→	→	→	→
	Extraction and examination									
	Expansion of the buffer zone									
2-1-3: Discussions on corridor creation		→	→	→	→					
2-2-1: Elimination of small Indian mongooses	→	→	→	→	→	→	→	→	→	→
2-2-2: Measures against feral cats	→	→	→	→	→	→	→	→	→	→
	Deciding on a policy									
	Implementation of capture in accordance with the policy									
3-1: Construction of a rescue system for sick or injured individuals	→	→	→	→	→	→	→	→	→	→
	Deciding on a policy									
	Rescue in accordance with the policy									
3-2: Policy discussions on collection of information from reared individuals; live	→	→	→							

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
exhibition; and captive breeding										
4-1-1: Education and awareness-raising activities	Website creation	updating								
		Pamphlet creation					Pamphlet creation			
		Other education and awareness-raising activities								
4-1-2: Questionnaire survey										
4-2: Consolidation of various survey and other results from relevant organizations and others, and strengthening of collaboration										
4-3-1: Holding of Protection and Recovery Program review committee meetings										
4-3-2: Evaluation and revision of the Action Plan										

VI. Reference

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4-26 A 10-year Action Plan for the Amami Woodcock Protection and Recovery Program (2014 to 2024)

December 2014

Naha Nature Conservation Office

Ministry of the Environment

I. Background

1. Scientific classification and ecology

The Amami woodcock (*Scolopax mira*) is a wading bird in the family Scolopacidae that is distributed on some of the islands of the Nansei Islands. The species inhabits forests dominated by *Castanopsis sieboldii* and other species, but for reasons that include the deterioration of suitable habitat its population size and habitat are now limited. A decent-sized population is living and breeding on Amami-Oshima, Kakeroma, and Tokunoshima Islands. The species has also been observed on Kikai, Ukejima, Yoron and Okinawa Islands, but breeding has not been confirmed there. The total size of the population is estimated to be in the range of 3,500 to 15,000 individuals (BirdLife International, 2012).

2. Legal position, etc.

Act on Conservation of Endangered Species of Wild Fauna and Flora

- Designated as a National Endangered Species in 1993
- A plan for the species' Protection and Recovery Program was drawn up in 1999.

Wildlife Protection and Proper Hunting Act

- Part of the species' habitat was designated the Mt. Yuwandake National Wildlife Protection Area in 1965

Act on Protection of Cultural Properties

- Part of the species' habitat was designated the Kamiya–Yuwandake Natural Monument in 1968

Other

- Listed as Vulnerable (VU) on the IUCN Red List of Threatened Species (2012)

- Listed as Vulnerable (VU) on the 4th version of the Red List of Japan (2012)

3. Present results of the Protection and Recovery Program (Attachment; omitted)

(1) Understanding the species' status, monitoring, etc.

Nighttime route censuses are conducted (from FY 2000 onwards) from a car during the breeding and rearing seasons on Amami-Oshima, Kakeroma, and Tokunoshima Islands (Attachment Figures 1 and 2; omitted attachment).

The species' behavior, home range, and so on are studied on Amami-Oshima Island through surveys that use bands to identify individuals, radio-tracking, trail cameras, and other methods (from FY 2001 onwards).

The relationship between forest physiognomy and environmental factors that make up suitable habitat for the species has been clarified. Analysis of the species' use of the environment during the breeding season has confirmed the use of a wide range of environments, from farm land to forests.

To determine the status of the species on Kakeroma and Tokunoshima Islands, monitoring surveys using trail cameras are being conducted on the two islands (on Kakeroma Island from FY 2013 onwards, and on Tokunoshima Island from FY 2012 onwards).

(2) Habitat maintenance and improvement

With the aim of maintaining and improving the environment suited for habitation and breeding of the species, discussions aimed at designating such areas as a protection area (National Park) were held on the basis of the species' status, expert opinion, and so on.

(3) Captive breeding

Information needed to rear the species has been accumulated through the care of sick or injured individuals.

(4) Patrol, etc. of the habitat

The areas including the species' habitats have been routinely monitored and information collected by local concerned parties, national and local public organizations, and others.

(5) Promotion of education and awareness-raising activities

Education and awareness-raising activities on the species' status, the need for protection, the current state of implementation of the Protection and Recovery Program, and so on have been promoted.

(6) Consolidation of collaboration for effective promotion of the program

Various entities have been collaboratively and effectively implementing the program in a wide range of situations through numerous surveys, research, and education and awareness-raising activities.

4. Points of concern in relation to protection of the species

A workshop on the Protection and Recovery Program of the rare species in Amami was held with the participation of representatives from such organizations as universities, research institutes, administrative bodies, and NPOs on August 9 and 10, 2013. In this workshop, the Protection and Recovery Program that has been implemented since FY 2005 was reviewed and points of future concern in relation to protection of the species were identified. The identified points are summarized as follows:

(1) Understanding the status of the species, monitoring, etc.

Past monitoring results must be reassessed and the survey method needs to be revised for the future.

The factors causing the recent decline of the species have not been elucidated.

A target population size for the species has not been specified.

(2) Habitat maintenance and improvement

Important areas with suitable environmental conditions for the species are not assured of protection.

The negative impacts of human activities and alien species are not understood, and measures to eliminate or mitigate these impacts have not been taken.

(3) Captive breeding

The need for creating facilities that accept sick or injured individuals so as to collect pathological and other data, the need for conservation outside the species' habitat in rearing and exhibition facilities, and the need for behavioral observation, etc. have not been examined.

(4) Patrol, etc. of the habitat

Collaboration with relevant organizations, local residents, and others needs to be strengthened so that the habitat can be continuously monitored and information shared.

(5) Promotion of education and awareness-raising activities

Local residents' levels of awareness are low; this is an indication of a lack of education and awareness-raising activities.

Trends that support active and autonomous efforts by the local community need to be generated.

(6) Consolidation of collaboration for effective promotion of the program

The roles and responsibilities of relevant organizations are not specified.

Sharing of information on various survey results held by relevant organizations and collaboration with the local community are necessary.

Information on development plans needs to be shared with local governments and businesses.

5. Background leading to creation of the Action Plan

More than 10 years have passed since the launch of the Protection and Recovery Program. Through this program, results have been achieved in a wide range of areas. These include improved understanding of the status and biological characteristics of the species; understanding of environmental factors, such as small Indian mongooses, that may place pressure on the population; the implementation of roadkill-prevention measures; and the promotion of education and awareness-raising activities. One of the most important outcomes of the program has been the accumulation of knowledge on, for example, the status and biological characteristics of the species. Information on both of these factors is elemental to planning for species conservation and has been collected through the cooperation and collaboration of researchers and many others. Furthermore, on Amami-Oshima Island, as a result of the mongoose control program, the population size and distribution area of the species are in a recovery trend.

However, as summarized above in “4. Points of concern in relation to protection of the species,” to succeed in maintaining a stable population of the species some of these points of concern still require attention. Included in the National Biodiversity Strategy of Japan 2012–2020 is National Target C-2: “Increase the number of threatened species whose status on the Red List of Japan has been changed to a lower category of threat.” In addition, with the ultimate aim of having “Amami-Oshima, Tokunoshima, the northern part of Okinawa Island, and Iriomote Island” inscribed on the Natural World Heritage List, Japan decided to add this property to the Tentative World Heritage List at the end of January 2013 and submitted the documents required to the UNESCO World Heritage Centre in February. Amami-Oshima and Tokunoshima Islands are candidate sites as part of the nomination of this property for inscription on the Natural World Heritage List. The Amami woodcock provides indispensable proof of the Outstanding Universal Value of these sites. To be able to meet the target set in the National Biodiversity Strategy of Japan 2012–2020, as well as to have these sites inscribed on the Natural World Heritage List, and to ensure and strengthen their protection, the Protection and Recovery Program must be implemented in such a way that the intended results can be more effectively achieved.

In light of the above, the decision was made to draw up a 10-year plan (from 2014 to 2024) titled “A 10-year Action Plan for the Amami Woodcock Protection and Recovery Program” (hereinafter referred to as “the Action Plan”).

II. Objectives of the Action Plan

The objectives of the Action Plan are elimination or mitigation of factors that cause species decline, including alien species, roadkills, and development; expansion of the distribution areas and population size of the species on Amami-Oshima and Tokunoshima Islands; and removal by the end of March 2024 from the Red List of Japan as a species for which there is fear of extinction (i.e. Threatened Species).

III. Action period

December 1, 2014 to March 31, 2024

IV. Details of the activities needed to achieve the Action Plan objectives, and their expected results and indicators

1. Understanding the species' status and monitoring, etc.

Target 1: Along with continuation of the present monitoring survey, new survey methods will be established so that information on the species, including status, ecology, and genetics, will be more effectively collected and accumulated and then used to assess population size etc.

Activity 1

Activity 1: Understand the status and ecology of the species through continued implementation of the present monitoring survey and through the establishment and introduction of a more effective survey method.

Activity 1-1: Continue to monitor the status of the nesting grounds and the changes over the years in population distribution and size to accumulate information on the species' status and ecology.

From FY 2014 to 2023: Accumulate information on the species status through continued implementation of the monitoring survey.

Note: From FY 2017 onwards, conduct the survey by using the revised method (see Activity 1-2).

Activity 1-2: Reevaluate past monitoring results; study the improvements that can be made to the monitoring survey method in connection with the population size estimation method that is to be examined in Activity 1-4; and conduct more effective monitoring by taking the survey system and other factors into consideration.

From FY 2014 to 2016: Evaluate the monitoring results and revise the survey method.

Activity 1-3: Use tissues sampled from captured and other individuals to determine the genetic diversity and phylogenetic relationships of the species; assess the health of the population; set units of conservation based on phylogenetic relationships; determine the causes of death; and so on.

From FY 2014 to 2023: Establish a framework for tissue sampling, preservation, and genetic analysis.

Activity 1-4: Set a target population size for the species; examine and develop a more accurate and efficient population-size estimation method; and assess the population size of the species.

From FY 2014 to 2016: Set a target population size for the species and examine and develop a population-size estimation method.

From FY 2017 onwards: Assess the population size of the species by using the new population-size estimation method.

Result 1

Result 1-a: Reports and academic papers are published on the status, ecology, and genetics of the species.

Result 1-b: Survey methods are improved or newly introduced to determine the status of the species with greater accuracy; survey reports are produced by using these methods.

Effect 1

Effect 1: Accumulated knowledge on the status, ecology, genetics, etc. of the species is utilized in conservation measures.

Effects indicator 1: The type of conservation measures and the number of cases in which data and results based on Result 1 are used.

2. Habitat maintenance and improvement

Target 2: Important areas with suitable environmental conditions for the species will be maintained, with adequate protection and management. The species' population will be increased, and the distribution area expanded, by the promotion of measures aimed at eliminating, mitigating, etc. the factors causing population reduction (e.g. the presence of alien species).

Activity 2

Activity 2-1: Designate habitat with conditions suitable for the species as National Park, and maintain the species' living environment through adequate protection and management of the wildlife protection area and National Park.

Activity 2-1-1: Designate, as far as possible, habitat with suitable conditions for the species as a National Park sSpecial Protection Zone or a Class I Special Zone; designate the rest of the species' habitat as National Park so that the species can be adequately protected and managed.

From FY 2014 onwards: Implement the work required for National Park designation.

Activity 2-1-2: Regulate development plans and activities that may have an impact on the species' living environment through proper implementation of the Natural Parks Act and other legislation.

From FY 2014 onwards: Properly enforce the Wildlife Protection, Control, and Hunting Management Act and the Natural Parks Act (after the designation as a National Park).

Activity 2-2: Eliminate, or implement mitigation measures against, alien species such as small Indian mongooses and feral cats so as to increase the species' population size and expand its area of distribution.

Activity 2-2-1: As scheduled in the Second Amami-Oshima Island Small Indian Mongoose Control Implementation Plan, completely eliminate small Indian mongooses by FY 2022.

From FY 2014 to 2022: Completely eliminate small Indian mongooses.

Activity 2-2-2: Draw up a policy for the capture and handling of feral cats in coordination with local governments, veterinary medical associations, and concerned bodies. Capture feral cats in accordance with this policy and reduce their population size.

FY2014: Discuss and decide on a feral cat capture and handling policy.

From FY 2015 onwards: Implement capture of feral cats in accordance with the policy.

Result 2

Result 2-1-1: The National Park designation plan designates the habitat as National Park.

Results indicator 2-1-1: The percentage of the habitat designated as National Park.

Result 2-1-2: Development plans and activities that have negative impacts on the species' survival are regulated in accordance with the National Park designation plan.

Results indicator 2-1-2: The number of adequate prior adjustments, authorizations, and law enforcement cases processed in relation to development plans and activities that could have an impact on the species' survival, as determined by examination of the National Park designation plan.

Result 2-2-1: Small Indian mongooses are completely eliminated.

Results indicator 2-2-1: The population size, relative density, and distribution area of small Indian mongooses

Result 2-2-2: The policy to capture feral cats is decided on, and capture is implemented in accordance with the policy.

Results indicator 2-2-2: The policy to capture feral cats, the number of feral cats captured, and the capture effort.

Effect 2

Effect 2-1-1: The size of the species' habitat and population within the confines of the area designated as National Park is maintained or increased.

Effects indicator 2-1-1: The size of the species' habitat, the population density, and the size of the population inside the National Park.

Effect 2-2-1: Complete elimination of small Indian mongooses results in an increase in the population density and population size of Amami woodcocks.

Effects indicator 2-2-1: The population density and population size of Amami woodcocks in areas where the density of small Indian mongooses has been reduced or where small Indian mongooses have been completely eliminated.

Effect 2-2-2: The population of feral cats is reduced, and the population size or population density of Amami woodcocks is increased in areas where the population of feral cats has been decreased.

Effects indicator 2-2-2: The population density and population size of Amami woodcocks in areas where feral cats have been eliminated.

3. Captive breeding

Target 3: A rescue system for sick or injured individuals will be constructed. Discussions will be held on a system for rearing those individuals that may never be returned to the wild and on the policy for collecting ecological, physiological, and pathological information by using reared individuals. Discussions will also be held on the policy for education and awareness-raising activities.

Activity 3

Activity 3: In cooperation with relevant organizations, local governments, veterinary medical associations, and concerned bodies, discuss and decide on a policy for the rescue of sick or injured individuals and their return to the wild, and construct a rescue and return system accordingly. Also, at the same time, discuss the manner in which those individuals that are difficult to return to the wild should be handled.

From FY 2014 to 2015: Discuss and decide on a policy for the rescue and return to the wild of sick or injured individuals.

From FY 2016 onwards: Implement the rescue and return to the wild of sick or injured individuals in accordance with the policy and system.

Result 3

Result 3: A policy that lays out, among other things, the rescue system and the criteria for the sick or injured individual's return to the wild is decided on; the rescue system is constructed; and rescue is implemented in accordance with this policy and system.

Results indicator 3: A policy document on the rescue and return to the wild of sick or injured individuals; an organizational chart of the rescue system; actual results of the rescue and return to the wild of sick or injured individuals; the amount of pathological data; the number of reports and papers published on the rescue and return to the wild of sick or injured individuals; and the number of reports and papers published on pathological data.

Effect 3

Effect 3: The survival rate of rescued individuals and the rate of their return to the wild are increased owing to fast and adequate rescue of sick or injured individuals. Pathological data are also accumulated and utilized.

Effects indicator 3: The survival rate and the rate of return to the wild of rescued individuals.

4. Patrol, etc. of the habitat

Target 4: The habitat will be continuously patrolled and information shared among various local entities.

Activity 4

Activity 4: Various local entities continuously patrol the habitat (from FY 2014 to 2023).

Result 4

Result 4: Sighting information is accumulated and shared among concerned parties.

Results indicator 4: The number of patrols performed and the number of entities that participated.

Effect 4

Effect 4: Actions that may have a negative impact on maintaining the population (e.g. unintentional intrusion of humans into the species' nesting grounds) are prevented.

Effects indicator 4: The number of cases in which activities are revised after certain instructions.

5. Promotion of education and awareness-raising activities

Target 5: Education and awareness-raising activities aimed at conservation of the species will be promoted so that local residents' and others' understanding of the need for conservation will increase.

Activity 5

Activity 5-1: Deepen local residents' and tourists' understanding of the need for conservation of this species by carrying out education and awareness-raising activities via setting up a website; creating and distributing pamphlets; press releases aimed at the mass media; and conducting volunteer participatory surveys.

From FY 2014 onwards: Set up (FY 2014) and update (FY 2015 onwards) a website; create and distribute pamphlets (between FY 2015 and 2017 and again between FY 2020 and 2022); and discuss and conduct volunteer participatory surveys (discussions to take place between FY 2015 and 2016 and trial surveys to be conducted sometime after FY 2017).

Activity 5-2: Conduct a questionnaire survey every five years targeting local residents and tourists to measure the level of their understanding of the conservation of the species.

FY 2015, 2018, and 2023: Conduct the questionnaire survey.

Result 5

Result 5: The website is created, pamphlets are created and distributed, and volunteer participatory surveys and questionnaire surveys are conducted.

Results indicator 5: The website interpretation and the number of times it is updated; the number of pamphlets issued; the number of times the volunteer participatory survey is conducted; the number of

volunteer participants; the number of times the questionnaire survey is conducted; and the number of questionnaires collected.

Effect 5

Effect 5: Levels of awareness and understanding among local residents and tourists in regard to conservation of the species are increased.

Effects indicator 5: The results of the questionnaire survey on the level of awareness and understanding of the need for conservation.

6. Consolidation of collaboration for effective promotion of the program

Target 6-1: Collaboration among relevant organizations and bodies, local governments, and concerned parties will be strengthened so that conservation measures for the species can be effectively promoted.

Activity 6-1

Activity 6-1: Through relevant meetings such as review committee meetings on the Amami Woodcock Protection and Recovery Program, and through coordination meetings and other ad hoc meetings held as needed, share and consolidate a wide range of survey results held by, and information on protection measures taken by, relevant organizations and bodies, local governments, and concerned parties, to strengthen collaboration on conservation measures and also to strengthen the consideration that needs to be given to conservation of the species in connection to development plans, etc.

From FY 2014 onwards: Hold annual review meetings and other necessary meetings such as coordination meetings; consolidate data such as those on habitat distribution held by concerned parties, convert them to GIS, and publish them; and share survey and other reports.

Result 6-1

Result 6-1: Information on survey results, protection measures, development plans, and other matters is shared and review, coordination, and other meetings aimed at collaboration are held. Data on distribution, etc. are consolidated and converted to GIS and reports on survey results are shared.

Results indicator 6-1: The number of review and coordination meetings held; the amount of GIS and other data consolidated; and the number of shared reports of survey results.

Effect 6-1

Effect 6-1: The number of cases in which development plans and others are revised out of consideration to the species is increased. The number of protection measures implemented through the collaboration of relevant organizations and bodies is increased. The use of data such as GIS and survey results by relevant organizations and bodies and by others is increased.

Effects indicator 6-1: The number of development plans and other plans revised out of consideration for the species; the number of protection measures implemented through the collaboration of relevant organizations and bodies; and the amounts of information on the species status and GIS data shared.

Target 6-2: In addition to annual reporting on the progress of the Action Plan at the Protection and Recovery Program review committee meeting, the state of progress of the Action Plan will be evaluated every five years and the Action Plan will be revised accordingly.

Activity 6-2

Activity 6-2-1: Annually report the implementation results of the Action Plan for the Amami Woodcock Protection and Recovery Program at the Protection and Recovery Program review committee meeting; seek the review committee members' advice on points that need to be improved and on other matters; and make the improvements needed for more effective and efficient implementation of the program.

Activity 6-2-2: In FY 2018, comprehensively evaluate the state of progress of the Action Plan on the basis of the results and effect indicators, and revise the Action Plan if necessary. In the final fiscal year, FY 2023, similarly evaluate the level of target achievement of the program's 10-year Action Plan and draw up a new 10-year plan.

Result 6-2

Result 6-2-1: The Protection and Recovery Program review committee meetings are held; the implementation results are reported; and appropriate improvements are made to the program in response to the committee members' advice.

Results indicator 6-2-1: Annual holding of the review committee meeting and the improvements made to the program in response to the committee members' advice.

Result 6-2-2: The progress of the program's Action Plan is evaluated on the basis of the results and effect indicators; the Action Plan is revised accordingly; and a new Action Plan is formulated.

Results indicator 6-2-2: Progress evaluation results, revisions made to the Action Plan, and formulation of a new Action Plan.

Effect 6-2

Effect 6-2-1: The program is implemented with increased effectiveness and efficiency.

Effects indicator 6-2-1: Improvement of the results and effect indicators for those activities that have been improved.

Effect 6-2-2: The level of target achievement of the Action Plan is comprehensively evaluated according to each result and effect indicator; revisions deemed necessary from the perspective of effectiveness and efficiency are made to the Action Plan; and a new Action Plan is drawn up.

Effects indicator 6-2-2: Improvement of the results and effect indicators, and improvement of the level of target achievement of the Action Plan.

V. Activity implementation schedule (thickness of the arrow indicates the activity's level of importance)

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1-1: Determination of the changes in distribution and number of confirmed individuals over the years	→	→	→	→	→	→	→	→	→	→
1-2: Reevaluation of past survey results and revision of the survey method	→	→	→							
1-3: Genetic surveys	Sampling →	→	→							
1-4: Population size estimation and assessment of the species status	Setting targets and developing methods →	→	→	→	→	→	→	→	→	→
2-1-1: Work toward designation as a National Park	-- →									
2-1-2: Enforcement of regulations	→	→	→	→	→	→	→	→	→	→
2-2-1: Elimination of small Indian mongooses	Elimination based on the mongoose Control Plan →	→	→	→	→	→	→	→	→	
2-2-2: Measures against feral cats	Deciding on a policy →									
		Implementation of capture in accordance with the policy →	→	→	→	→	→	→	→	→
3: Construction of a rescue system for sick or injured individuals, and implementation of rescue, etc.	Construction of a structure →	→								
			Implementation of rescue and return to the wild of sick or injured individuals →	→	→	→	→	→	→	→
4: Patrol of habitat	→	→	→	→	→	→	→	→	→	→
5-1: Education and awareness-raising activities through a website, pamphlets, etc. and volunteer participatory surveys	Website creation →	updating →	→	→	→	→	→	→	→	→
		Pamphlet creation →	→	→			Pamphlet creation →	→	→	→
		Discussions on volunteer participatory surveys →	→	→	→					
			trial surveys →	→	→					
5-2: Questionnaire survey		→			→					→

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
6-1: Consolidation of various survey and other results from relevant organizations and others, and strengthening of collaboration	→	→	→	→	→	→	→	→	→	→
6-2-1: Holding of Protection and Recovery Program review committee meetings	→	→	→	→	→	→	→	→	→	→
6-2-2: Evaluation and revision of the Action Plan					→					→

VI. References

BirdLife International (2012) *Scolopax mira*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Accessed on 27 August 2015.

4-27 A 10-year Action Plan for the Amami Thrush Protection and Recovery Program (2014 to 2024)

December 2014

Naha Nature Conservation Office

Ministry of the Environment

I. Background

1. Scientific classification and ecology

The Amami thrush (*Zoothera dauma major*) is an endemic subspecies that breeds only on Amami-Oshima Island. Its total length is roughly 30 cm and its wing length is between 159 and 171 mm (n = 27). Its upper parts are a dull buff or olive and covered in a spotty pattern created by the feathers, which are black at the tip but white around the shaft. It has light under parts with dense crescent-shaped spots and has 12 blackish tail feathers. [Its subspecies, White's thrush (*Zoothera dauma aurea*), has 14 tail feathers.] Its main habitat is a mature evergreen forest with a damp floor. In the breeding season, a short time before sunrise, the birds sing all together, with a unique voice. According to a survey counts made of singing birds during the breeding season since 1999, the number of singing individuals at this time of year is around 500 (Amami Ornithologists' Club 2013). In recent years the area of the thrush's distribution has been expanding, and with this expansion an increase in population has been observed. The population size of the species as of FY 2012 was estimated to range from about 800 to 2000 individuals (Naha Nature Conservation Office, Ministry of the Environment 2014).

2. Legal position, etc.

Act on Conservation of Endangered Species of Wild Fauna and Flora

Designated as a National Endangered Species in 1993

A plan for the species' Protection and Recovery Program was drawn up in 1999

Wildlife Protection, Control and Hunting Management Act

Part of the species' habitat was designated the Mt. Yuwandake National Wildlife Protection Area in 1965

Act on Protection of Cultural Properties

Designated a National Natural Monument in 1971

Part of the species' habitat was designated the Kamiya–Yuwandake Natural Monument in 1968

Other

Listed as Vulnerable (VU) on the 4th version of the Red List of Japan (2012)

3. Present results of the Protection and Recovery Program (Attachment; omitted)

(1) Understanding the species' status and monitoring, etc.

Trends in status of the species have been monitored through general simultaneous surveys of singing birds at multiple locations during the breeding season. In recent years, the presence of increasingly more singing birds has been confirmed (Attachment Figure 1; omitted), and an expansion in the bird's area of distribution (Attachment Figures 2 and 3: omitted) has also been suggested.

Information on breeding has been collected through a search for the species' nesting grounds, observation of its breeding activities, and so on.

Identification bands were used to identify individual birds, and each bird's behavior, home range, etc. was determined.

Environmental factors (e.g. forest age, altitude, size of the broad-leaved forest) that may have influenced the size of the species' population were identified and the species' population size was estimated (Attachment Figure 4; omitted) from the results of the general simultaneous survey of singing birds and data on such items as topography and vegetation maps.

(2) Habitat maintenance and improvement

With the aim of maintaining and improving environments suited for habitation and breeding of the species, discussions aimed at designating such areas as a protection area (National Park) were held on the basis of such factors as the species' status and expert opinions, and so on.

(3) Patrol, etc. of the habitat

The area including the habitat of the species has been routinely monitored and information collected by local concerned parties, national and local public organizations, and others.

(4) Promotion of education and awareness-raising activities

Education and awareness-raising activities on the species' status, the need for protection, the current state of implementation of the Protection and Recovery Program, and so on have been promoted through pamphlet distribution and other means.

(6) Consolidation of collaboration for effective promotion of the program

Various entities have been collaboratively and effectively implementing the program in a wide range of situations through numerous surveys, research, and education and awareness-raising activities.

4. Points of concern in relation to protection of the species

A workshop on the Protection and Recovery Program of the Amami rare species was held with the participation of representatives from such organizations as universities, research institutes, administrative bodies, and NPOs on August 9 and 10, 2013. In this workshop, the Protection and Recovery Program that has been implemented since FY 2005 was reviewed and points of future concern in relation to protection of the species were identified. The identified points are summarized as follows:

(1) Understanding the status of the species and monitoring, etc.

Surveys that best correspond to the intended purpose of, for example, understanding the species' distribution area and population size have not been conducted, and the survey methods used have not been standardized.

Past results of the singing bird surveys need to be reassessed.

The accuracy of the population estimation needs to be improved by incorporating an additional measure of efficiency.

Breeding status needs to be determined so as to assess population health.

Genetic investigations of, for example, genetic diversity and phylogenetic relationships are necessary.

(2) Habitat maintenance and improvement

Important areas with suitable environmental conditions for the species are not assured of protection.

The negative impacts of human activities and alien species are not understood, and measures to eliminate or mitigate these impacts have not been taken.

Development activities need to be regulated in consideration of the breeding grounds and breeding season.

(3) Captive breeding, etc.

The need for creating facilities that accept sick or injured individuals so as to collect pathological and other data, the need for conservation outside the species' habitat in rearing and exhibition facilities, and the need for behavioral observation, etc. have not been examined.

(4) Promotion of education and awareness-raising activities

Local residents' levels of awareness are low; this is an indication of a lack of education and awareness-raising activities.

(5) Consolidation of collaboration for effective promotion of the program

Sharing of information on various survey results held by relevant organizations and collaboration with the local community are necessary.

Information on development plans needs to be shared through the collaboration of local governments and businesses.

The roles and responsibilities of relevant organizations are not specified.

5. Background leading to the creation of the Action Plan

More than 10 years have passed since the launch of the Protection and Recovery Program. Through this program, results have been achieved in a wide range of areas. These include improved understanding of the status and biological characteristics of the species and of environmental factors such as deforestation that may place pressure on the population. One of the most important outcomes of the program has been the accumulation of knowledge on the status and biological characteristics of the species. Information on both of these factors is elemental to planning for species conservation and has been collected through the cooperation and collaboration of researchers and many others. Furthermore, on Amami-Oshima Island, as a result of the mongoose control program, the population size and distribution area of the species are in a recovery trend.

However, as summarized above in “4. Points of concern in relation to protection of the species,” to succeed in maintaining a stable population of the species some of these points of concern still require attention. Included in the National Biodiversity Strategy of Japan 2012-2020 is National Target C-2: “Increase the number of threatened species whose status on the Red List of Japan has been changed to a lower category of threat.” In addition, with the ultimate aim of having “Amami-Oshima, Tokunoshima, the northern part of Okinawa Island, and Iriomote Island” inscribed on the Natural World Heritage List, Japan decided to add this property to the Tentative World Heritage List at the end of January 2013 and submitted the documents required to the UNESCO World Heritage Centre in February. Amami-Oshima and Tokunoshima Islands are candidate sites as part of the nomination of this property for inscription on the Natural World Heritage List. The Amami thrush provides indispensable proof of the Outstanding Universal Value of these sites. To be able to meet the target set in the National Biodiversity Strategy of Japan 2012–2020, as well as to have these sites inscribed on the Natural World Heritage List, and to ensure and strengthen their protection, the Protection and Recovery Program must be implemented in such a way that the intended results can be more effectively achieved.

In light of the above, a decision was made to draw up a 10-year plan (from 2014 to 2024) titled “ A 10-year Action Plan for the Amami Thrush Protection and Recovery Program” (hereinafter referred to as “the Action Plan”).

II. Objectives of the Action Plan

The objectives of the Action Plan are the elimination or mitigation of factors that cause species decline, including alien species, roadkills, and development; expansion of the distribution area and population size

of the species; and removal by the end of March 2024 from the Red List of Japan as a species for which there is fear of extinction (i.e. Threatened Species).

III. Action period

December 1, 2014 to March 31, 2024

IV. Details of activities needed to achieve the Action Plan objectives, and their expected results, and indicators

1. Understanding the species' status and monitoring, etc.

Target 1: Along with continuation of the present monitoring survey, new survey methods will be established so that information on the species, including status, ecology, and genetics, will be more effectively collected and accumulated and then used to assess population size, etc.

Activity 1

Activity 1: Understand the status and ecology of the species through continued implementation of the present monitoring survey and through the establishment and introduction of a more effective survey method.

Activity 1-1: Continue to monitor the breeding activity and the changes over the years in the distribution and number of singing birds to accumulate information on the status and ecology of the species.

From FY 2014 to 2023: Accumulate information on the species status through continued implementation of the monitoring survey.

Activity 1-2: Reevaluate past monitoring results and improvements that can be made to the monitoring survey method in connection with the population size estimation method that is to be examined in Activity 1-4; and conduct more effective monitoring by taking the survey system and other factors into consideration.

From FY 2014 to 2016: Evaluate the monitoring results and revise the survey method.

Activity 1-3: Use tissues sampled from captured and other individuals to determine the genetic diversity and phylogenetic relationships of the species; collect pathological information; assess the health of the population; set units of conservation based on the phylogenetic relationships; determine the causes of death; and so on.

From FY 2014 to 2016: Establish a framework for tissue sampling, preservation, and genetic and pathological analyses.

From FY 2017 onwards: Assess the health of the population and determine the causes of death.

Activity 1-4: Set a target population size for the species, examine and develop a more accurate and efficient population-size estimation method, and assess the population size of the species.

From FY 2014 to 2016: Set a target population size for the species and examine and develop a population-size estimation method.

From FY 2017 onwards: Assess the population size of the species by using the new population-size estimation method.

Result 1

Result 1-a: Reports (annually) and academic papers are published on the status, ecology, and genetics of the species.

Result 1-b: Survey methods are improved or newly introduced to determine the status of the species with greater accuracy; survey reports are produced by using these methods.

Results indicator 1: The number of reports and academic papers published in relation to Result 1.

Effect 1

Effect 1: Accumulated knowledge on the status, ecology, genetics, etc. of the species is utilized in conservation measures.

Effects indicator 1: The type of conservation measures and the number of cases in which data and results based on Result 1 are used.

2. Habitat maintenance and improvement

Target 2: Important areas with environmental conditions suitable for the species will be maintained, with adequate protection and management. The species' population will be increased, and the distribution area expanded, as a result of an understanding of the actions that may have an impact on the species' living environment and the regulations and other measures implemented against these actions.

Activity 2

Activity 2: Designate habitat with suitable conditions for the species as a National Park, and maintain the species' living environment through adequate protection and management of the wildlife protection area and National Park.

Activity 2-1: Designate, as far as possible, habitat with suitable conditions for the species as a National Park Special Protection Zone or class I Special Zone; designate the rest of the species' habitat as National Park so that the species can be adequately protected and managed.

From FY 2014 onwards: Implement the work required for National Park designation.

Activity 2-2: Regulate development plans and activities that may have an impact on the species' living environment through proper enforcement of the Natural Parks Act and other legislation.

From FY 2014 onwards: Properly enforce the Wildlife Protection, Control and Hunting Management Act and the Natural Parks Act (after the designation as a National Park).

Result 2

Result 2-1: The National Park designation plan designates the habitat as a National Park.

Results indicator 2-1: The percentage of the habitat designated as a National Park

Result 2-2: Development plans and activities that have a negative impact on the species' survival are regulated in accordance with the National Park designation plan.

Results indicator 2-2: The number of adequate prior adjustments, authorizations, and law enforcement cases processed in relation to development plans and activities that could have an impact on the species' survival, as determined by examination of National Park designation plan.

Effect 2

Effect 2: The size of the species' habitat and population within the confines of the area designated as National Park is maintained or increased.

Effects indicator 2: The size of the species' habitat, the population density, and the size of the population inside the National Park.

3. Captive breeding, etc.

Target 3: A rescue system for sick or injured individuals will be constructed. Discussions will be held on a system for rearing those individuals that may never be returned to the wild, and on the policy for collecting ecological, physiological, and pathological information by using reared individuals. Discussions will also be held on the policy for education and awareness-raising activities.

Activity 3

Activity 3: In cooperation with relevant organizations, local governments, veterinary medical associations, and concerned bodies, discuss and decide on a policy for the rescue of sick or injured individuals and their return to the wild, and construct a rescue and return system accordingly. Also, at the same time, discuss the manner in which those individuals that are difficult to return to the wild should be handled in terms of collecting ecological, physiological, and pathological information and in terms of education and awareness-raising activities.

From FY 2014 to 2015: Discuss and decide on a policy for the rescue and return to the wild of sick or injured individuals.

From FY 2016 onwards: Implement the rescue and return to the wild of sick or injured individuals in accordance with the policy and system.

Result 3

Result 3: A policy that lays out, among other things, the rescue system and the criteria for the sick or injured individual's return to the wild is decided on; the rescue system is constructed; and rescue is implemented in accordance with this policy and system.

Results indicator 3: A policy document on the rescue and return to the wild of sick or injured individuals; an organizational chart of the rescue system; actual results of the rescue and return to the wild of sick or injured individuals; the amount of pathological data; the number of reports and papers published on the rescue and return to the wild of sick or injured individuals; and the number of reports and papers published on pathological data.

Effect 3

Effect 3: The number of surviving individuals and the number of individuals returned to the wild are increased owing to fast and adequate rescue of sick or injured individuals. Pathological data are also accumulated and utilized.

Effects indicator 3: The number of rescued individuals that survive and the number of those that are returned to the wild.

4. Patrol, etc. of the habitat

Target 4: The habitat will be continuously patrolled and information shared among various local entities.

Activity 4

Activity 4: Various local entities continuously patrol the habitat (from FY 2014 to 2023).

Result 4

Result 4: Sighting information is accumulated and shared among concerned parties.

Results indicator 4: The number of patrols performed and the number of entities that participated.

Effect 4

Effect 4: Actions that may have a negative impact on maintaining the population (e.g. unintentional intrusions of humans into the species' nesting ground) are prevented.

Effects indicator 4: The number of cases in which actions are revised after certain instructions.

5. Promotion of education and awareness-raising activities

Target 5: Education and awareness-raising activities aimed at conservation of the species will be promoted so that local residents' and others' understanding of conservation will be increased.

Activity 5

Activity 5-1: Deepen local residents' and tourists' understanding of the need for the conservation of this species by carrying out education and awareness-raising activities via setting up a website; creating and

distributing pamphlets; press releases aimed at the mass media; and conducting volunteer participatory surveys.

From FY 2014 onwards: Set up (FY 2014) and update (FY 2015 onwards) a website; create and distribute pamphlets (once between FY 2015 and 2017 and again between FY 2020 and 2022); and discuss and conduct volunteer participatory surveys (discussions to take place between FY 2015 and 2016 and trial surveys to be conducted sometime after FY 2017).

Activity 5-2: Conduct a questionnaire survey every five years targeting local residents and tourists to measure the level of their understanding of the conservation of the species.

FY 2015, 2018, and 2023: Conduct the questionnaire survey.

Result 5

Result 5: The website is created, pamphlets are created and distributed, and volunteer participatory surveys and questionnaire surveys are conducted.

Results indicator 5: The website interpretation and the number of times it is updated; the number of pamphlets issued; the number of times the volunteer participatory survey is conducted; the number of volunteer participants; the number of times the questionnaire survey is conducted; and the number of questionnaires collected.

Effect 5

Effect 5: Levels of awareness and understanding among local residents and tourists in regard to conservation of the species are increased.

Effects indicator 5: Levels of awareness and understanding regarding conservation; the number of times covered by newspapers, television, etc.; and the results of the questionnaire survey on the level of awareness and understanding of the need for conservation.

6. Consolidation of collaboration for effective promotion of the program

Target 6-1: Collaboration among relevant organizations and bodies, local governments, and concerned parties will be strengthened so that conservation measures for the species can be effectively promoted.

Activity 6-1

Activity 6-1: Through relevant meetings such as review committee meetings on the Amami Thrush Protection and Recovery Program, and through coordination meetings and other ad hoc meetings held as needed, share and consolidate a wide range of survey results held by, and information on protection measures taken by, relevant organizations and bodies, local governments, and concerned parties, to strengthen collaboration on conservation measures and also to strengthen the consideration that needs to be given to conservation of the species in connection to development plans, etc.

From FY 2014 onwards: Hold annual review meetings and other necessary meetings; consolidate data such as those on habitat distribution held by concerned parties, convert them to GIS, and publish them; and share survey and other reports.

Result 6-1

Result 6-1: Information on survey results, protection measures, development plans, and other matters is shared and review, coordination, and other meetings aimed at collaboration are held. Data on distribution, etc. are consolidated and converted to GIS and reports on survey results are shared.

Results indicator 6-1: The number of review and coordination meetings held; the amount of GIS and other data consolidated; and the number of shared reports of survey results.

Effect 6-1

Effect 6-1: The number of cases in which development plans and others are revised out of consideration to the species is increased. The number of protection measures implemented through the collaboration of relevant organizations and bodies is increased. The use of data such as GIS and survey results by relevant organizations and bodies and by others is increased.

Effects indicator 6-1: The number of development plans and other plans revised out of consideration for the species; the number of protection measures implemented through the collaboration of relevant organizations and bodies; and the amounts of information on the species status and GIS data shared.

Target 6-2: In addition to annual reporting on the progress of the Action Plan at the Protection and Recovery Program review committee meeting, the state of progress of the Action Plan will be evaluated every five years and the Action Plan will be revised accordingly.

Activity 6-2

Activity 6-2-1: Annually report the implementation results of the Action Plan for the Amami Thrush Protection and Recovery Program at the Protection and Recovery Program review committee meeting; seek the review committee members' advice on the points that need to be improved and on other matters; and make the improvements needed for more effective and efficient implementation of the program.

Activity 6-2-2: In FY 2018, comprehensively evaluate the state of progress of the Action Plan on the basis of the results and the effect indicators, and revise the Action Plan if necessary. In the final fiscal year, FY 2023, similarly evaluate the level of target achievement of the program's 10-year Action Plan and draw up a new 10-year plan.

Result 6-2

Result 6-2-1: The Protection and Recovery Program review committee meetings are held, the implementation results are reported, and appropriate improvements are made to the program in response to the committee members' advice.

Results indicator 6-2-1: Annual holding of the review committee meeting and the improvements made to the program in response to the committee members' advice.

Result 6-2-2: The progress of the program's Action Plan is evaluated on the basis of the results and the effect indicators; the Action Plan is revised accordingly; and a new Action Plan is formulated.

Results indicator 6-2-2: Progress evaluation results, revisions made to the Action Plan, and formulation of a new Action Plan.

Effect 6-2

Effect 6-2-1: The program is implemented with increased effectiveness and efficiency.

Effects indicator 6-2-1: Improvement of the results and effect indicators for those activities that have been improved.

Effect 6-2-2: The level of target achievement of the Action Plan is comprehensively evaluated according to each result and effect indicator; revisions deemed necessary from the perspective of effectiveness and efficiency are made to the Action Plan; and a new Action Plan is drawn up.

Effects indicator 6-2-2: Improvement of the result and the effect indicators, and improvement of the level of target achievement of the Action Plan.

V. Activity implementation schedule (thickness of the arrow indicates the activity's level of importance)

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1-1: Determination of the changes in distribution and number of singing birds over the years, and monitoring of breeding activities	→	→	→	→	→	→	→	→	→	→
1-2: Reevaluation of past survey results and revision of the survey method	→	→	→							
1-3: Genetic and pathological surveys	→	→	→		→	→	→	→	→	→
1-4: Population size estimation and assessment of the species status	→	→	→	→	→	→	→	→	→	→
2-1: Work toward designation as a National Park	→									
2-2: Enforcement of regulations	→	→	→	→	→	→	→	→	→	→
3: Construction of a rescue system for sick or injured individuals, and implementation of rescue, etc.	→	→	→	→	→	→	→	→	→	→
4: Patrol of habitat	→	→	→	→	→	→	→	→	→	→
5-1: Education and awareness-raising activities through a website, pamphlets, etc., and volunteer participatory surveys	→	→	→	→	→	→	→	→	→	→
5-2: Questionnaire survey		→			→					→
6-1: Consolidation of various survey and other results from relevant organizations and others, and strengthening of collaboration	→	→	→	→	→	→	→	→	→	→

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
6-2-1: Holding of Protection and Recovery Program review committee meetings	→	→	→	→	→	→	→	→	→	→
6-2-2: Evaluation and revision of the Action Plan					➔					➔

VI. References

Amami Ornithologists' Club (2013) The 20th 2013 Amami Thrush Survey Research Report, p. 3.
 Naha Nature Conservation Office, Ministry of the Environment (2014) 2013 Reference Material for the Amami Endangered Species Protection and Recovery Discussion Meeting, Reference 5-1, p. 5.

4-28 A 10-year Action Plan for the Okinawa Rail Protection and Recovery Program (2015 to 2025)

December 2015

Naha Nature Conservation Office

Ministry of the Environment

I. Species

Okinawa rail (*Gallirallus okinawae*)

II. Scientific classification and ecology

The Okinawa rail (*Gallirallus okinawae*, or *Hypotaenidia okinawae* according to some sources) is an endemic species that lives only in the northern part of Okinawa Island (in the so-called Yambaru area). It was designated as a new species in 1981 (Yamashina and Mano, 1981) and is the only flightless bird species in Japan. It is thought that an ancestral species that flew from somewhere in the south to Okinawa Island several tens of thousands of years ago gradually adapted to ground dwelling and evolved into the present Okinawa rail. This was likely possible because Okinawa Island had no native carnivores that were powerful predators; moreover, a diversity of organisms existed in the subtropical evergreen broad-leaved forest, providing an abundance of small ground-dwelling animals that the rail could feed on. These conditions thus enabled the species to flourish despite its inability to fly (Ozaki, 2005).

In modern times 32 flightless rail species have been identified globally. The bulk of these are found on islands, and many are endemic species or endemic subspecies of these islands. Thirteen of the species have been classified as extinct since the 17th century. Even though 19 species remain extant, one of them is classified as extinct in the wild and 13 are classified as threatened. The causes of this situation include hunting, environmental destruction, introduction of alien species, and other impacts of human origin (Ozaki, 2005).

The Okinawa rail inhabits the forest floors of evergreen broad-leaved forests, as well as nearby grasslands. The breeding season is from March to June, and it nests on the ground. The clutch size is four or five. Although the species is omnivorous, it feeds mainly on small animals such as insects, crustaceans, and

amphibians. In 1985, the population size of the species was estimated at roughly 1,800 individuals. However, by around 2000, because of a reduction in the abundance of habitat with conditions suitable for the species, as well as the impacts of predation by such animals as small Indian mongooses (*Herpestes auropunctatus*; a designated Specified Invasive Alien Species under the Act on the Prevention of Adverse Ecological Impacts caused by Specified Invasive Alien Species), dogs, and cats, this number was estimated to have decreased to fewer than 1,000 individuals. Since this discovery, efforts have been made to control small Indian mongooses, and as a result the population size and area of distribution have been in a recovery trend. In 2013, the population size was estimated at roughly 1,500 individuals.

III. Legal position, etc.

Act on Conservation of Endangered Species of Wild Fauna and Flora

Designated as a National Endangered Species in 1993

A plan for the species' Protection and Recovery Program was drawn up in 2004.

Wildlife Protection, Control and Hunting Management Act

Part of the species' habitat was designated as Mt. Yambaru (Ada) National Wildlife Protection Area in 2009.

Part of the species' habitat was designated as Mt. Yambaru (Aha) National Wildlife Protection Area in 2009.

Part of the species' habitat was designated as Mt. Nishimedake Prefectural Wildlife Protection Area in 1967.

Part of the species' habitat was designated as Mt. Yonahadake Prefectural Wildlife Protection Area in 1967.

Part of the species' habitat was designated as Sate Prefectural Wildlife Protection Area in 1967.

Act on Protection of Cultural Properties

Part of the species' habitat was designated as Mt. Yonahadake Natural Monument Protection Area in 1972

Designated a National Natural Monument in 1982

Other

Listed as Endangered (EN) on the IUCN Red List of Threatened Species (2013)

Listed as Critically Endangered (CR) on the 4th version of the Red List of Japan (2012)

IV. Reasons for creation of the Action Plan

More than 10 years have passed since the launch of the Protection and Recovery Program, and results have been achieved in a wide range of areas. These include improved understanding of the status and biological

characteristics of the species; understanding of the environmental factors (such as small Indian mongooses) that may place pressure on the population; implementation of roadkill-prevention measures; and promotion of education and awareness-raising activities. One of the most important outcomes of the program has been the accumulation of knowledge on, for example, the status and biological characteristics of the species. Information on both of these factors is elemental to planning for species conservation and has been collected through the cooperation and collaboration of researchers and many others. Furthermore, on the northern part of Okinawa Island, as a result of the mongoose control program, the population size and the distribution area of the species are in a recovery trend (Attachment 1 for more information; omitted) However, to succeed in maintaining a stable population of the species, some points of concern still require attention.

In addition, included in the National Biodiversity Strategy of Japan 2012–2020 is National Target C-2: “Increase the number of threatened species whose status on the Red List of Japan has been changed to a lower category of threat.” Furthermore, the northern part of Okinawa Island is a candidate site as part of the nomination of the “Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Iriomote Island” for inscription on the Natural World Heritage List. The Okinawa rail provides indispensable proof of the Outstanding Universal Value of this region. To be able to meet the target set in the National Biodiversity Strategy of Japan 2012–2020, as well as to have these sites inscribed on the Natural World Heritage List, and to ensure and strengthen their protection, the Protection and Recovery Program must be implemented in such a way that the intended results can be more effectively achieved.

In light of the above, a decision was made to draw up a 10-year plan (from 2015 to 2025) titled “A 10-year Action Plan for the Okinawa Rail Protection and Recovery Program” (hereinafter referred to as “the Action Plan”).

V. Objectives of the Action Plan

The objectives of the Action Plan are the elimination or mitigation of factors that cause species decline, including alien species, roadkill, and development; expansion of the distribution areas and population size of the species in the northern part of Okinawa Island; recovery of the distribution area and population size of the species to the 1985 level; and ranking of the species in a category lower than Endangered (EN) on the Red List of Japan by the end of March 2025. In addition to these, the Action Plan aims to establish techniques for rearing, captive breeding, return to the wild, and reinforcement or reintroduction of the species in the wild. Such measures would give the species resilience in the future should the wild population again be dramatically reduced through, for example, the deterioration of environmental conditions or the spread of infectious disease.

By the end of FY 2019 (the midpoint of the Action Plan), the species is to be settled in the area north of the Shioya-Fukuji Dam (the “S-F” line) in the southern Yambaru area (Ogimi and Higashi Villages).

VI. Action period

December 1, 2015 to March 31, 2025

VII. Secondary objectives and details of activities to be implemented in relation to the Action Plan

Secondary objectives and details of the relevant activities to be implemented to achieve the objectives of the Action Plan effectively are defined below.

1. Investigation and monitoring of the species' status

Target 1: Along with continued implementation of the present monitoring survey to determine the status of the species, improvements will be made to enhance the accuracy of population size estimations. New survey methods needed to elucidate the ecology of the species—information that is essential for its conservation—will be established. This will ensure that ecological and genetic information is collected and accumulated more effectively and then used to assess population size, etc. Moreover, the factors reducing the species' population size and the extent of their impact will be clarified.

Activity 1

Activity 1-1: Along with continuation of the present call-playback survey to monitor the species' population, reevaluate past survey results and make the necessary improvements to the survey method and the population size estimation method.

Activity 1-1-1: Monitor the status of the species through continuous implementation of the present call-playback survey.

From FY 2015 to 2017: Accumulate information on the existence of the species through continued implementation of the monitoring survey.

From FY 2018 to 2024: Reflect the results of reevaluation (Activity 1-1-2 below) of the survey method and continue implementing the monitoring survey.

Activity 1-1-2: To improve the accuracy of the call-playback survey and the population-size estimation method, reevaluate the response rate, response distance, etc. of the call playback. Then reflect the reevaluation results in the survey method and analysis used to estimate population size.

From FY 2015 to 2017: Reevaluate the survey method and reflect the reevaluation results in the monitoring survey method.

Activity 1-2: Elucidate the unknown ecology of the species in the wild and in captivity—for example, its population structure, sociality, dispersion, and movement; genetic diversity; infectious diseases; and other

factors—by developing and introducing new survey methods and by improving the present survey methods.

Activity 1-2-1: With the cooperation of researchers and research institutes, review the present survey methods and other survey methods used to study species with similar living patterns (e.g. capture, radio-tracking, and individual identification). Then develop and introduce safe and reliable survey methods to elucidate the ecology of the species (e.g. its breeding behavior, population structure, sociality, dispersion, and movement).

From FY 2015 to 2016: Review survey methods and develop new survey methods.

From FY 2017 onwards: Introduce new survey methods and elucidate the ecology of the species.

Activity 1-2-2:

From FY 2017 to 2019: Collect data on, for example, age structure and the mortality rate for each age group through surveys based on individual identification. Use these data to elucidate the structure and dynamics of the population.

Activity 1-2-3:

From FY 2015 to 2017: Through direct observation and by analyzing the gastric contents of dead individuals, clarify the types and amounts of food eaten by the species and their seasonal fluctuations.

Activity 1-2-4:

From FY 2015 to 2017: Cooperate with research institutes such as universities, with research into the species' calls, etc.

Activity 1-2-5:

From FY 2015 to 2016: Through collaboration with research institutes, investigate the species' genetic diversity and population fragmentation in the wild.

Activity 1-2-6:

From FY 2015 to 2019: Investigate infectious diseases present among wild individuals and collect information on potential infectious diseases to identify those diseases that are feared to have a devastating impact on population maintenance. Monitor the identified infectious diseases by examining captured, rescued, or dead individuals.

Activity 1-3: Identify the environmental conditions essential for the species.

Activity 1-3-1:

From FY 2015 to 2017: On the basis of the results of the call-playback survey and other surveys, conduct a comparative analysis of biological and physical environmental factors in representative high- and low-population-density areas.

Activity 1-3-2:

From FY 2015 to 2017: Collect ecological information on the species, such as population size, breeding habits, behavior, and territory in high-population-density areas, and identify the factors contributing to maintenance of the high density of the species in the said areas.

Result 1

Result 1-1: Information on the species' estimated population size, population density, and distribution is accumulated by using a more accurate population-size estimation method.

Result 1-2: New survey methods are developed and introduced. The present survey methods are also improved. As a result, the unknown ecology of the species (such as its population structure, sociality, dispersion, movement, genetic diversity, and infectious diseases) will become clear.

Result 1-3: Factors essential for the maintenance and improvement of population density are identified through the comparative analysis of biological and physical factors among habitats with different population densities and from ecological information obtained in high-density areas.

Results indicator 1: The number of reports and academic papers published in relation to Result 1. In the case of Result 1-1, annual reports on the species' estimated population size, population density, and distribution.

Effect 1

Effect 1: Accumulated knowledge on the status of the species, such as its population size and distribution, ecological information, and genetic information, are used in conservation measures.

Effects indicator 1: The types of conservation measures and the numbers of cases in which reports based on Result 1 are utilized.

2. Habitat maintenance and improvement

Target 2: The population size of the species will recover through the maintenance of suitable habitat, the control of alien and other predatory species, and a marked reduction in the number of roadkill deaths.

Activity 2

Activity 2-1: By considering the connectivity of the species' habitat, secure habitat with conditions suitable for the species as a National Park and National Wildlife Protection Area (Special Protection Zone). At the

same time, coordinate with relevant organizations as necessary to reduce the impact of development plans and other activities that can affect the existence of the species.

Activity 2-1-1: By considering the species' population density and distribution and the connectivity of its distribution, designate suitable habitat as a National Park and National Wildlife Protection Area (Special Protection Zone).

From FY 2015 to 2016: Designation as a National Park

From FY 2017 to 2021: Designation as National Wildlife Protection Area

Activity 2-1-2:

From FY 2015 to 2024: When development plans and other activities that can affect the existence of the species are prepared, liaise beforehand with relevant organizations as necessary to reduce the impact of such plans.

Activity 2-2:

From FY 2015 to 2022: As planned in the Phase 2 Mongoose Control Plan, continue with control work aimed at complete elimination of the small Indian mongoose, a predator of the species, from the northern part of Okinawa Island by the end of FY 2022. (For details, refer to "Phase 2 Mongoose Control Plan for the Northern Part of Okinawa Island.")

Activity 2-3: Through collaboration with local governments and relevant bodies, promote appropriate keeping of pet cats and dogs; implement effective capture of stray and feral cats and dogs (hereinafter referred to as "cats and dogs"); reduce the population sizes of these cats and dogs; and adequately implement measures against these predators of the rail.

Activity 2-3-1:

From FY 2015 to 2024: Effectively capture feral cats in the species' habitat by using information on the sighting of feral cats and the results of a trail camera survey and other surveys. In addition, local government will be a key player in the effort to capture stray cats and dogs and reduce their numbers.

Activity 2-3-2:

From FY 2015 to 2019: In the area centering on Kunigami, Ogimi, and Higashi Villages, strictly implement the appropriate keeping of pet cats in accordance with the municipal ordinances of each village through education and awareness-raising activities on microchipping of pet cats, breeding restrictions, and so on.

Activity 2-3-3:

From FY 2015 to 2019: With the collaboration of Okinawa Prefecture, Kunigami, Ogimi, and Higashi Villages, and the small settlements within these three villages, strengthen community-wide efforts toward appropriate keeping of pet cats.

Activity 2-3-4:

From FY 2015 to 2024: Set up and hold a liaison conference and other meetings centered on local governments in relation to control measures for cats and dogs.

Activity 2-4: With the collaboration of local governments, to control the population size of the jungle crow (*Corvus macrorhynchos*), which preys on the species and thus affects its existence, implement measures to remove those factors that can increase the number of jungle crows.

Activity 2-4-1:

From FY 2015 to 2017: Develop an understanding of the effect of predation and other factors associated with jungle crows on the Okinawa rail.

Activity 2-4-2:

From FY 2015 to 2019: Share information with local governments that are implementing measures against harmful birds and mammals, with the aim of reducing these species' populations to appropriate sizes by implementing measures to prevent their population increase, capturing them, etc.

Activity 2-5: Investigate and analyze the causes of Okinawa rail roadkill from the human perspective and from the perspective of the rail. Reflect the findings in a wide range of prevention measures, education and awareness-raising activities, and collaborations with relevant organizations to improve the effectiveness of these efforts.

Activity 2-5-1: Collect and organize data from surveys of Okinawa rail roadkill (the frequency of appearance of the species near the road, the conditions at the time of their appearance, etc.) conducted by various organizations and then reflect the results in a variety of prevention measures. Place special emphasis on examining and understanding the status of the species and the environment in the areas where roadkills are increasing.

From FY 2015 to 2016: Implement the survey and organize data on roadkills.

From FY 2015 to 2024: Reflect the survey results in prevention measures, and implement these measures.

Activity 2-5-2:

From FY 2015 to 2016: Organize a place for residents (road users) to express and exchange their opinions so that information on the status of the species' roadkill and on roadkill prevention measures can be shared with residents. At the same time, collect opinions and ideas from the local community.

Activity 2-5-3:

From FY 2015 to 2024: With the collaboration of relevant organizations and bodies and the local community, strengthen efforts toward roadkill prevention and efforts to promote education and awareness-raising activities during the species' breeding season, when roadkills are frequent.

Result 2

Result 2-1: The habitat of the species is secured owing to designation of the habitat as a National Park and National Wildlife Protection Area (Special Protection Zone). The necessary measures are taken to reduce the impacts of development and other activities that can affect the existence of the species.

Results indicator 2-1-1: The size, boundaries and other details of the areas designated as a National Park and National Wildlife Protection Area (Special Protection Zone) in the habitat.

Results indicator 2-1-2: The numbers of developmental and other activities in the species' habitat that have been changed to lessen the impact on the species.

Result 2-2: The population size of small Indian mongooses and the area they inhabit are reduced. Small Indian mongooses are eradicated from the northern part of Okinawa Island by the end of FY 2022.

Results indicator 2-2: The number of small Indian mongooses captured, their density index, and their area of distribution. The confirmed status of small Indian mongoose eradication.

Result 2-3: The population sizes of cats and dogs and the area they inhabit are reduced. Appropriate keeping of pet cats is strictly implemented.

Results indicator 2-3-1: The number of sightings of cats and dogs, the numbers captured, and the area of distribution.

Results indicator 2-3-2: The number of registered, microchipped, sterilized, and castrated pet cats.

Result 2-4: The population of jungle crows is reduced to an appropriate size.

Results indicator 2-4: The number of jungle crows among captured harmful birds and mammals, and their area of distribution.

Result 2-5: The numbers of roadkill deaths and road injuries are reduced.

Results indicator 2-5: The numbers of roadkill deaths and road injuries.

Effect 2

Effect 2: The population size of the Okinawa rail is increased and its area of distribution is expanded.

Effects indicator 2: The population size, population density, and area of distribution of the Okinawa rail, as estimated from surveys of the species' status.

3. Captive breeding and return to the wild of bred individuals

Target 3: Techniques to support reinforcement or reintroduction of the species in the wild should the wild population again fall to critical status will be established. For this purpose, rearing and breeding techniques that take genetic diversity into account will be developed, and techniques for returning or reintroducing the species to the wild will be established. In addition, knowledge of the species' ecology will be collected from individuals being reared in captivity.

Activity 3

Activity 3-1: Implement more sound rearing management of the population being reared in captivity by taking genetic diversity and risk dispersion into account.

Activity 3-1-1:

From FY 2015 to 2016: Set a clear goal for the number of individuals that needs to be reared in captivity by taking genetic diversity into account.

Activity 3-1-2:

From FY 2015 to 2016: To prevent the potentially devastating effects of infectious diseases on the entire population being reared under captivity, obtain the understanding of the local community; examine the need for risk dispersion; and then secure the cooperation of existing rearing facilities and zoos.

Activity 3-1-3:

From FY 2017 to 2024: To secure the target population size for rearing in a safe and sound manner, distribute individuals that are to be reared in captivity among existing rearing facilities and zoos and rear them in those facilities.

Activity 3-2: Establish the techniques needed to breed the species in captivity.

Activity 3-2-1:

From FY 2015 to 2019: Establish rearing techniques and the techniques needed to breed the species in captivity.

Activity 3-2-2:

From FY 2016 to 2018: Secure the facilities needed for pairing the species.

Activity 3-2-3:

From FY 2016 to 2020: Establish rearing and breeding techniques by working together with facilities cooperating in dispersed rearing.

Activity 3-3: Establish techniques to support the return or reintroduction of individuals reared in captivity to the wild, and hold discussions on the standards for their implementation.

Activity 3-3-1:

From FY 2015 to 2018: Establish a monitoring technique that can be used to track and monitor individual birds by conducting test releases of birds in captivity and in the wild.

Activity 3-3-2:

From FY 2015 to 2018: Hold discussions on standards for the return or reintroduction of individuals bred in captivity to the wild.

Result 3

Result 3-1: A management target that takes genetic diversity into account is set for the population reared under captivity. Rearing facilities and zoos cooperating in dispersed rearing are secured, and dispersed rearing is implemented.

Results indicator 3-1: The target population size needed to maintain genetic diversity in the population reared under captivity and the actual population size of the animals reared under captivity. The number of facilities and zoos cooperating in dispersed rearing.

Result 3-2: Rearing and breeding techniques for individuals are established; the species is reared and bred stably; and these techniques are passed on to facilities and zoos cooperating in dispersed rearing.

Results indicator 3-2: The status of rearing and breeding of the species and the status of preparation of rearing and breeding manuals, etc. The status of captive breeding in facilities cooperating in dispersed rearing.

Result 3-3: Standards for the reinforcement or reintroduction of individuals in the wild are discussed. Techniques for this reinforcement or reintroduction are established.

Results indicator 3-3: Standards for the reinforcement or reintroduction of individuals in the wild.

Reports, academic papers, and other publications on techniques for this reinforcement or reintroduction.

Effect 3

Effect 3: A system to allow for reinforcement or reintroduction of individuals in the wild should the continued existence of the wild population reach critical status is constructed.

Effects indicator 3: If, in fact, reinforcement or reintroduction is implemented, the status of existence of these individuals and the status of recovery of the wild population.

4. Promotion of education and awareness-raising activities

Target 4: Efforts toward education and awareness-raising activities to mitigate pressure on the species will be increased; understanding of the need for conservation of the species will be promoted; and ways in which the local community can be revitalized through conservation and effective utilization of the species will be studied.

Activity 4

Activity 4-1: Implement more effective education and awareness-raising activities to mitigate pressure on the species.

Activity 4-1-1:

From FY 2015 to 2019: With the collaboration of relevant organizations, place emphasis on the implementation of education and awareness-raising activities, hold joint events, and so on.

Activity 4-1-2:

From FY 2015 to 2024: Through the collaboration and cooperation of relevant organizations and bodies, and also local communities, emphasize the implementation of roadkill-prevention activities as well as education and awareness-raising activities, such as roadkill-prevention campaigns, rail festivals, and campaigns against abandonment of cats and dogs.

Activity 4-1-3:

From FY 2015 to 2024: Predict the behavior of the species on the basis of past data, up-to-date information, and weather factors, and send out Okinawa rail roadkill-risk forecasts to drivers and local residents to raise their awareness of the potential appearance of the species near roads.

Activity 4-1-4:

From FY 2015 to 2024: Circulate information on roadkill prevention through events such as Okinawa rail observation events.

Activity 4-2: Promote understanding of the species through education and awareness-raising activities, and study ways in which the local community can be revitalized through the species' conservation and effective utilization.

Activity 4-2-1:

From FY 2015 to 2024: In addition to education and awareness-raising activities that use images, pamphlets, and other purpose-made media, frequently and pro-actively implement education and awareness-raising activities through local events.

Activity 4-2-2:

From FY 2015 to 2024: Liaise with car rental associations, *kyodo-baiten* (community cooperatives), and other private associations, and hold far-reaching education and awareness-raising activities.

Activity 4-2-3: Jointly with local governments and residents, study and formulate programs and projects that connect conservation of the species to revitalization of the local community, and implement these programs and projects.

From FY 2017 to 2019: Study and formulate programs that revitalize the local community.

From FY 2020 to 2024: Implement the local community revitalization programs.

Activity 4-3: Create rules that need to be followed when observing the species near small settlements and along roadsides where it is frequently sighted, and make these rules widely known to visitors and tour guides.

Activity 4-3-1:

From FY 2015 to 2016: To make sure that the rules do not interfere with local residents' lives and that they benefit the local community, incorporate local residents' opinions, and draw up unified observation rules that take the species' behavior and ecology into consideration.

Activity 4-3-2:

From FY 2017 to 2024: Distribute the observation rules to tour guides, roadside stations, relevant organizations and bodies and others so that they become widely known.

Activity 4-3-3:

From FY 2017 to 2024: Okinawa rail observation events and other events are held by local communities.

Result 4

Result 4-1: Education and awareness-raising activities intended to reduce pressure on the species are implemented. Okinawa rail roadkill-risk forecast information is sent out. Okinawa rail observation events and other events intended to increase understanding of the species' roadkill prevention are held.

Results indicator 4-1: The number of activities and events held through the collaboration of relevant organizations and bodies and local residents to mitigate pressure on the species. The number of times the

topic is covered by newspapers, television, and other media. The number of times roadkill-risk forecast information is sent out. The number of observation events held.

Result 4-2: Materials for education and awareness-raising, such as images, pamphlets, and other materials on the conservation of the species, are published and distributed to local residents, tourists, car rental agents, and so on. Education and awareness-raising activities are held at local events. Projects that aim to conserve the species and revitalize the local community are implemented. Understanding among concerned parties is improved and the numbers of supporters and advocates are increased.

Results indicator 4-2: The numbers of education and awareness-raising materials (images, pamphlets, etc.) published and distributed. The number of times that education and awareness-raising activities aimed at conserving the species is held at local events, and the number of participants at each event. The number of local community revitalization projects aimed at species conservation, and the number of implementation. The number of times the topic is covered by newspapers, television, and other media. The number of liaison events held with private associations.

Result 4-3: Rules for observing the species are created and become widely known to visitors and tour guides.

Results indicator 4-3: The observation rules, the people to whom they are distributed, and the numbers of materials distributed to inform the rules. The numbers of locally held education and awareness-raising activities, observation events, and other events implemented.

Effect 4

Effect 4-1: The number of roadkills and the number of victims of attacks by cats and dogs are decreased. Awareness and understanding of pressure factors and conservation of the species are increased among local residents and tourists.

Effects indicator 4-1: The number of roadkills; the number of victims of attacks by cats and dogs; and the level of awareness and understanding of pressure factors and conservation of the species among local residents, residents of Okinawa Prefecture, tourists, etc.

Effect 4-2: Understanding of the species is increased and leads to revitalization of the local community.

Effects indicator 4-2: The level of understanding of the species, and the numbers of local community revitalization programs and policies.

Effect 4-3: People observing the Okinawa rail begin to improve their methods of observation.

Effects indicator 4-3: The number of observers that comply with the rules.

5. Consolidation of collaboration for effective promotion of the program

Target 5: Collaboration among relevant organizations and bodies, educational institutions, local governments, and concerned parties will be strengthened so that species conservation measures can be effectively promoted and the Action Plan is reflected in local government conservation plans and other relevant plans.

Activity 5

Activity 5-1: To promote more effective conservation measures, share information with the relevant facilities, promote allocation of the roles and responsibilities of each relevant organization and body, and promote collaboration among these relevant organizations and bodies in relation to protection measures.

Activity 5-1-1:

From FY 2015 to 2024: Strengthen collaboration with facilities that are presently engaged in education and awareness-raising, and promote information-sharing and cooperation in various activities.

Activity 5-1-2:

From FY 2015 to 2024: Allocate roles and responsibilities among relevant organizations and bodies, local governments, and concerned parties to promote more effective conservation actions.

Activity 5-2: Promote environmental education through collaboration with institutions in the field of education.

Activity 5-2-1:

From FY 2015 to 2024: In collaboration with elementary and junior high schools in the local community and Okinawa Prefecture, use relevant facilities in extracurricular classes to provide environmental education on protection of the Okinawa rail and on the Yambaru area. Moreover, hold Okinawa rail observation events, surveys, and other activities with local elementary and junior high schools.

Activity 5-2-2: In collaboration with the Okinawa Prefectural government, village educational institutions, and others, develop educational programs to protect the Okinawa rail and the Yambaru area, and use the programs in extracurricular classes and environmental education.

From FY 2015 to 2017: Develop educational programs

From FY 2018 to 2024: Implement the educational programs

Activity 5-2-3:

From FY 2015 to 2024: Provide environmental education to tourists and to students on school trips from outside Okinawa Prefecture by making use of the Yambaru Wildlife Conservation Center, the Okinawa Rail Ecology Center, and other facilities.

Result 5

Result 5-1: Liaison, discussions, and a wide range of coordination meetings are held to collaborate and share information on survey results, protection measures, development plans, and other matters. A variety of data are visualized, and reports on survey results and other information are shared.

Results indicator 5-1: The numbers of liaison, discussion, and coordination meetings held. The amount of data consolidated and visualized. The number of reports on survey results shared.

Result 5-2: Environmental education is held through, for example, extracurricular activities and observation events and joint surveys by elementary and junior high school students in the three local villages and in Okinawa Prefecture. Environmental education programs on the Okinawa rail and the Yambaru area are developed. Environmental education activities for tourists and for students on school trips are implemented.

Results indicator 5-2: The number of extracurricular activities (such as environmental education and joint surveys) held. The number of environmental education activities offered to tourists and to students on school trips.

Effect 5

Effect 5-1: The number of cases in which development plans and others are revised out of consideration for the species is increased. The number of protection measures implemented through the collaboration of relevant organizations and bodies is increased. The use of data and survey results by relevant organizations and bodies and by others is increased.

Effects indicator 5-1: The number of development plans and other plans revised out of consideration for the species; the number of protection measures implemented through the collaboration of relevant organizations and bodies; and the amount of data shared.

Effect 5-2: The level of understanding of the need for protection of the species is improved among elementary and junior high school students in the three local villages and in Okinawa Prefecture. The number of elementary and junior high school students from the local communities and Okinawa Prefecture who participate in observation events and extracurricular activities is increased. The level of understanding of the need to protect the species is improved among tourists and among students on school trips.

Effects indicator 5-2: The level of understanding of the need for protection of the species among elementary and junior high school students in the three local villages and in Okinawa Prefecture. The numbers of participants in observation events and extracurricular activities aimed at protection of the species.

6. More effective and efficient implementation of the Action Plan

Target 6: The progress of the Action Plan will be reported on annually at the Yambaru Rare Wildlife Protection and Recovery Program Review Committee Meeting (hereinafter referred to as the “Protection and Recovery Program Review Committee Meeting”) and at the meeting of the Okinawa Rail Protection and Recovery Program Working Group (hereinafter referred to as the “Working Group”), and the improvements identified will be implemented. The state of progress of the Action Plan will be evaluated every five years and the Action Plan will be revised accordingly.

Activity 6

Activity 6-1:

From FY 2015 to 2024: Annually report the results of implementation of the Action Plan at the Protection and Recovery Program Review Committee Meeting and at the meeting of the Working Group; seek the review committee members’ advice on points that need to be improved; and make the improvements needed for more effective and efficient implementation of the program. Introduce more effective conservation methods in response to changes in social conditions and developments in science and technology.

Activity 6-2: In FY 2019, comprehensively evaluate the state of progress of the Action Plan on the basis of the results and effect indicators, and revise the Action Plan if necessary. In the final fiscal year, FY 2024, similarly evaluate the level of target achievement of the Action Plan.

FY 2019: Mid-term evaluation

FY 2024: Final evaluation

Result 6

Result 6-1: Implementation results are reported annually at the Protection and Recovery Program Review Committee Meeting and at the meeting of the Working Group, and implementation of the program is appropriately improved as advised by the committee members.

Results indicator 6-1: Annual holding of the Protection and Recovery Program Review Committee Meeting and the meeting of the Working Group, and the status of improvements made to the program in response to the committee members’ advice.

Result 6-2: The state of progress of the Action Plan is evaluated comprehensively on the basis of the results and the effect indicators, and the Action Plan is revised accordingly.

Results indicator 6-2: Results of the evaluation of the state of progress of the Action Plan on the basis of the results and effect indicators, and the resulting revised Action Plan.

Effect 6

Effect 6-1: The Okinawa Rail Protection and Recovery Program is implemented with increased effectiveness and efficiency.

Effects indicator 6-1: Improvement of results and effect indicators in the case of those activities that have been improved.

Effect 6-2: Necessary improvements are made to the Action Plan, and the status of the species is improved.

Effects indicator 6-2: The status of improvements in the species' population size, distributional area, and so on.

4-29 Phase 2 Small Asian Mongoose Control Plan for Amami-Oshima Island (FY 2013 to 2022)¹

April 1, 2013

Naha Nature Conservation Office, Ministry of the Environment

1. Subject of control

Small Asian Mongoose (*Herpestes javanicus*)

*The subject will change to the small Indian mongoose (*Herpestes auropunctatus*) following the revision of the relevant Cabinet Ordinance; hereinafter referred to as "mongoose."

2. Controlled area

Amami-Oshima Island, Kagoshima Prefecture

Figure1. Mongoose control area map (omitted)

3. Period of control

From April 1, 2013, to March 31, 2023

4. Control objective

The plan objective is to control mongooses and recover status of Amami rabbits (*Pentalagus furnessi*), Amami woodcocks (*Scolopax mira*), and other native species to Amami-Oshima Island; to further reduce mongoose density and promote local elimination; and ultimately, to achieve complete elimination of mongooses from Amami-Oshima Island.

5. Control system

¹ This plan was established by the Ministry of the Environment in accordance with the notice "Regarding the control of small Indian mongooses" from the Ministry of Agriculture, Forestry and Fisheries and the Ministry of the Environment (Notice No.10 of 2005 of the Ministry of Agriculture, Forestry and Fisheries and the Ministry of the Environment) issued under the Invasive Alien Species Act (Article 11, paragraph 2).

Trapping and monitoring will be performed systematically by the organized structure known as Amami mongoose busters (mongoose control specialists engaged since 2005; "mongoose busters" hereinafter) and other specialists.

In addition, dogs to detect mongooses ("detection dogs" hereinafter) will be retained and trained in cooperation with handlers (detection dog trainers) chosen from among the specialists engaged.

6. Subsidiary objectives and action items

To achieve the plan objective, we set subsidiary objectives and action items.

6-1 Objective for completely eliminating mongooses

Objective 1

Further reduce mongoose density across the entire area of their distribution; achieve local elimination in each work area, starting from the northernmost area; and completely eliminate mongooses from Amami-Oshima Island by FY 2022.

Action to achieve Objective 1

(1) Control policy

Action 1: The following policies will be implemented to achieve complete elimination of mongooses from Amami-Oshima Island:

- (i) Divide Amami-Oshima Island into areas of approximately 60 km², each based on geographical features and other characteristics.
- (ii) Define the northernmost area of the mongoose distribution range as an "intensively controlled area," where intensive capture work will be undertaken to achieve elimination.
- (iii) When the possibility of surviving mongooses is reduced through work under (ii), the intensively controlled area will be reclassified as a "monitored area," which will be further combed for surviving mongooses.
- (iv) Upon reclassification as a "monitored area," the area to the south will then be defined as a new "intensively controlled area."
- (v) Areas yet to be set as "intensively controlled areas" will be classified as "low density promotion areas," where capture work will be undertaken to further reduce mongoose density.
- (vi) Through these steps, we will eliminate mongooses from a growing number of areas, from the northernmost to the southernmost, and ultimately achieve complete elimination of mongooses from the whole of Amami-Oshima Island.

Figure 2. Work areas (map omitted)

Area name	Size (km ²)
Akina, Yanyu	35.1
Honcha Pass	51.4
Toguchi, Hatohama	50.2
Kinsakubaru	41.4
Wase	41.3
Ongachi, Santaro	70.5
Naon	76.7
Mt. Yuwandake	46.6
Shinokawa	45.1
Uken Peninsula	51.3
Yanma	64.9
Koniya	73.1
Kasari	62.6

(2) Control methods

1) Capture and other measures

(i) Trapping

- Set traps at lines and places where deemed effective in view of the mongoose distribution, alongside other measures.
- The types of traps used will mainly be basket traps to catch mongooses alive and pipe traps to capture and kill them (including extended types). Appropriate types will be deployed in light of the status of native species, including Amami spiny rats (*Tokudaia osimensis*), Ryukyu long-haired rat (*Diplothrix legata*), and other native species. Any new and effective capture methods developed will be introduced.

(ii) Monitoring

- To collect information on mongoose inhabitation, monitoring will be performed with hair traps, trail cameras, detection dogs, and other methods.
- Detection dogs will search for feces, odors, and other traces of mongooses. If they find mongooses, they will be prompted to chase when appropriate in view of site conditions and other factors to allow handlers to catch mongooses.

2) Details of control measures in each work area

Pursuant to the policy set forth in (1) above, the following control measures will be implemented in each work area (Attachment).

(i) Low density promotion area

The objective here is to "further reduce mongoose density in the work area." This goal will be pursued primarily with permanent traps. Hair traps and trail cameras will be systematically installed to gather information on mongoose inhabitation.

(ii) Intensively controlled area

The objective here is to "eliminate mongooses from the work area." We will strengthen capture efforts relative to low density promotion areas, including increasing the number of permanent trap lines and monitoring frequency. At places where mongooses are likely to be surviving, we will carry out intensive capture work, including pinpoint captures (carefully setting traps at certain points whose environmental conditions deem favorable to mongooses, around locations where surviving mongooses have been reported) and use of detection dogs for search and capture. More hair traps and trail cameras will be installed to collect information on mongooses surviving at low density.

(iii) Monitored area

The objective here is to "confirm the elimination of mongooses in the work area." While maintaining a certain level of capture efforts using permanent traps, we will place a primary emphasis on monitoring to confirm the elimination of mongooses through area searches with detection dogs, as well as with hair traps and sensors.

6-2 Objective for effective control

Objective 2

Promote the development and enhancement of capture and other techniques

Action to achieve Objective 2

Action 2: In cooperation with universities, research institutes, business enterprises, and other entities, we will promote improvements in capture techniques, including trap improvements, studies of effective trap baits, and efforts to establish capture methods for detection dogs and handlers, as well as improvements in and studies of ways to enhance the accuracy of monitoring with hair traps, trail cameras, detection dogs, and other methods.

Objective 3

Evaluate native species recovery and examine the measures needed.

Action to achieve Objective 3

Action 3-1: We will evaluate native species recovery at regular intervals, assembling and organizing native species monitoring by mongoose busters, by-catch results, and photographs from trail cameras, findings under protection and recovery programs, and academic research.

Action 3-2: This evaluation will take place at the review committee set forth below. Based on the evaluation results, we will examine the measures needed to further promote native species recovery (e.g., protection and recovery programs).

Objective 4

Promote public awareness and secure greater public understanding and cooperation.

Action to achieve Objective 4

Action 4: In cooperation with the organizations concerned, we will promote public awareness on the need for, progress on, and the details and results of control measures through the websites, brochures, and other media, thereby promoting understanding and cooperation among the general public, including local residents.

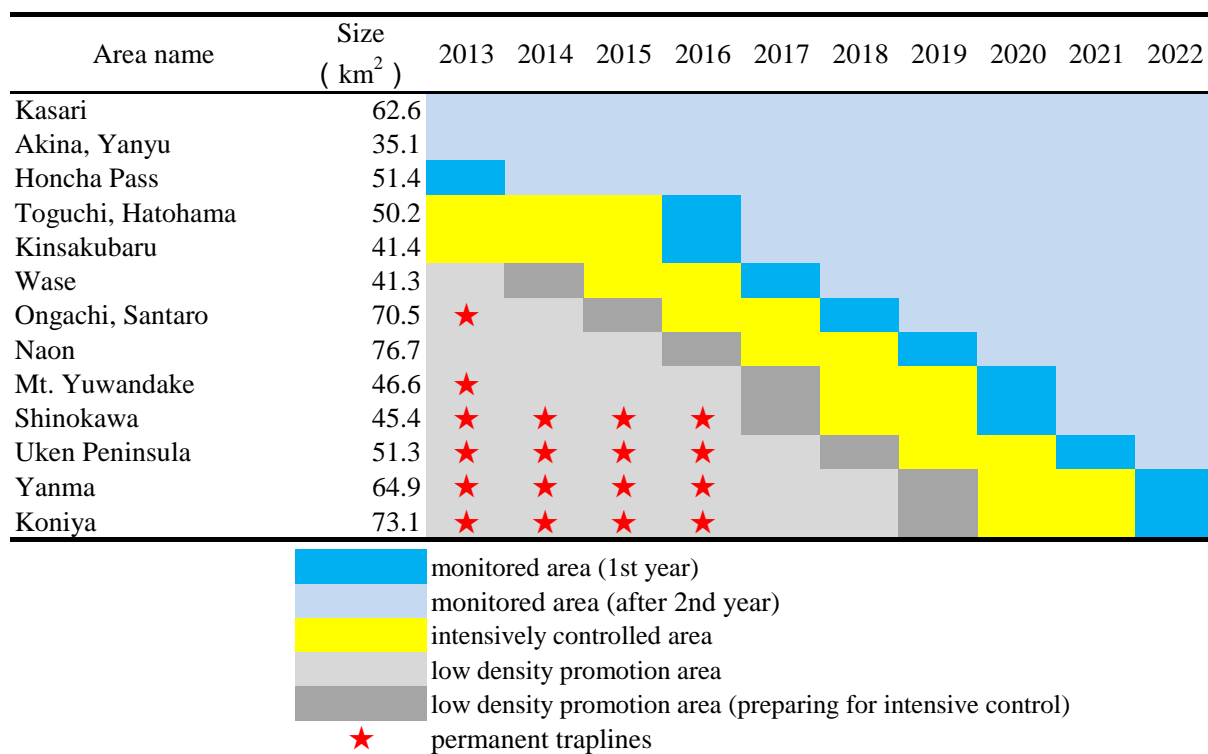
Objective 5

Evaluate the status of control measures at regular intervals and make necessary improvements.

Action to achieve Objective 5

Action 5-1: We will establish a review committee composed of specialists to perform periodic scientific evaluations of control measures under this plan and elimination achievements in each work area. We will then make necessary improvements in control systems and methods.

Action 5-2: To completely eliminate mongooses, we must employ adaptive management measures based on their status and local conditions; therefore, this program will be reviewed whenever necessary based on the committee's discussions.



4-30 Phase 2 Mongoose Control Plan for the Northern Part of Okinawa Island (FY 2013 to 2022)¹

April 1, 2013

Naha Nature Conservation Office, Ministry of the Environment

Nature Conservation Division, Department of Environmental Affairs, Okinawa Prefecture

1. Subject of control

Small Asian Mongoose (*Herpestes javanicus*)

* The subject will change to the small Indian mongoose (*Herpestes auropunctatus*) following the revision of the relevant Cabinet Order; hereinafter referred to as "mongoose."

2. Controlled area

Northern part of Okinawa Island, Okinawa Prefecture

The "complete elimination area" in which efforts will be made to completely eliminate mongooses is the area north of the first northward migration prevention fence installed along the line running from Shioya, Ogimi Village through Fukuji Dam and Lake Fukugami to Odomari Bridge (the Shioya-Fukuji line; the "SF line" hereinafter). The area lying between the SF line and the second northward migration prevention fence installed along the line running from Shioya, Ogimi Village to Taira, Higashi Village (the Shioya-Taira line; the "ST line" hereinafter) is set as the "buffer zone" to block mongoose invasion from areas south of the ST line. Furthermore, neighboring areas south of the ST line where capture and other work are carried out to curb mongoose invasion into the areas north of the ST line are defined as the "controlled density areas." Areas south of the controlled density areas, including the City of Nago, will be defined, if necessary, as the "test areas" where capture and other work will be undertaken on a preliminary basis.

The complete elimination area, buffer zone, controlled density areas, and test areas together constitute a "control area."

¹ This plan was established by the Ministry of the Environment and Okinawa Prefecture in accordance with the notice "Regarding the control of small Indian mongooses" from the Ministry of Agriculture, Forestry and Fisheries and the Ministry of the Environment (Notice No.10 of 2005 of the Ministry of Agriculture, Forestry and Fisheries and the Ministry of the Environment) issued under the Invasive Alien Species Act (Article 11, paragraph 2).

Figure 1. Mongoose control area map (omitted)

3. Period of control

From April 1, 2013, to March 31, 2023

4. Background

Mongoose prey on Okinawa rails (*Gallirallus okinawae*), Okinawa spiny rats (*Takudaia muenninki*), and other native species, threatening the existence of endemic endangered wild animals of the northern part (called "Yambaru") of Okinawa Island. Removal programs were launched by Okinawa prefectural government in FY 2000 and by the Ministry of the Environment in FY 2001. Pursuant to the Invasive Alien Species Act enacted in FY 2005, a 10-year control plan leading up to FY 2014 was developed and control programs implemented accordingly. Intensive capture work and other measures undertaken so far have led to remarkable reductions in mongoose populations and density, as well as to a reduced distribution range. As the mongoose population has decreased, we have confirmed Okinawa rails and Ryukyu long-haired rat (*Diplothrix legata*) across more areas and in greater numbers. The Phase 1 control program was highly successful, as discussed above, but complete elimination from the northern part of Okinawa Island has not been achieved as of FY 2014 (Attachment 1; omitted).

Based on the evaluation of the control measures undertaken so far, we developed a Phase 2 mongoose control plan for the northern part of Okinawa Island ("Plan" hereinafter).

The control of mongooses from the northern part of Okinawa Island is regarded as a key program under and a progress indicator of the National Biodiversity Strategy of Japan 2012-2020 (Cabinet Decision in September 2012) and the Okinawa prefectural government's "Okinawa Strategy for Biodiversity" (established in March 2013). Therefore, the achievement of the objectives under this Plan is essential to these biodiversity strategies.

5. Control objective

The Plan objective is to achieve the complete elimination of mongooses from the complete elimination area, an area north of the first northward migration prevention fence installed along the SF line, by FY 2022, and to prevent the re-invasion of mongooses into this area, thereby recovering and maintaining the ecosystem of the Yambaru area, which features a unique endemic biota and many rare species, and eliminating the impact of mongooses on the ecosystem and minimizing long-term control costs.

6. Control system

This Plan will be implemented jointly by the Ministry of the Environment and Okinawa prefectural government in their respective roles. They will implement joint control measures, determining the division of work for each fiscal year, securing coordination between respective mongoose control programs, and sharing information. Trapping and monitoring will be performed systematically by the organized structure known as Yambaru mongoose busters (mongoose control specialists engaged since 2008; "mongoose busters" hereinafter) and other specialists.

In addition, dogs to detect mongooses ("detection dogs" hereinafter) will be retained and trained in cooperation with handlers (detection dog trainers).

7. Subsidiary objectives and action items

To achieve the Plan objectives, we set subsidiary objectives and action items as follows (Attachment 2 for the overall timeline).

(1) Objectives for complete elimination

Objective 1: Completely eliminate mongooses from the complete elimination area (Attachment 3 for more information; omitted).

Action 1-1. To achieve local eradication from one area to another and to move toward complete elimination, the complete elimination area is divided into eight eradication work areas, based on physical borders, such as rivers and dam lakes. Eradication work will begin from the eradication work area I (north), where current mongoose density is low.

Figure 2. Eradication work areas (omitted)

Action 1-2. Based on the results of trapping and monitoring in each eradication work area, we will (i) reduce mongoose density; (ii) eliminate survivors; (iii) confirm eradication; (iv) implement follow-up measures; and (v) keep the area free of mongooses.

Objective 2: Prevent re-invasion from areas south of the SF line.

Action 2-1. To minimize the risk of mongoose re-invasion from the buffer zone into the complete elimination area, we will perform intensive capture and monitoring in neighboring areas north of the SF line.

Action 2-2. To prevent northward invasion across the SF line, we will maintain a powerful capture pressure in the buffer zone.

Action 2-3. To reduce as much as possible opportunities for mongooses to invade into the buffer zone, we will perform capture work in the area on the south side along the ST line (controlled density areas) and reduce those approaching the ST line.

Action 2-4. Re-invasion prevention efforts in the buffer zone as well as in the area north of the SF line and the area south of the ST line must be continued, even after complete elimination from areas north of the SF line is achieved. Specific actions, including those for controlling alien snakes, will be examined and determined by FY 2022.

Objective 3: Recover the population and distribution range of native species.

Action 3-1: Evaluate recovery status based on changes in population density and distribution range of rare species by analyzing data from rare species recovery surveys, monitoring by mongoose busters, rare species by-catch, and other protection and recovery program surveys.

Action 3-2: Continuously accumulate data on rare species caught in mongoose traps to assess the latest by-catch risks. A review committee will discuss by-catch risks and countermeasures and modify the types of traps used, the time and place of trapping, and so forth to manage by-catch risk and consequently promote the recovery of population density and distribution range of rare species.

Action 3-3: Even after the complete elimination of mongooses is achieved, we will continue monitoring surveys other than by-catch information for a certain period to evaluate the recovery status of native species.

(2) Objective for effective control

Objective 4: Enhance the effectiveness of programs through the development and improvement of control techniques and methods.

Action 4-1: In cooperation with universities, research institutes, and business enterprises, we will develop new control techniques and methods, including more effective mongoose traps that at the same time are less likely to catch rare species and new baits and poisons; new monitoring techniques with high detection accuracy; and low-cost migration block fences that are easily installed to maintain the mongoose-free status of local areas.

Action 4-2: Introduce new techniques and methods developed or improved as above proven effective through demonstration tests.

Objective 5: Promote public awareness through various media so that the general public, including the local residents, will understand the significance of and cooperate in the control project.

Action 5-1: Periodically provide local residents with information and opportunities for exchanging opinions on project details, progress, and so forth, via publication, newsletters, briefing sessions, and exhibitions at the Yambaru Wildlife Conservation Center.

Action 5-2: Provide information on capture results, the recovery status of native species, and other project achievements through press releases and websites of the Ministry of the Environment and Okinawa prefectural government at appropriate times each year. We will also print and distribute brochures, posters, and other literature periodically, depending on the progress of the project, to inform and gain the cooperation of the citizens of Okinawa Prefecture and other regions.

Action 5-3: Provide information on project status and achievements in an intelligible way for progress evaluations under the National Biodiversity Strategy and Okinawa prefectural government's local biodiversity strategy.

Objective 6: Periodically evaluate the status and achievements of the control project and make necessary improvements.

Action 6-1: Establish a review committee and hold meetings twice a year to evaluate project achievements and progress by objective standards and identify aspects that need to be improved; modify the Phase 2 control plan based on committee evaluations and proposed improvements to enhance project effectiveness.

Action 6-2: Based on the committee's evaluations and proposed improvements, we will develop a project implementation plan for each fiscal year and execute the project accordingly.

Action 6-3: To completely eliminate mongooses, we must employ adaptive management measures appropriate to their population status and local conditions; therefore, we will review this Plan in the fifth year of the Plan (FY 2017) or whenever necessary based on the committee's discussions.

Plan time-line

Control objective:	Achieve the complete elimination of mongooses from the complete elimination area, an area north of the first northward migration prevention fence installed along the SF line, by fiscal 2022, and to prevent the re-invasion of mongooses into this area, thereby recovering and maintaining the ecosystem of the Yambaru area, which features a unique endemic biota and many rare species, and eliminating the impact of mongooses on the ecosystem and minimizing long-term control costs.										
Fiscal year	H25 2013	H26 2014	H27 2015	H28 2016	H29 2017	H30 2018	H31 2019	H32 2020	H33 2021	H34 2022	
<p>Objective 1: Completely eliminate mongooses from the complete elimination area</p> <p>Action 1-1: Divide the complete elimination area into eight eradication work areas and achieve local eradication in each area toward complete elimination, starting from the northernmost area.</p> <p>Action 1-2: Divide eradication work area into five stages based on mongoose population density, and implement the control measures for each area accordingly.</p>	I II III IV V VI VII VIII										
<p>Objective 2: Prevent re-invasion from areas south of the SF line.</p> <p>Action 2-1: To minimize the risk of mongoose re-invasion from the buffer zone into the complete elimination area, perform intensive capture and monitoring in areas north of the SF line.</p> <p>Action 2-2: To prevent northward invasion across the SF line, maintain a powerful capture pressure in the buffer zone.</p> <p>Action 2-3: To reduce as much as possible opportunities for mongooses to invade into the buffer zone, perform capture work in areas south of the ST line and reduce those approaching the ST line.</p> <p>Action 2-4: Continue re-invasion prevention efforts in the areas north of the SF line, buffer zone, and south of the ST line, after complete elimination is achieved. Specific actions, including those for controlling alien snakes, will be examined and determined by fiscal 2022.</p>											
<p>Objective 3: Recover the population and distribution range of native species.</p> <p>Action 3-1: Evaluate the recovery status from changes in the population density and distribution range of rare species, by analyzing data from rare species surveys.</p> <p>Action 3-2: Accumulate rare species by-catch data and assess the latest by-catch risks. A review committee will discuss by-catch risks and countermeasures and modify the types of traps used, the time for trapping, etc., to manage the by-catch risk for recovery of rare species.</p> <p>Action 3-3: Even after the complete elimination of mongooses is achieved, continue monitoring surveys other than by-catch information for a certain period to evaluate the recovery status of native species.</p>											
<p>Objective 4: Enhance the programs effectiveness through the development and improvement of control techniques and methods.</p> <p>Action 4-1: In cooperation with universities, research institutes, and business enterprises, develop new control techniques and methods, including more effective mongoose traps that at the same time are less likely to catch rare species, new baits and poisons; new monitoring techniques with high detection accuracy; and low-cost, easy-to-install migration block fences.</p> <p>Action 4-2: Introduce new techniques and methods developed or improved as above proven effective through demonstration tests.</p>											
<p>Objective 5: Raise awareness through various media so that the general public, including the local residents, will understand the significance of and cooperate in the control project.</p> <p>Action 5-1: Provide the local residents with project progress information periodically.</p> <p>Action 5-2: Announce project achievements via the press releases, websites, and print and distribute brochures periodically for public information.</p> <p>Action 5-3: Provide information on project status and achievements in an intelligible way as part of progress evaluations under the National Biodiversity Strategy and Okinawa prefectural government's local biodiversity strategy.</p>											
<p>Objective 6: Periodically evaluate the status and achievements of the control project and make necessary improvements.</p> <p>Action 6-1: Hold review committee meetings twice a year to evaluate project achievements and progress and identify what needs to be improved. Based on the committee discussion, modify the phase-2 control plan so that the project will be carried out more effectively.</p> <p>Action 6-2: Based on the committee's evaluations and proposed improvements, we will develop a project implementation plan for each fiscal year and execute the project accordingly.</p> <p>Action 6-3: Review this Plan in fiscal 2017 and whenever necessary based on the committee's discussions and in light of other issues.</p>											

4-31 Cane Toad (*Rhinella marina*) Control Plan for the Yaeyama Region of Okinawa Prefecture¹

Formulated on June 3, 2005

Revised on April 1, 2011

Naha Nature Conservation Office, Ministry of the Environment

1. Control objective

The Yaeyama Region is home to many endemic species, including Iriomote cat (*Prionailurus bengalensis iriomotensis*) found in Iriomote Island, and features a distinctive biota and unique island ecosystems developed as the result of the limited geographic space and the long-term isolation. These ecosystems are extremely vulnerable to human activity and alien species. Alien species control is therefore essential to their conservation.

Cane toads (*Rhinella marina*) are the subject of control under this plan. Efforts were initiated in FY 2001 to monitor this species on Iriomote Island and control them on Hatoma island. Since FY 2005, data on their status or on their invasion into islands in the Yaeyama Region has been gathered and island-specific measures implemented in accordance with a cane toad control plan. Based on these past efforts, we will promote cane toad control measures for each island as follows:

(1) Ishigaki Island

Since Ishigaki Island is a center of traffic and transportation in the Yaeyama Region, we will seek to disseminate the necessary knowledge and information to prevent toads spreading to outside areas. The effectiveness of control measures will be properly evaluated to reduce toad density.

(2) Iriomote Island and Yonaguni Island

¹ This plan was formulated by the Ministry of the Environment in accordance with the notice "Regarding the control of *bufo marinus* (cane toad)" from the Ministry of the Environment (Notice No. 54 of 2005 of the Ministry of the Environment) issued under the Invasive Alien Species Act (Article 11, paragraph 2).

These islands feature a rich natural environment that is home to many endemic species and must be kept free of cane toads. We will establish a proper monitoring system to achieve preventive control in the early stages in case of invasion.

(3) Other islands (Taketomi, Kohama, Kuroshima, Aragusuku, Hatoma, and Hateruma islands)

It appears possible to implement highly effective control measures since water bodies where cane toads can breed are limited. In this way, we will ensure that information on any cane toad discovered will be reported to a central point and prompt, proper action taken to achieve preventive control.

2. Controlled areas: Ishigaki City, Taketomi Town, and Yonaguni Town in Yaeyama County, Okinawa Prefecture

3. Period of control: From April 1, 2011, to March 31, 2016

4. Control methods

(1) Identify current status and other information

For Ishigaki Island, examine appropriate methods to identify the current status of cane toads; perform monitoring and identify density accordingly. For Taketomi, Kohama, Kuroshima, Aragusuku (comprising Kamiiji and Shimoiji islands), Hatoma, and Hateruma Islands, identify the location and environmental conditions for water catchment measures and other lentic water bodies that may serve as breeding grounds for cane toads.

(2) Examine actual damage

Seek to clarify the actual damage caused by cane toads to the native ecosystem, biodiversity, agriculture, forestry and fisheries, or human health.

(3) Identify invasion routes

Identify cane toad invasion routes within Ishigaki Island as well as from Ishigaki Island to other islands in the Yaeyama Region to prevent their spread to other areas within Ishigaki Island or to other islands.

(4) Establish monitoring and information systems

- a. For Iriomote Island and Yonaguni Island, thoroughly control cane toads in the early stages of invasion by establishing a monitoring system to detect and capture any toads promptly upon invasion, based on the monitoring experience on Iriomote Island gained to date under the control plan.

- b. On Taketomi, Kohama, Kuroshima, Aragusuku (comprising the Kamiji and Shimoji islands), Hatoma, and Hateruma Islands, suitable breeding grounds are found in limited lentic water bodies. Thus, perform periodic patrol inspections and establish information systems that any cane toads discovered by local residents will result in a prompt report and control measures.

(5) Capture

- a. On Ishigaki Island, organize cane toad capture events that local volunteers participate in. Also, examine other effective capture programs and seek to establish a framework allowing enrolled local residents to capture cane toads throughout the year.
- b. On the artificial land south of Ishigaki Island, capture any cane toads found in goods carried in by truck or other routes.
- c. Strive to develop effective and efficient control techniques.

(6) Promote public awareness

- a. Propagate information on control measures carried out under the control plan, including cane toad capture events, through printed matter and briefing sessions so that local residents will understand the significance of and cooperate with those measures.
- b. Develop a learning program for cane toad control and have it incorporated into the education curriculum in cooperation with local schools.
- c. To prevent human induced but unintentional invasion, establish and implement public awareness methods for informing and educating visitors, tourist agencies, carriers, and others.
- d. Provide cane toads and their egg masses captured, destroyed, and stored, for use as teaching materials or samples for environmental or science education, academic research, and other such efforts.

5. Other

(1) Establish a cane toad control council

For this plan, establish a cane toad control council composed of academic expert, relevant administrative agencies, environmental conservation organizations, local residents, and so forth. This council will discuss and evaluate control measures based on scientific knowledge and local information, to implement effective control measures based on a local consensus.

(2) Review the control plan

This plan will be reviewed once every five years or so for appropriate implementation of cane toad control measures based on changes in natural and social conditions.

4-32 The Biodiversity Strategy and Action Plan of Kagoshima Prefecture (Excerpt)

Chapter 5: Basic Idea

Basic Ideas: “Symbiosis” and “Circulation”

This action plan is based on the ideas of “symbiosis” and “circulation”. These are universal ideas in the viewpoint of the connection between human and nature, as they were incorporated as the basic ideas to the “Yakushima Environmental and Cultural Village Concept” in 1992. Each policy and effort based on this action plan is implemented in accordance with the ideas.

What is “Symbiosis”?

“Symbiosis” means that all human beings live and exist together with all organisms; nature is regarded as a necessary resource for human life, but human beings should not control nature because we are equal to other organisms; nature rather makes human beings alive. The idea of “symbiosis” could be united to Japanese traditional ideas of nature in which a soul is dwelling everywhere in nature like a giant tree, a mountain, river, ocean and land.

“What is “Circulation”?”

The word “circulation” indicates the whole connection of all living creatures including human beings; all living organisms are continuing circulating all their lives in the cycle of birth and death. Lives of other organisms would become human body and blood, and a human could also turn back to soil in the end, so life is succeeded to another life on and on. Not only substances but also lives are circulating.

People could be aware that those who are living in present days should not impose a burden on other organisms and future generations because a sequel in which we greatly seek benefits, by realizing that human beings live together with other organisms as just one of a piece of the life cycle. The concepts of “symbiosis” and “circulation” show a sense of value and ethical perspective of which people should live with restraint and share resources equally with other organisms and future generations.

<Reference>

Desirable principles of “symbiosis and circulation”

(from the report of “Conversation of Yakushima Environmental Culture” in September 1992.)

Rebirth of the concepts of symbiosis and circulation

We realize; a human being, as a part of nature, we can be alive only by living together with many other living organisms in nature; it is impossible that only human beings would be able to grow and expand endlessly. Not placing absolute emphasis on personal existence and the present time, it is necessary to have a viewpoint that we found ourselves as just a passing point in the lives of human beings keeping an endless

circulation for a long time.

Chapter 6: Basic Objectives

Basic Objectives: Realizing a new “Society in Harmony with Nature”

Nature provides abundant gifts for our life while it sometimes brings serious disaster and takes our lives and assets; along with the two sides of nature, Japanese have lived in harmony with nature by adopting and respecting it as well as receiving gifts from nature, not by controlling and conflicting with nature.

However, such lifestyle in harmony with nature is getting difficult to maintain due to bipolarization in which population is concentrated to urban areas where lifestyles are based on consumption while population of rural areas is aging and decreasing and unsettled areas are spread in the prefecture.

Having rich biodiversity and high productive capacity in nature are main characteristics of Kagoshima, people however, have repeatedly harmed biodiversity by not utilizing the productive power of nature, but rather relying on imported resources and energies in their industrial activities and lifestyles.

The Great East Japan Earthquake on March 11, 2011 reminded us of a respect to nature that Japanese had forgotten in civilized society that greatly relies on modern science, and gave us a chance to rethink the relationship between nature and human beings.

This strategic plan aims to realize a new society in harmony with nature.

In this modern society, which seeks convenience and security, it is not easy to return the current lifestyle to being in harmony with nature as in the past, which may lower the standard of living. Thus the strategic plan sets basic objectives to realize a new society to coexist with nature by utilizing a new wisdom and scientific technology while learning environmental culture of living in harmony with nature.

The basic objectives will be achieved based on the model initiative in Yakushima and the Amami Island Group, which have environmental culture with nature and a value of world natural heritages.

To realize a new society in harmony with nature, the following three goals shall be satisfied in a good balance; 1) improving quality of biodiversity, 2) succeeding environmental culture in harmony with nature, 3) developing local communities based on biodiversity.

In this regard, the ideal images of Kagoshima in the short term (10 years) and mid-long term (30-50 years) are indicated in the following sections.

Short Term Goals

Images of Kagoshima in 10 years (in 2024)

1. No damage on biodiversity is generated in Kagoshima, and efforts to reproduce nature is started with resident participation to increase natural waterfront such as coasts, riverbanks, and tideland as well as natural forests and secondary grasslands.
2. No species is newly added to the red list due to deterioration of habitat and overhunting. No extinction on wildlife is generated by human factor.
3. A number of specified alien species that invade land of the prefecture has not increased. More than two kinds of specified alien species are successfully eradicated including mongooses.
4. Understandings of issue on alien species on citizens in the prefecture are advanced. No invasive alien species are brought to the prefecture deliberately.
5. Each city and town establishes the system for prevention of wildlife damage by employing professional hunters; combined with management of habitat, generation of wildlife damage is controlled to less than a determined level.
6. Understandings of biodiversity and environmental culture on citizens in the prefecture are highly advanced.
7. Children have a rich experience in nature and an original and memorable image of nature.
8. Efforts of biodiversity-friendly agricultural production are implemented in each area, and the products are widely sold by retailers.
9. “Biodiversity” is clearly positioned in action policies of CSR (Corporate Social Responsibility) of many agencies.
10. Strategic plans of biodiversity are established at the local level; residents participate in prevention and sustainable utilization of natural environment suited to each local feature.
11. The Amami Island Group is registered to the list of the World Natural Heritage, and sustainable tourism is established over the Islands.
12. Through quality eco-tours, Yakushima Island and the Amami Island Group are brought to international attention as places where people can experience rich biodiversity and life of environmental culture in harmony with nature.
13. More people are getting involved in wildlife investigation in the prefecture; a lot of information is accumulated and increasingly utilized.

Mid-Long Term Goals

Images of Kagoshima in 30-50 years (2044-2064)

1. In urban areas, natural forests and waterfront areas are regenerated in many places, where children can experience nature through collecting insects and fishing in their daily lives.
2. In Satochi-Satoyama, reorganization of land use makes abandoned fields be utilized as farms and land for natural regeneration; people can maintain biodiversity and local communities to succeed local traditions, wisdom and techniques.
3. In mountains, green corridor of evergreen broad-leaved forests (ecological network) is established; it secures continuity of habitat of forest wildlife.
4. While rivers maintain a disaster prevention function, aquatic organisms can freely move from estuaries to mid streams, tributaries, and small catchments; a number of fish in rivers in the past are increasing again due to the influence of regeneration of natural environments along basins.
5. By controlling impacts on marine environments, the bountiful ocean is regenerated due to the balanced relationship between forest and sea.
6. A large scale of waterfront and tideland is generated in each areas of the prefecture, in which many migratory birds and cranes come to winter.
7. Population of each species is increased by improvement of their habitat; many species are excluded from the red list because the danger of extinction is eliminated.
8. A society with an environmentally sound material cycle to utilize the productive capacity of nature is established; nitrogen deposition on soil is resolved combined with sustainable use of biomass resources.
9. The name of KAGOSHIMA is widely known in the world as an advanced region of studies on preservation and sustainable use of biodiversity as well as community development in harmony with nature, where students of environmental studies wish to visit at least once in their lives.
10. Investigation on environmental information is advanced in quality; institutions and organizations are well functioned to accumulate, analyze and disseminate information, and they spread it widely not only within the prefecture but also to the world.

Chapter 7: Basic Policy

This chapter provides the following 5 basic policies regarding the efforts to be implemented on this strategic plan in order to achieve the objectives to realize a new “society in harmony with nature”, taking in consideration of characteristics and problems of biodiversity in Kagoshima.

1. Understand the Interconnection between Human Beings and Nature (Biodiversity) through Participation

Our life and nature (biodiversity) originally has a close and inseparable relationship. However, many people in modern society now never get food directly from nature and natural environments are lost in our daily lives; people hardly realize the connection between nature and themselves. Loss of recognition to the connection with nature leads to a loss of interest in nature as well as being insensitive to where nature is altered and changed. Consequently, it creates a vicious cycle of expanding the separation between human life and nature.

In order to realize a society in harmony with nature, it is important to increase public awareness of the connection between human life and nature firstly, and nurture a sense of living in the connection (biodiversity) through not only knowledge learning but also actual experience of nature. Thus, taking many chances of experience and study of nature, many of us need to understand the connection (biodiversity) and act proactively.

Example of Activity

Promotion of community development using organisms as indicators: Activity of “One Village, One Organism”(provisional title)

An activity called “One Village, One Organism” (provisional title) means that each city and town (local community and schools) chooses an organism as a symbolic feature (or indicator) and implements an activity to preserve the organism and its habitat for community development in harmony with nature. Cities, towns, villages, groups and schools in each region have already started such kind of activities. They try not only to preserve a specific species but also to promote the activities with a view to biodiversity as a background of the species; such sectors will be increased through introduction of pioneering projects of community development. This “One Village, One Organism” activity targets not only symbolic native species in local areas but also traditional vegetables, traditional culture and customs related to nature. The Kagoshima prefectural government will encourage local communities and schools to start the activity.

2. Conserve Key Areas and Retrieve the Interconnection of Nature

In Kagoshima prefecture, there are many key areas for preservation of biodiversity such as characteristic eco-systems, habitats of endangered wild fauna and flora, and northern and southern limits of distribution of organisms. Not to lose such key areas without realizing, it is important to assess such areas scientifically and conserve them well. In addition, it is also important to conserve not only such key areas but also natural environments near human life where ordinal wild species populate. The National Biodiversity Strategy of Japan translates biodiversity into organisms' "character" and "interconnection", however, the interconnection of organisms becomes separated and quality of biodiversity are being lowered.

For example, in the main land of Kagoshima and Islands, the continuity of forest are lowered which make habitats of wildlife in forest separated due to economic activities and development of agricultural land after WWII; development of structures such as revetments would separate the connection of eco tone of watersides that is important for biodiversity. For improvement of quality of biodiversity, it is necessary to start an effort to retrieve the connection of ecosystems that were separated by development in the past.

Example of Activity

Comprehensive Check of Prefectural Nature Parks and Authorization of Nature Parks from the Viewpoint of Preservation of Biodiversity

While the existing prefectural nature parks are comprehensively checked in the aspect of preservation of biodiversity, some key areas will be additionally chosen in a scientific manner and preserved as new prefectural nature parks when not designated as a protected area. The Kagoshima prefectural government will start activities to increase the rate of designated nature parks to the whole area of the prefecture, reaching the national average, combined with designation of National and Quasi-National Parks by the Japanese government.

3. Accumulate Information on Biodiversity and Manage Eco-systems in Scientific Manner

Biodiversity in the prefecture has been investigated by many researchers and private groups, however, reports and information of the investigation are not well integrated and shared among relevant entities enough to take effective measures of protection; it is necessary to develop some systems to accumulate and share information of biodiversity.

In addition, measures to wildlife and alien species damage against agriculture, fishery and eco-systems are not sufficiently functioned due to lack of investigation and analysis, so that actions for conservation do not work effectively in some cases. Because conservation activities for rare wild species tend to be dependent on controls on hunting and collecting, it is a fact that habitat of such species is not conserved and managed well. Taking into consideration that the size of population is shifted under the influence of relations of some environmental conditions such as habitat (dens) and feeding as well as hunting pressure (predators), it is necessary to accumulate scientific knowledge and take an adoptive measure to conserve and manage environments of habitat and feeding, not only measures in the population level such as promotion of hunting and control on collection in order to manage wildlife

and alien species, and conserve rare wild species.

Example of Activity

Integrated Promotion of Measures against Alien Species

The prefecture will assess the current status of alien species invasion and damage generation, and make a list of alien species including species which might possibly invade to the prefecture in the future. Taking into consideration the seriousness of damage and expansion of distribution, the prefecture will integrally promote measures against alien species such as selection of alien species that need to be prevented with priority and acceleration of control of invasion.

4. Support Biodiversity and Succeed Environmental Culture Supported by Biodiversity

Traditional culture, wisdom, and techniques relating to nature are now rapidly being lost in each area in the prefecture due to the progress of population decline and aging population. The loss of such culture, wisdom and techniques means not only folkloric loss but also loss of local food production and skills to secure our lives in the future. Knowledge and techniques, which people have built up for a long time to secure bio-resources suited to each local area, like efficient cultivation of crops and vegetables depending on the climate, should be regarded as assets of our life that may contain some hints and models in such environmental culture of respect and lifestyle to co-existence with nature for the purpose of realization of a new “society in harmony with nature”.

However, people who inherit such assets are now becoming old, so it is urgently necessary to learn about, and research such culture, wisdom and techniques from them. To succeed such environmental culture as much as possible, it is also important to offer a chance for younger generations to experience it, and research by experts should be encouraged more.

Example of Activity

Promotion of Oral Transcription to Inherit Environmental Culture

The Kagoshima prefectural government will work on an activity of “oral transcription” (provisional title), which is the activity of interviewing with elder workers and those who have lived in the community for a long time about the lifestyle in harmony with nature including agriculture, forestry and fishery, and making report to incorporate it to future efforts among administrative organizations, schools, universities, companies, and local communities. The prefectural government will also discuss how the activity should be implemented, as it is important to accumulate, conserve and utilize such oral transcriptions.

5. Shift Industrial Activities and Lifestyles for Improvement of Biodiversity

Degradation of quality of biodiversity, such as damage of habitats of many organisms, is currently generated by industrial activities and modern lifestyles in excess pursuit of efficiency, economy, convenience, and comfort.

Industries including agriculture, forestry and fishery in Kagoshima are blessed with biodiversity, and at the same time, such industrial activities contribute to conserve local biodiversity. For example,

Satochi-Satoyama, which is developed for agricultural and forestry use, results in providing suitable environments for habitats of many organisms; targeted areas of eco-tourism may become an incentive to proactive conservation of nature for local people. Industrial activities and our lifestyles should not damage local biodiversity; if anything, it is necessary to encourage them to contribute to improvement of quality of biodiversity through participation and consensus building with local residents.

In addition, it requires effort to be implemented combined with measures against solid waste, eutrophication, and global warming caused by industrial activities and modern lifestyles, for the purpose of conservation of biodiversity.

Example of Activity

Promotion of Biodiverse-friendly Products

This activity aims for the promotion of biodiverse-friendly products through the improvement of consumer awareness; in collaboration with relevant entities, the prefecture will provide information of relations between materials of products and biodiversity such as food, fiber, and woods consumed in our daily life, to make consumers choose products that contribute to the maintenance and importance of biodiversity.

■ **Pioneering Efforts in Kagoshima for Aiming to Obtain Two World Natural Heritage Sites**

By designing an effort to support other efforts to achieve the strategic goals, the efforts based on the five basic policies will work more effectively than when they are implemented separately.

The Kagoshima prefectural government already promotes various efforts for biodiversity, as it has two valuable treasures of nature; Yakushima Island, Japan's first World Natural Heritage Site and the Amami Island Group, a candidate of the World Natural Heritage Sites. It is said that environmental culture in harmony with nature is widely spread over these places. In the area of World Natural Heritage and its candidate, specific and pioneering initiatives and efforts could be a model of realization of a society in harmony with nature as well as it is expected to influence to the whole country and the world. Thus, in addition to the five basic policies, the "promotion of pioneering initiatives as a prefecture that aims to obtain two World Natural Heritages" is positioned as a special policy.

Example of Activity

The Amami Island Group World Natural Heritage Trails (provisional title)

Walking courses to learn different environmental cultures in each village and island will be designated in order to let visitors to experience each unique nature in each island of the Amami Islands Group. Systems for recruiting and developing authorized guides and local resident guides (Village Walking Ecotours) will be developed in order that visitors could experience both nature and local environmental culture.

Example of Activity

Strengthen function of buffer zone around the candidate site of world natural heritage in the Amami Island Group (Strengthen ecological network)

In Amami-Oshima Island and Tokunoshima Island of the candidate sites for the World Natural Heritage, in order to strengthen function of buffer zone, efforts for restoration of forests such as transforming of planted *Pinus luchuensis* to evergreen broad-leaved forests will be implemented to improve biodiversity and reinforce ecological network.

Example of Activity

Study on environmental culture on southern islands

Besides biodiversity, each island of the Amami Island Group, which aims for inclusion to the World Natural Heritage List, has each unique culture of language, food, songs and festivals. Study on such cultural aspects, relations to nature, diversity, origin and history will contribute to develop candidate areas.

Example of Activity

Promotion of recruiting elderly people in the Amami Island Group as supporters of the World Natural Heritage and activity of oral transcription

The prefecture will request support for the promotion of registration for the World Natural Heritage Sites to elderly people over 80 years old who are familiar with lifestyles in harmony with nature (environmental culture) in the Amami Island Group; the oral transcription from interview with them will be made at the same time to record details of environmental culture.

Theme 3: Efforts for Accumulating Information on Biodiversity and Management of Biodiversity in a Scientific Manner

1. Collection, Accumulation and Sharing of Information of Biodiversity

It is important to properly assess the current status of conservation of biodiversity and sustainable use; the prefecture will collect scientific and objective data of biodiversity through research and investigation, and share the information with various entities, in order to incorporate them to specific measures.

<Strategic Effort>

Platform of Information of Biodiversity and Formation of Information Networks

The initiative will accelerate research activities by researchers of universities and associations who are engaged in investigation of biodiversity; the prefecture will establish and enhance a platform of share and use of information collected through research activities; in collaboration with Kagoshima Prefectural Museum, visitor centers and NPOs in each area, the prefecture will form a network to collect information of biodiversity on each area and Island.

<Main Activities>

- 1) Based on various data in the prefecture, key areas for conservation of biodiversity will be chosen in a scientific manner; sharing the information in cross-sectional ways will decrease environmental impacts from prefectural projects.
- 2) Information of biodiversity will be updated through revising the Red Data Book of Kagoshima; the information will be shared through publication of the book.
- 3) Through monitoring research on inhabitation status of *Cervus nippon* based on the Specified Wildlife Conservation and Management Plan and capturing investigation of crown of thorns starfish at the control activity, the prefecture will promote efficient control measures and collect habitat information of wildlife which damage ecosystems.

2. Measures against Alien Species

Due to movement of people and goods activated by globalization of economy and society, organisms also move beyond their original capacity via transportation such as ships and rail. Impacts on ecosystems recently became serious by invasive alien species which may cause great damage to local natural environments and biodiversity. The impacts on ecosystems by introduced species from other areas in the country (domestic alien species) also became serious, and it would be a big problem for Kagoshima, having a lot of islands. Thus, for biodiversity in Kagoshima, it is crucial to prevent invasion and establishment of alien species, which may cause an invasive impact on ecosystems regardless of origin. In addition, pet animals and livestock need to be properly controlled and managed not to allow them to escape and harm ecosystems as alien species.

Regarding alien species that are already established, it is necessary to implement measures systematically and efficiently.

<Strategic Effort>

Integrated Promotion of Measures against Alien Species
The Kagoshima prefectural government will assess the current status of alien species invasion and damage generation, and make a list of alien species including species which might possibly invade the prefecture in the future. Taking into consideration seriousness of damage and expansion of distribution, the prefecture will integrally promote measures against alien species such as selection of alien species that need to be prevented with priority and acceleration of control of invasion. [aforementioned]

<Main Activities>

- 1) Taking into consideration that early detection and response are the keys to prevent alien species, it is important to provide warnings widely to cities, towns and villages as well as set up priority for the list of invasive alien species in the prefecture and promote prevention in collaboration with relevant entities.
- 2) As many organisms have southern and northern limits of habitats and Kagoshima has lots of islands, it is necessary to pay attention to movement of the species beyond their capacity even if they are common species in the prefecture. The Kagoshima prefectural government will disseminate information of alien species and raise awareness of residents in the prefecture.
- 3) The Japanese government implements the control of mongoose with the aim of complete elimination by 2022; “the Amami Island Group Rare Wildlife Protection Program Council” will cooperate to the measures against mongoose in Amami-Oshima Island.
- 4) Scientific and adoptive capture of feral goats that may give impact on ecosystem in Amami-Oshima Island will be implemented based on the investigation of the status of its habitat. Mongoose on the mainland of Kagoshima had been eliminated by the countermeasure implemented by the prefecture in 2009, however they are still being monitored in cooperation with residents and exterminated as soon as they are found.
- 5) Because plants used for slope greening may cause problems as alien species in some cases, some special attention will be paid to selection of greening methods; utilizing native species and waiting for them to naturally come from around the target area will be encouraged to be adopted.
- 6) As it is a serious problem that feral cats that used to be pets prey on rare species on the islands, the prefecture will promote efforts of local communities regarding proper breeding.

3. Protection and Management of Wildlife

It is important to properly protect and manage wildlife habitats in order to keep a variety of wild organisms from local common species to rare species to be able to survive for a long time in the

future because wildlife is an important component of the ecosystem.

Cervus nippon, wild boar, and Japanese macaque, of which populations are increasing and the habitats are expanding, will be controlled by drastic measures because impacts on ecosystems and damages on agriculture and forestry by them have become serious in recent years. As the population is changed by multiple factors such as habitats (den and migratory routes), feeding environments, and predators (hunting pressure), it requires compound efforts of environmental development to reduce the change of population and effective capture.

For protection of rare wild species, it is necessary to take measures depending on characteristics of species and reasons of decrease based on the assessment of distribution and habitats of the species as well as balance of environments of habitats and population for protection.

Furthermore, countermeasures for highly pathogenic avian influenza of wild birds and poultry as well as appropriate rearing management for pets shall be practiced.

<Strategic Effort>

<p>Promotion of management of wildlife in scientific manner</p> <p>To perform proper management of wildlife such as <i>Cervus nippon</i> which causes a serious damage to agriculture, forestry and ecosystem, scientific data of population density, growth rate of population, sites of capture, and status of damage generation will be accumulated and analyzed to promote effective capturing efforts and management of habitats of wildlife. Based on the “Future Vision of Wildlife Management in Kagoshima”, effective capturing methods will be tailored to the situation in Kagoshima, and a new system for capture will be developed by professional hunters who have scientific knowledge and skills of capturing.</p>

<Main Activities>

1) Protection and management of wildlife

- i. The “Specified Wildlife Conservation and Management Plan” will be established regarding local population of *Cervus nippon* which is remarkably increasing, and scientific measures to manage its habitat will be promoted based on the “Future Vision of Wildlife Management in Kagoshima”.

[Population density of *Cervus nippon* on the mainland of Kagoshima and Tanegashima Island (protection area): 5/km²]

[Population density of *Cervus nippon* on the mainland of Kagoshima and Tanegashima Island (control area): 2/km²]

- ii. Dissemination and awareness raising will be promoted, aiming to increase the number of hunters that underpin professional hunters.
- iii. The prefecture will encourage farmers who have problems of wildlife damage to obtain a license to use traps to capture wildlife.
- iv. The prefecture will promote the establishment of wildlife damage control measure implementation teams to take practical actions based on the local plan for prevention of wildlife damage.

- v. The prefecture will protect sick and wounded wildlife in cooperation with specified veterinary facilities.
- vi. Based on the “Technical Manual on Wild Bird Highly Pathogenic Avian Influenza Surveillance” (in 2011 by the Ministry of Environment), in collaboration with relevant entities including the Japanese government, the prefecture will work on investigation, monitoring and information collection of the status of infected wild birds through feces sampling 4 times a year, as well as develop inspection workflow and an emergency contact system.

2) Protection of rare species

- i. The prefecture will utilize the Red Data Book of Kagoshima in order to establish protection measures of rare wild species; information on wildlife will be disseminated among citizens and agencies in the prefecture for the improvement of public awareness of nature protection [Numbers of endangered species listed in the red list of Kagoshima due to deterioration of habitats: maintain the status quo]
- ii. The prefectural government will designate some areas of breeding grounds and migration destination of flocks of birds as special protection areas of wildlife when it requires special protection; the prefectural government will also control some activities and implement conservation projects in an area which requires protection for specified endangered species by designating the area as a natural habitat protection area in accordance with the “Ordinance to Protect Endangered Wild Fauna and Flora of Kagoshima”. [aforementioned]
- iii. To operate the “Ordinance to Protect Endangered Wild Fauna and Flora of Kagoshima”, the prefectural government will designate endangered wild fauna and flora subject to prohibition of capture and specified endangered fauna and flora having a potential of commercial breeding as well as investigate the status of habitats of wild fauna and flora based on the ordinance; the prefecture will also encourage promoters of protection of endangered wild fauna and flora to protect and monitor them. [aforementioned]
[Specified of endangered species of wild fauna and flora: 42 species → 60 species by 2023]
- iv. Regarding the rare species designated as natural monuments and endangered wild fauna and flora, the prefecture will protect the species in collaboration with guidance officer for protection of cultural properties and promoters of protection of endangered wild fauna and flora, through appropriate operation of the “Act on Protection of Cultural Properties”, “Act on Conservation of Endangered Species of Wild Fauna and Flora”, “Ordinance to Protect Cultural Properties of Kagoshima”, and “Ordinance to Protect Endangered Wild Fauna and Flora in Kagoshima”. [aforementioned]
- v. Regarding cranes that migrate to the Izumi region, the prefecture will perform protection activities through conservation of migration grounds and feeding in cooperation with the prefectural organization of protection of crane, and work on decentralization of migration grounds.

- vi. Regarding sea turtles that come to land on the coastline of Kagoshima, the prefecture will protect them through the establishment of sea turtle protection observers and monitoring activity in collaboration with relevant local administrative organizations based on the ordinance on sea turtle conservation.
- vii. Regarding the endemic species *Malus spontanea* that grow only in the Kirishima region, measures for deer feeding damage will be taken to activate natural regeneration, and the ex-situ conservation will be undertaken by the Kagoshima Prefectural Forestry Technology Center.
- viii. Regarding wildlife in the Amami Island Group, the Amami Wildlife Center will be regarded as a base of conservation of ecosystems, research on rare wildlife and raising public awareness.

3) Animal welfare and proper management

- i. To prevent troubles concerning animals, the prefectural government will improve morale of pet owners.
- ii. In light of the fact that animals are living beings, the prefectural government will let the general public know about the needs of appropriate rearing management for animals as well as inform people about prohibited acts such as the abandonment of animals and cruelty to animals, in collaboration with relevant local administrative organizations, institutions, and groups.
- iii. The prefectural government will reduce the number of dogs and cats taken to prefectural facilities through implementation of efforts to promote spaying and neutering to prevent uncontrolled breeding, and encourage people not to make snap decisions regarding having pets and to take lifelong care of their pets.

Special Theme: Pioneering Efforts in Kagoshima for Aiming to Have Two World Natural Heritage Sites

1. Efforts in the Amami Island Group as Candidate Site of World Natural Heritage

The Amami Island Group was nominated as the candidate site for the World Natural Heritage Site by the review committee of the Japanese government in 2003, and the Kagoshima prefectural government has worked on efforts to aim at inclusion to the List since then. To be included the List, the site shall have outstanding universal value, and it is properly protected and managed in accordance with protection measures.

After inclusion to the List, it is necessary to anticipate changes in the site and take appropriate measures to prevent natural environments and local communities from negative impacts by unexpected change of society and economy.

Inclusion of the Amami Island Group to the List is not the final goal, and it is crucial to establish how society will be developed after inclusion. It is expected that some parts of Amami-Oshima Island and Tokunoshima Island will be included to the List, so that it is necessary to make the inclusion cause spillovers throughout the islands.

<Strategic Effort>

Study on environmental culture on southern islands

Besides biodiversity, each island of the Amami Island Group, which aims for inclusion to the World Natural Heritage List, has each unique culture of language, food, songs and festivals. Study on such cultural aspects, relations to nature, diversity, origin and history will contribute to develop candidate areas. [aforementioned]

Strengthen function of buffer zones around the candidate sites of World Natural Heritage in the Amami Island Group (Strengthen ecological network)

In Amami-Oshima Island and Tokunoshima Island of the candidate sites of the World Natural Heritage, in order to strengthen function of buffer zones around the sites, efforts for restoration of forests such as transforming of planted <i>Pinus luchuensis</i> to evergreen broad-leaved forests will be implemented to improve biodiversity and reinforce ecological network.
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Development of a guideline for pro-environmental actions on public projects in the Amami Island Group
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The prefectural government will develop a guideline for public projects in the Amami Island Group in order to systematically carry out required pro-environmental actions to conserve endangered and endemic species and secure the continuity of ecosystems. The guideline will contribute to improve biodiversity through renovation projects of existing facilities by introducing the neo-natural river reconstruction method and animal pathways. [aforementioned] [The guideline for pro-environmental actions on public projects in Amami-Oshima Island and Tokunoshima Island will be developed by FY2015]

Promotion of recruiting elderly people in the Amami Island Group as supporters of World Natural Heritage and activity of oral transcription
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The prefectural government will request support for promotion of inclusion to the World Natural Heritage List to elderly people over 80 years old who are familiar with lifestyles in harmony with nature (environmental culture) in the Amami Island Group; the oral transcription from them will be implemented at the same time to record details of environmental culture. [aforementioned]

The Amami Island Group World Natural Heritage Trails (provisional title)

Walking courses to learn different environmental cultures in each village and Island will be designated in order to let visitors experience each unique nature of each island of the Amami Island Group. Systems for recruiting and developing authorized guides and local resident guides (Village Walking Ecotours) will be developed in order that visitors could experience both nature and local environmental culture.
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<Main Activities>

1) Efforts to aim at the inclusion to the World Natural Heritage List

- i. The prefectural government will promote the formation of networks of lifestyle in harmony with nature, conservation of coral reefs and coastlines, protection of rare wildlife and forests, environmental-friendly nature experience programs as well as the inclusion to the World Natural Heritage List, based on the “Amami Island Group Symbiotic Society Plan”, which is an indicator of community development for the purpose of living in harmony with rich natural environment in the Amami Island Group.
- ii. Based on existing investigations and research on ecosystems and reviews by the “Scientific Committee on the Amami Island Group and the Ryukyu chain as the Candidate Site of World Natural Heritage Sites”, the prefectural government will work on efforts to aim at inclusion to the World Natural Heritage List such as conservation of rare wild fauna and flora as well as core areas of outstanding universal value.
- iii. For the purpose of further understanding of nature in the Amami Island Group, the prefectural government will hold study meetings for residents about inclusion to the World Natural Heritage List, designate national parks, implement measures against feral dogs and cats, and protect endangered wild species; the prefectural government will also publish and distribute pamphlets and paper bags to disseminate activities for encouragement of promotion of inclusion to the World Natural Heritage List.

2) Conservation of rare wildlife and ecosystems

- i. To conserve endangered species and forests in the Amami Island Group, the prefectural government will protect key species and areas concerning biodiversity as well as take measures against invasive alien species in collaboration with

- organizations for conservation of nature.
- ii. The prefectural government will carry out protection measures of endangered wild species and pro-environmental public projects for conservation of environments.
 - iii. Protection measures for coral reefs will be implemented such as elimination of crown of thorns starfish.
 - iv. Spontaneous actions of residents will be activated by distribution of handbooks of the “Guideline for Pro-Environmental Actions” to each household in the Amami Island Group and the “Traveler’s Etiquette Guide to the Amami Island Group” to visitors.
 - v. The prefectural government will take measures against roadkill (traffic accidents) which may cause death of endangered wildlife such as Amami rabbits (*Pentalagus furnessi*), and feeding damage by feral dogs and cats, in collaboration with the national and local governments.
[Numbers of death of Amami rabbits caused by roadkill and feeding by other organisms: to be reduced to less than one tenth of the current number (20 rabbits per year in average from 2009 to 2013)]
 - vi. To prevent feeding damage by feral goats, the prefectural government will scientifically assess the status of its habitat and prevent it in a scientific manner.

3) Promotion of ecotourism

- i. The prefectural government will aim toward quality ecotourism through the establishment of a system of authorized guides and provide quality training to make good guides.
[Number of guides authorized by the Amami Island Group Ecotourism Promotion Council: 50 guides by 2018.]
 - ii. The prefectural government will control ecotourism that utilizes the resources of the Amami Island Group such as nature, history and culture in order to avoid damage caused by overuse, develop facilities for environmental protection to the sightseeing spots, discover new sites for ecotourism for decentralization, and endeavor toward the integrated use of resources in the Amami Island Group as well as providing good information.
- 4) Community development by branding the Amami Island Group through efforts of the plan of harmonization with nature
- i. The prefectural government will promote local features of the Amami Island Group such as *oshima tsumugi* kimono, farm-raised tuna, longevity of life and high fertility rate, as well as community development by utilizing nature, based on the Plan of Harmonization with Nature in the Amami Island Group.
 - ii. The prefectural government will support sustainable use of natural resources in accordance with rules and philosophy concerning nature in local community such as

traditional lifestyles and culture; for community development with additional value, it will also work on tourism promotion and branding of local features utilizing these resources, while keeping life in harmony with nature.

4-33 Act on Special Measures for the Promotion and Development of the Amami Island Group (Excerpt)

(Act No.189, June 21, 1954)

Last amended by Act No.67 of June 13, 2014

Chapter I General Provisions

(Purpose)

Article 1

In light of the unique circumstances of the Amami Island Group (which refers to Amami City and the Ooshima area of Kagoshima Prefecture; the same applies hereinafter), this Act serves to establish a basic policy, as well as to clarify the responsibilities of national and local public entities, regarding the promotion and development of the Amami Island Group. Based on this policy, this Act sets forth a comprehensive plan for promotion and development projects for the Amami Island Group, implementing special measures for the promotion of business which conform to the geographic and natural characteristics of the area. All of this aims to improve the basic conditions of the Amami Island Group, promote autonomous development within the Amami Island Group, improve the stability and welfare of its residents, and to promote settlement.

(Basic Policy)

Article 2

In view of the fact that the Amami Island Group plays an important role that benefits our nation and citizens, measures for its promotion and development shall be conceived to make the most of its geographical and natural characteristics, to increase its attraction, and in recognition of the important role that the Amami Island Group plays in providing our country with marine resources, a diverse cultural inheritance, a preserved natural environment, a stable food supply, an opportune place to interact with nature, etc., as well as other advantages for its citizens and our country.

(Responsibilities of National and Local Public Entities)

Article 3

National and local public entities have the responsibility to formulate and implement necessary measures for the promotion and development of the Amami Island Group under the provisions of the preceding article and based on its basic policy.

Chapter II The Amami Island Group Promotion and Development Plan

Section I Basic Guidelines

Article 4

Paragraph 1

Based on the basic policy (Article 2), the competent minister shall draft basic

guidelines for the promotion and development of the Amami Island Group (hereinafter referred to as the “basic guidelines”).

Paragraph 2

The basic guidelines shall provide for the following:

- (i) matters concerning the significance and direction of the promotion and development of the Amami Island Group;
- (ii) basic matters concerning industrial promotion, agricultural development, forestry, fisheries, commerce and industry, etc.;
- (iii) basic matters concerning expansion of employment opportunities, development of vocational abilities, and other means to promote employment;
- (iv) basic matters concerning the development of tourism;
- (v) basic matters concerning the maintenance and needed cost reduction of infrastructure, such as roads, ports, airports, etc., and of communications facilities, as well as the transportation of people, goods, and waste matter (hereinafter referred to as “people's traffic, etc.”); securing traffic and communication infrastructure both within the Amami Island Group, and between the Amami Island Group and the rest of the country;
- (vi) basic matters concerning the improvement and development of residents’ living environment (including reduction of waste and its proper disposal, etc.; the same shall apply hereinafter);
- (vii) basic matters concerning the improvement of public health;
- (viii) basic matters concerning the promotion of welfare for the elderly and others;
- (ix) basic matters concerning the security, etc., of medical care;
- (x) basic matters concerning the development of infrastructure pertaining to disaster prevention and national land conservation;
- (xi) basic matters concerning the conservation and restoration of the natural environment, as well as pollution prevention;
- (xii) basic matters relating to the supply and use of energy, such as the use of renewable energy (meaning solar power, wind power, and other non-fossil fuel energy sources that are deemed to be permanently usable as energy sources; the same shall apply hereinafter), etc.
- (xiii) basic matters concerning the promotion of education and culture (including support for securing opportunities for children’s school attendance; the same shall apply in the provision of the following article, paragraph 2, item number 13)
- (xiv) basic matters concerning promotion of exchange with domestic and international areas;
- (xv) basic matters concerning the securing and training of people who contribute to the promotion and development of the Amami Island Group;
- (xvi) basic matters ensuring the coordination and cooperation among concerned

parties involved in the development and promotion of the Amami Island Group, such as the Amami Island Group Promotion and Development Fund (an independent administrative agency), business people, residents, specified nonprofit corporations prescribed in Article 2, paragraph 2, of the Specified Nonprofit Corporation Promotion Act (Act No.7, 1998) (hereinafter referred to as “Specified Nonprofit Corporation”), etc.;

- (xvii) basic matters concerning the promotion and development of the Amami Island Group, in addition to what is listed in each of the preceding points.

Paragraph 3

The basic guidelines' goals should be achievable within five years from the initial year of 2014.

Paragraph 4

Prior to establishing basic guidelines, the competent minister shall consult with the heads of relevant administrative agencies, as well as with the Amami Island Group Promotion and Development Council.

Paragraph 5

When basic guidelines are established, the competent minister shall provide public notice without delay.

Paragraph 6

The provisions of the preceding paragraph 2 shall apply, *mutatis mutandis*, to any amendments of the basic guidelines.

Section II Promotion and Development Plan, and Measures based on this Plan

(Promotion and Development Plan)

Article 5

Paragraph 1

Kagoshima Prefecture shall endeavor to establish an Amami Island Group Promotion and Development Plan (hereinafter referred to as “Promotion and Development Plan”) under the provisions of the basic guidelines.

Paragraph 2

The Promotion and Development Plan shall provide for the following:

- (i) matters concerning basic policies for promotion and development of the Amami Island Group;
- (ii) matters concerning the promotion and development of industries, such as agriculture, forestry, fisheries, commerce and industry, etc., in accord with the special characteristics of the region;
- (iii) matters concerning the expansion of employment opportunities, development of vocational abilities, and the promotion of other employment;
- (iv) matters concerning the development of tourism;
- (v) matters concerning the maintenance of infrastructure, such as roads, ports, airports, etc., and of communications facilities, as well as needed cost reduction for people's traffic, etc.; securing traffic and communication infrastructure both within the Amami Island Group, and between the Amami Island Group and the rest of the country;

- (vi) matters concerning the improvement and development of residents' housing and living environment;
- (vii) matters concerning the improvement of public health;
- (viii) matters concerning the improvement of welfare for the elderly and others;
- (ix) matters concerning the security, etc., of medical care;
- (x) matters concerning the development of infrastructure pertaining to disaster prevention and national land conservation;
- (xi) matters concerning the conservation and restoration of the natural environment, as well as pollution prevention;
- (xii) matters relating to the supply and use of energy, such as the use of renewable energy, etc.;
- (xiii) matters concerning the promotion of education and culture;
- (xiv) matters concerning promotion of exchange with domestic and international areas;
- (xv) matters concerning the securing and training of people who contribute to the promotion and development of the Amami Island Group;
- (xvi) matters ensuring the coordination and cooperation among concerned parties involved in the development and promotion of the Amami Island Group, such as the Amami Island Group Promotion and Development Fund (an independent administrative agency), business people, residents, specified nonprofit corporations, etc.;
- (xvii) necessary matters concerning the promotion and development of the Amami Island Group, in addition to what is listed in each of the preceding points.

Paragraph 3

A Promotion and Development Plan shall be established to promote development of the Amami Island group, that conforms to each island's geographical and natural characteristics, population, distribution of industry, and other special characteristics.

Paragraph 4

The goals of the Promotion and Development Plan should be achievable within five years from the initial year of 2014.

Paragraph 5

Prior to establishing a Promotion and Development Plan, Kagoshima Prefecture may request those municipalities (excluding municipalities that make requests under the provisions of the following paragraph) that will be affected, to draft their own plan, either separately or jointly, for the promotion and development of their area, and to submit it to the prefecture.

Paragraph 6

In case there is no promotion and development plan in place for their area, municipalities in the Amami Island Group (hereinafter referred to as the "Amami Island Group municipalities") may request permission to develop their own plan, made separately or jointly, for promotion and development. The draft of this plan shall be attached with their request.

Paragraph 7

When a request under the provision of the preceding paragraph has been submitted, Kagoshima Prefecture shall endeavor to promptly establish the relevant promotion and development plan.

Paragraph 8

When Amami Island Group municipalities intend to draft a plan, per paragraphs 5 or 6, they shall first endeavor to take necessary measures so that their plan reflects the opinions of the residents.

Paragraph 9

When plans are submitted, per paragraphs 5 or 6, Kagoshima Prefecture shall strive to reflect, as much as possible, the contents of that submission in their promotion and development plan.

Paragraph 10

Prior to establishing a promotion and development plan, Kagoshima shall consult with the competent minister and obtain consent. When this occurs, before granting consent, the competent minister shall consult with the heads of relevant administrative agencies.

Paragraph 11

On obtaining consent, per the preceding paragraph, Kagoshima Prefecture shall endeavor to announce the promotion and development plan without delay.

Paragraph 12

The provisions of paragraphs 6 to 8 shall apply, *mutatis mutandis*, to any amendments of the promotion and development plan. In this case, the phrase, “municipalities (excluding municipalities that make requests under the provisions of the following paragraph)” in paragraph 5 shall be replaced with “municipalities,” and the phrase “paragraphs 5 or 6” in paragraphs 8 and 9 shall be replaced with “paragraph 5.”

(Special Subsidy)

Article 6

Paragraph 1

Regardless of the provisions of other laws or ordinances, the proportion of the nation's share of, or subsidies for, expenses for projects based on the promotion and development plan shall remain within the limits prescribed in the attached list, per government ordinance.

Paragraph 2

Regardless of the provisions of the preceding paragraph, when the proportion of the nation's share of, or subsidies for, funds required for projects, prescribed in the preceding paragraph but drafted under a different law, exceeds the proportion prescribed by the government ordinance mentioned in the preceding paragraph, the ratio of the nation's share or subsidy for that project shall depend on the ratio prescribed in the other relevant laws or regulations. (These other laws include Act No. 112, 1961. In the case that a project corresponds to the designated development project prescribed under Act No. 112, 1961, article 2, paragraph 2, regarding special cases receiving a ratio of the nation's share for public works projects that fall under the development of underdeveloped areas, said provisions shall apply.)

Paragraph 3

The nation shall calculate the amount of funding that the nation shall bear, taking into consideration the provisions of the preceding paragraph 2 and its application to the project. The nation shall decide the appropriate proportion and grant funding, according to the government ordinance, for project expenses which are based on the promotion and development plans prescribed in the attached list, per government ordinance.

Paragraph 4

Regardless of the provisions of other laws or ordinances, regarding the proportion of the nation's

funding or subsidies for projects prescribed in paragraph 1 (pursuant to the provisions of paragraphs 1 or 2), the nation may decide to make exceptions in special cases.

Paragraph 5

Regarding post-disaster reconstruction projects in the Amami Island Group, according to Article 3 (Act No. 97, 1951) of the Public Works Post-Disaster Reconstruction Project National Treasury Law, in cases where the nation bears part of the expenses for affected local entities, if the rate calculated by the provisions of Article 4 (of said act) is less than four-fifths, notwithstanding the provisions of the same act, the amount shall be four-fifths. Regardless of the provisions of Article 3 of the Public School Post-Disaster Reconstruction Project National Treasury Law (Act No. 247, 1953), in cases where the nation bears part of the expenses for affected public school facilities, the proportion of the funding needed for restoration of public school facilities provided by the nation shall be four-fifths.

(Consideration for Municipal Bonds)

Article 7

Special consideration shall be given regarding municipal bonds sold to raise needed funding for projects by local entities for promotion and development projects, within the scope of relevant laws or ordinances. This consideration shall be given to the extent that the local financial situation and the financial situations of the appropriate public organizations allow.

Section V Other Special Measures for the Promotion and Development

(Conservation and Restoration of Natural Environment)

Article 32

In order to contribute to the conservation and restoration of the natural environment of the Amami Island Group, local and national public entities shall consider and take appropriate measures necessary for the maintenance and/or restoration of its ecosystem.

(Promotion of Tourism and Interregional Exchange)

Article 36

In light of the abundant natural beauty that exists in the Amami Island Group, as well as its close proximity to foreign countries, etc., local and national entities shall work to deepen in their citizens interest in and understanding of the Amami Island Group. In order to contribute to the revitalization of the Amami island Group, local and national entities shall give appropriate consideration to the promotion of tourism and to exchange with both domestic and foreign regions.

4-34 Plan for the Promotion and Development of the Amami Island Group (Excerpt)

Part 1: Outline

1. Significance of the Development of the Plan

Since the Amami Island Group was returned to Japan in 1953, several projects were implemented for the development of infrastructures such as traffic, industry and life base in accordance with reforms of regulations, and the projects accomplished certain achievements.

However, due to the geographical conditions of being remote and isolated islands from the mainland of Japan, as well as severe environments in a typhoon-prone zone, there is economic disparity between the mainland including income level and prices of commodities; a number of challenges to be solved still remain such as decreasing population and advancement of aging society.

On the other hand, “Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Iriomote Island”, which are repositories of valuable endemic and endangered species, are selected as a combined candidate site of World Natural Heritage; it is blessed with unique attractiveness and features such as rich subtropical and marine environments, various and distinctive traditions, suitable environments for childbirth and care, as well as diverse resources for longevity and healing. It is expected that these features could allure many visitors to Amami from both inside and outside the country, as it adjoins fast-growing East Asian countries.

In future of the Amami Island Group, in order to move towards autonomous and sustainable growth of the Islands, it is necessary that the local society independently implements policies with its own responsibility, while utilizing its superiority, aiming to solve the problems of income disparity and decreasing population. In this context, local 12 cities and towns of the Amami Island Group developed the “Strategic Vision of Growth in Amami Islands” in order to promote the Island’s growth as one united body.

Based on circumstances and recognition, the Kagoshima Prefectural Government developed this plan with the purpose of future implementation of required policies for promotion and development of the Amami Island Group.

2. Features

This plan is developed based on the “Act on Special Measures Law for the Promotion and Development of the Amami Island Group”; the plan shows the basic policies of the promotion and development of the whole island chain and directions of measures of promotion in each of the islands, which are important for national, prefectural, and local governments as well as local residents, relevant institutions and groups as a

whole, for innovation of local society and independent development of the Amami Island Group.

3. Period

This plan is effective for 5 years from FY2014 to FY2018.

4. Objectives

This plan aims to improve the basic conditions of the Amami Island Group and promote and develop the Islands depending on geographical and natural features for the self-reliant growth of the islands, improvement and stabilization of local life and welfare, as well as promotion of settlement in the islands.

Part 2: Basic Policy of Promotion and Development of the Amami Island Group

In the Amami Island Group, there are concerns about declining vitality of the region due to the decrease of population and an increasingly aging society, while the islands play an important role in the maintenance of the territorial integrity of the country, utilization of marine resources, inheritance of diverse culture, conservation of natural environments, opportunities for nature experience, stable provision of foods, and protection and promotion of national benefit.

Under these circumstances, in order to achieve the objectives of the plan, the Kagoshima Prefectural Government will encourage regional initiatives to promote settlement in the Island, stimulate exchange and interaction, improve upon the disadvantages of living in the islands, secure and enrich the life base based on the basic principles of utilizing geographical and natural characteristics of the Amami Island Group and enhancing the attractiveness.

1. Regional Initiatives

The prefecture will enhance the regional initiatives aiming for self-reliant growth of the Amami Island Group by utilizing action policies which are newly established in the Act on Special Measures for the Promotion and Development of the Amami Island Group” to encourage measures implemented by the Islands autonomously on regional responsibility.

1) Efforts based on the Strategic Vision of Growth in the Amami Island Group

The 12 cities and towns of the Islands developed the Strategic Vision of Growth in the Amami Islands as a regional initiative in accordance with the basic principle of promotion of industry by job creation in the three key fields for the residents’ satisfactory life (agriculture, tourism/exchange, and the communication and information industry); the Kagoshima Prefectural Government will support region-wide efforts carried out by the Amami Island Group Regional

Administrative Association and independent efforts by each city and town, which are based on the strategic plan and the basic and action plans to make the strategic plan take shape.

2) Use of Subsidies for Promotion of the Amami Island Group

Utilizing the newly established Subsidies for Promotion of the Amami Island Group, the prefectural government will develop policies mainly on soft infrastructure based on the regional discretion on the regional responsibility to overcome geographical, natural, and historical disadvantages of the Amami Island Group.

3) Use of Accreditation Schemes for the Municipal Plan to Promote Industry

As local initiatives are the keys for promotion of industry in the Amami Island Group, municipal organizations can collaborate with private entities that clearly know the situation of the region, the prefectural government will encourage the use of legal and taxation measures to support industry promotion approved in the Accreditation Scheme for the Municipal Plan to Promote Industry; special provisions of the License Guide-Interpreters Act, special provisions of Travel Agency Act, and measures to facilitate procedures for the use of existing facilities.

2. Measures to Promote Settlement

Agriculture, tourism, and communication and information technology are the key industries in the Amami Island Group to promote industry and settlement.

Regarding agriculture of the core industry of the Islands, based on the multiple management with combination of staple crops such as sugarcane in the subtropical and warm climate, garden crops such as vegetables, flowers and fruit, and beef cattle, each island develops its own unique agricultural industry; the prefectural government will differentiate the individual island's industry from other regions by measures of recruiting and fostering human resources, efficient use of farm lands, development of basic infrastructure, development of disaster resilient cultivating facilities, development of facilities to improve logistical efficiency, and enhancement of environments for new agricultural workers; the prefectural government will add high value to agricultural products in the Amami Island Group through branding and creation of the sixth industry.

The tourism industry is a comprehensive industry having a huge array of supporting industries, and not only a motive power of local economy but also a utilizer of local resources, such as nature and culture; the prefectural government will properly protect these resources and carry out tourism measures to utilize local resources of the Amami Island Group, while considering the harmony of protection and utilization. With respect to the communication and information industry, the disadvantages of time and space distance of the remote islands are being improved through the development of communication and information technology. Due to the superiorities of the Islands such as rich natural environments and inexpensive

office rent, the prefectural government will develop the base of the communication and information industry in the Islands, and make an effort to firmly establish the industry through utilization of ICT by companies and regional vitalization in collaboration with other industries.

In addition, the prefectural government will promote fishery such as aquaculture and mariculture in the warm and tranquil sea area as well as creation of fishing grounds by setting floating fishing banks; forestry will be promoted by sustainable fulfillment of the multifunctional role of forests as well as utilization of forest resources such as broad-leaved forest and special forest products.

Furthermore, the prefectural government will promote local industry, support entrepreneurs to use local features such as *oshima tsumugi* kimono and brown sugar *shochu* alcoholic beverage, and help those who wish to relocate and return to work and settle in the Islands.

3. Measures to Stimulate Exchange and Interaction

The Amami Island Group has some advantages of attractive natural environments, such as being blessed with subtropical and rich natural environments and rare wild species with no similarities in the world; unique and diverse traditions and culture that are different among each island and village; being situated near other Asian countries including China, from which many visitors are expected to travel to Japan.

Under these circumstances, the prefectural government will take measures to utilize local resources of the Amami Island Group, such as the development of systems of recruiting workers and fostering hospitality; to attract large cruise ships and promote cruising tours around the Islands; to disseminate the charms of the Islands to the public through media, like the Internet; and to collaborate with local private companies.

In addition to these measures, the prefectural government will promote the inheritance of local culture that helps enable residents to have attachment, stimulate the activities of hometown associations, and to enable exchange both inside and outside the Islands including Okinawa, and foreign countries.

For inclusion to the World Natural Heritage List, it is necessary to properly protect local resources of natural environments, traditions and culture, and expand activities for exchange in the region while considering the balance of protection and utilization of these local resources.

Aiming at the region where people and nature live together, the prefecture will create a network of local residents, and improve their awareness of attractive natural environments of the Amami Island Group to advance their understanding and motivation of registration to the World Natural Heritage Sites.

With respect to efforts for inclusion to the World Natural Heritage List, the prefectural government will maintain the value of the region through protection of endangered wild species and nurturing tour guides who have appropriate knowledge of natural environments in the Islands, establish a sound material-cycle society that reduces the burden to nature as much as possible, and implements environmentally-friendly public projects.

4. Measures to Improve Disadvantages of Living in the Amami Island Group

In the Amami Island Group which is situated in the open sea remote from the main land of Japan, sea and air routes are the crucial means of transportation for movement of residents and industrial activities, however, airfare is particularly rather expensive compared with that of Okinawa, which causes a problem for improvement of convenience of life and promotion of tourism, so this situation requires measures be taken to reduce travel expenses, including ship fares.

It is also necessary to take measures to reduce transportation costs of agriculture, forestry and fishery products traveling to the market.

Moreover, as the prices of commodities are generally more expensive than that of the mainland, other measures will be taken to reduce the price of daily commodities such as gasoline.

As disasters frequently occur caused by record torrential rainfall in recent years and the importance of disaster prevention throughout the country has been pointed out, the prefectural government will develop systems to provide information for residents' safety and security as well as mutual aid when disasters occur. For the promotion of disaster prevention suited to the geographical characteristics of the Amami Island Group; the prefecture will also work on development of a disaster resilient region such as soil and water conservation, sand erosion control, and coastal protection.

The prefectural government will take measures to develop the bases of transportation such as airport, ports, and roads, as well as to restore existing aging facilities.

5. Measures to Secure and Enrich the Life Base in the Islands

While the Amami Island Group has the characteristics of “the Islands of Longevity” with a high population of centenarians as well as “the Islands of babies” with a high total fertility rate, the problems such as lack of medical workers and high rate of premature death are much more severe than other regions.

Due to these regional circumstances, the prefectural government will enhance the measures of healthcare and welfare, such as health maintenance, the system of medical service, and the promotion of welfare for elderly people and children.

The prefecture will also work on education and training, develop living environments, and secure energy resources.

Part 3: Schemes for Promotion and Development

The Amami Island Group, consisting of 8 inhabited islands of Amami-Oshima Island, Kakeroma Island, Ukejima Island, Yoro Island, Kikai Island, Tokunoshima Island, Okinoerabu Island, and Yoron Island, which are dotted in about 220km of the sea from the east-northern tip of Kikai Island to the most southern tip of Yoron Island.

These islands are blessed with attractiveness and characteristics which bear no similarities in other regions; subtropical and marine-rich natural environments, endemic and endangered species that are valuable throughout the world, unique traditions and cultures, health care, longevity, and resources regarding healing. By utilizing these features, the islands have the potential to greatly achieve their own particular style of development.

From now on, while promoting efforts such as environmental conservation aiming at inclusion to the World Natural Heritage List, it is necessary for the islands to pursue independent and integral development in one united body by maximizing the advantages of these resources and charms of the Islands.

1. Regional Efforts to realize the Strategic Vision of Growth in the Amami Island Group

For the future independent development of the Amami Island Group, it is necessary to materialize the Strategic Vision of Growth in the Amami Island Group by refining the charms and features of each island and improve competitive capacity among the islands especially regarding the 3 key fields of “agriculture”, “tourism/exchange”, and “communication and information technology” that create jobs, and 2 fields of “settlement” and “culture”. Meanwhile the islands need to collaborate with each other to solve problems of each island; the prefectural government will proactively support measures for independent growth of the Amami Island Group Regional Administrative Association, Amami Archipelago Tourism and Products Association, Amami Islands Premium Mango Products and Sales Cooperative, and Amami Islands ICT Council, in collaboration with the Fund for the Promotion and Development of the Amami Islands, municipal organization and other related groups.

1) Recruiting, Training and Nurturing of Human Resources

To motivate the residents in the islands to positively try something new, the prefectural government will, for mid/long term, recruit, train, and nurture professionals who will take a major future role in the development of industrial promotion in the Amami Island Group, such as island coordinator, products coordinator, guide–interpreter, eco-tour guide, guide of history and culture, facilitator of the “Amami Island Expo”, product planner, designer, and project manager. The prefectural government will also offer opportunities for young generations to learn the charms of the Amami Island Group, certification system of history and culture, seminars for the hospitality industry regarding volunteer guides and persons engaged in tourism, programs to improve management perspectives in the industry such as study tours to advanced regions and lectures by invited professionals, in order to raise the levels of human resources in the whole island chain.

The prefectural government will also provide avenues to accumulate and develop human resources, nurture leaders and create innovation like the Silicon Valley through the support of entrepreneurs, providing opportunities to evaluate and improve various efforts, support of job hunting for youth and immigrants, development of a system to facilitate settlement through

combined employment and housing, and enhancement of internship programs in the future.

2) Demonstration of Charms of the Amami Island Group

To establish the “Amami Brand” in various fields by demonstrating the charms of the Amami Island Group at most and telling the world about them, the prefectural government will raise social awareness of Amami’s features such as “nature, history, culture, warm hearts of residents, healing, longevity, and blessing of many children”, and integrally promote activities to support and evaluate measures to utilize various attractive features of each island and village for industrial development.

The contents will be enriched to introduce the charms of dialect, food culture, local products, and traditional performing arts through various cultural experience programs, nature discovery tours, and programs to experience the island lifestyle, served in the Amami Island Expo; community FM network will be established as a tool of communication; ICT such as a portal website, problem solution contents, and smart phone apps, will be also proactively used.

For the purpose of inclusion to the World Natural Heritage List, several more projects will be implemented such as continuing and effective environmental conservation, starting the system of eco-tour guides including training, and further effort to actively and impressively disseminate the charms and roles of the Amami Island Group to both inside and outside Japan.

3) Promotion of Coexistence and Collaboration, Reinforcement of Exchange and Cooperation

To have all residents in the Islands take an important role, the prefectural government will promote efforts to cooperate among residents, administrative organizations, and private companies.

The Amami Archipelago Tourism and Products Association will make a network throughout the Islands regarding tourism products and development of new local products. The prefectural government will form an industrial cluster of business owners in the islands.

As the domestic candidate site of World Natural Heritage Sites, economies of scale of the Islands will be maximized by enhancing exchange and collaboration among various regions in the Islands and diverse agencies, including financial institutions and academia, through preparation of tours connected to Yakushima of the World Heritage and Okinawa that aims the inclusion to the World Natural Heritage Lists with the Amami Island Group, deployment of tourism campaigns, promoting exchange with the hometown associations on the mainland, field work and research activities in collaboration with institutions of higher education.

4) Expansion of Market

Aiming at market expansion based on the point of view of customers, food and products fairs and business conventions will be held in large cities; market analysis will be reinforced by conducting test marketing, surveys on tourism, and tourism sales caravans; Amami brand in the whole island chain will be strategically reinforced by creating a sixth industry led by tourism, developing new local products, offering various services, and enhancing contents regarding tourism.

Developing a database of tourism and products on portal websites, advertising the islands at various events, and utilizing each kind of information media will promote effective dissemination of information. Marketing strategies will be also implemented through business activities to pioneer new markets in nearby Asian countries and around the world, improvement of capacity of business itself, selection and concentration to target customers, and creation of customers.

Measures implemented by municipal organizations to materialize the Strategic Vision of Growth in the Amami Island Group

Each city and town is supposed to work on measures to materialize the Strategic Vision of Growth in the Amami Island Group based on the following directions. Each measure is mentioned in the following section.

1. Recruiting, Training and Nurturing of Human Resources
2. Demonstration of Charms of the Amami Island Group
3. Promotion of Coexistence and Collaboration, Reinforcement of Exchange and Cooperation
4. Expansion of Market

2. Promotional Measures of Amami-Oshima Island

(2) Deployment of Measures

I. Measures to Promote Settlement

i. Promotion of Industry

D. Promotion of Industry Utilizing Local Features

(B) Forestry

a. Development of Forests

- Forests will be developed depending on functions to be valued in each category such as the forest managed for publically-beneficial functions and the forests to be maintained and increased for productive functions, such as timber, and promoted to enhance forest resources and the functions which benefit the public.
- Measures against damage such as that by pine weevils will be operated in pine forests that should be protected. Monitoring will be continued to prevent damaged or infested wood products being brought from outside of the Islands.

b. Development of Base of Forestry Production

- Due consideration for the natural environment will be given when forest roads are developed and existing forest roads are restored and paved.

c. Development of Systems for Production, Processing and Distribution of Forestry Products

- Balance of conservation and utilization of forest will be taken into consideration for development of efficient and stable production of timbers as well as promotion of utilization of wood to interior materials and furniture materials.

d. Promotion of Special Forest Products

- Creation of production areas will be promoted regarding special forest products with unique regional characteristics by developing production and shipping systems of mushrooms, bamboo shoots, and cycad.

e. Recruiting and Training of Forestry Workers

- Forestry workers will be recruited and trained by utilizing a system of a training course for forestry technologies. The Forest Owner's Cooperative Association will be united over all islands to reinforce the management base.

f. Promotion of Programs to Experience Forests

- Forests will be developed and conserved by utilizing features of nature and landscape of Amami-Oshima Island to be served as oases for local residents. Moreover, nurturing forest volunteers will provide support for interactive programs for visitors. Forest environmental education will be actively developed for elementary and junior high school students.

g. Research on New Usage and Conservation of Forest Resources

- *Pinus luchuensis* will be encouraged to use for timber products of the Amami Island Group. Research and investigation on conservation of subtropical forests will be advanced.

II. Measures to Stimulate Exchange and Interaction

i. Utilization of Local Resources of History and Culture Only in Amami

A. Expansion of Tourism Measures Utilizing Local Resources

(A) Utilization of Tourism Resources

- Attractiveness and resources such as unique natural environments, culture, and local industries will be organically connected with a story line to integrally promote industry and culture focusing on tourism.
- Using rich local resources will enhance experience programs for visitors. Interactive programs and stay-type tours will be encouraged to be held in the event called the “Amami Island Expo” and promotion of eco tourism.
- A tourism network will be developed so that visitors can enjoy the natural environment and culture in the Amami Island Group while walking.
- The islands’ features of “longevity, blessing of many children, and healing” will be utilized for tourism promotion such as advertising of a thalassotherapy facility called “Thalasso Amami no Ryugu”.
- Amami City’s “Sports Island Plan” utilizing Amami’s warm climate will be promoted by inviting visitors for sports camping from both inside and outside Japan. Projects will be implemented to make marine sports such as diving become widespread, to hold various events, and lure study tours to the Islands.

(B) Development of Systems to Accept Visitors

- The Amami Park, as a tourism center of all islands, will be mutually collaborated upon with other tourism facilities such as the Kuroshio-no-mori Mangrove Park to create a round trip course of the islands.
- To help visitors move smoothly between destinations, more guide signs will be developed and while existing signs will be improved, and information of transportation among islands will be provided on the Internet. Moreover, comfortable and convenient environments for visitors will be improved by making facilities such as public restrooms and resting areas as well as managing green areas.
- Towards the National Athletic Festival to be held in 2020 in Kagoshima, sports facilities

will be developed and improved to meet high quality demands of sports camps in which top athletes would participate, coming from domestic and international areas.

- Capacity development of tourism will be enhanced by service training targeting tourism workers in order to offer visitors full hospitality; guidance for foreign visitors will also be improved to enable all tourists to enjoy their travel with no concerns.

Human resources will be nurtured and organized, such as island coordinator, goodwill guides, instructors, and tour guides, all of whom show visitors the attractiveness of the islands; an event will be designed to integrally offer visitors unique interactive programs and stay-type tours such as marine sports and a program of making *oshima tsumugi* kimono cloths dyed with mud.

Special systems of guide-interpreters and tour agents targeting the Amami Island Group will be spread and established to fulfill the acceptance system of visitors.

- Tourism facilities and accommodations will be developed to meet new necessities emerging from interactive programs and stay-type tours.
- “Amami Numbers”, which may contribute to the promotion of tourism and the activation of local communities, will be encouraged.

(C) Development of Transportation for Tourism

- Airports and harbors will be developed as bases of transportation in order to promote round-trip tours connecting locations inside and outside of the Islands.
- Toward inclusion to the World Natural Heritage Lists, development of an organization will be considered in order to assign CIQ officials who can smoothly regard international chartered flights.
- Methods of how to speed up regular lines and improve the comfort will be discussed; a cruising network will be formed so that visitors can travel around the islands via sightseeing ships.
- In order to promote exchanges through tourism via cruise ships and regular lines, environments will be developed for tourists who would travel by large cruise ships and regular lines from both inside and outside of the Islands; sea lines will be maintained and developed.
- To improve transportation to airports and harbors, arterial roads such as route No. 56 and prefectural roads connecting sightseeing spots will continue to be developed. Longitudinal and circular routes will be developed as the main route for sightseeing; parking areas and public restrooms will be constructed along the routes so as to enable tourists to take a break and enjoy sceneries of the Islands; greening along the routes will be made to conserve landscapes unique to the Amami Island Group.

Relevant entities of transportation will be encouraged to discuss development of regular sightseeing bus services and sightseeing taxi services for the convenience of tourists.

(D) Dissemination of Attractive Tourism Information

- The Amami Park will be regarded as a base for the dissemination of information, and such information will be spread via various media both inside and outside of the Islands like the website of Amami Archipelago Tourism and Products Association.
- The Amami Archipelago Tourism and Products Association will take a central role to implement measures of business activities targeting tour agencies outside the prefecture, inbound activities, and planning and sales of round-trip tours around the Islands, aiming to have high recognition and attract more tourists.

(E) Collaboration with Local Industries

- By cooperating with local industries such as agriculture, forestry, fishery, and production and sales of local products, various kinds of interactive programs will be offered to visitors, and natural cultural assets in the Amami Island Group will be used to produce new local specialties.

(F) Promotion of tourism measures targeting Asian countries

- To attract visitors from Asian countries, increased amounts of multilingual information and guide signs will be provided.

B. Inheritance and Creation of local culture enabling residents to have attachment

- In order to inherit rich local culture based on the climate of Amami-Oshima Island, local residents will be encouraged to have direct access to excellent works of art and unique culture, and actively use cultural facilities such as the Amami Park.
- Local cultural properties will be conserved and utilized, and the spirit of protection of cultural properties will be disseminated and raised to the public, through conservation and management of natural monuments and development of historical sites. Measures will be taken to protect and inherit traditional performing arts, for example offering opportunities to show island folk songs and August Dance at schools and facilities of lifelong learning. Interactive and exchange programs will also support indigenous culture to be inherited and used.

C. Exchange with regions inside and outside of the Islands

- Exchange with the Asian region, which expects remarkable growth in the future, while having a deep connection with the Islands both geographically and historically will be promoted more for the purpose of increasing the population of exchanges.
 - To advance inter-prefectural exchange with Okinawa prefecture, whose geography, history and culture have a deep connection with the Islands, transportation and information networks will be developed to form a base of exchange and collaboration; tourists destinations of each prefecture will be connected to form a sightseeing network; cultural exchange between the prefectures will be also be held through showing traditional performing arts of each region.
- In particular, public and private sectors will jointly promote exchange and collaboration under local initiatives through the Council for the Promotion of Amami-Yambaru Regional Exchange as a central part.

ii. Measures toward Inclusion to the World Natural Heritage List

A. Formation of a Symbiotic Society Network

- In order to conserve and utilize the “treasures” such as diverse and rich natural environments as well as lifestyles, history, culture, traditional techniques and arts, and local specialties, which are grown in Amami-Oshima Island’s natural environments, a project of interviewing and making oral transcripts will be implemented; based on the “Amami Island Group Symbiotic Society Plan”, formation of a network among relevant entities, local residents, and NPOs will be promoted to disseminate the value of them widely both inside and outside the Islands.
- Promotion of research and studies on the connection between nature and culture, the origins and diversity will be stimulated to accumulate and disseminate information.

B. Promotion of Measures towards Inclusion to the World Natural Heritage List

(A) Conservation, Management and Development of National Parks

- Designation of national parks will be promoted through stronger collaboration with the relevant entities for taking appropriate measures as the candidate of the World Natural Heritage towards the future; protection zones will be properly managed and conserved, and park facilities will be developed, while raising public motivation of natural conservation.

(B) Maintaining Values as Candidate of the World Natural Heritage

- Regarding the protection of endangered natural fauna and flora, proper measures will be taken based on ordinances focusing on protection and monitoring activities, monitoring

research, and dissemination of information will be implemented to understand and conserve diverse ecosystems.

- “Roadkill (traffic accidents)” of endangered natural fauna and flora and illegal collection will be controlled, and measures toward alien species will be taken to implement prevention of migration of alien species from both inside and outside the country, elimination of mongoose and feral goats, dogs and cats, as well as promotion of proper breeding of pets.

In addition, conservation and regeneration of coral reef will be promoted through measures to eliminate crown-of-thorns starfish, monitoring research and development of environments with regards to the establishment and growth of coral reef.

- In cooperation with the Amami Wildlife Center, investigation and research on endemic ecosystems of the Amami Islands will be spread and encouraged, and base functions will be taken into consideration to observe and conserve endangered natural fauna and flora.
- Measures of restoration will be undertaken to revitalize natural ecosystems damaged by human factors in the past, and conservation of habitats of endangered natural fauna and flora will be cared for, even outside of protection zones.
- There will be a prohibition to enter areas vulnerable to human factors in which many endangered species, and the area of use will be strictly controlled. Eco-tours and environmental learning activities will be also controlled based on the concept of environmental conservation in Amami-Oshima Island, while such programs are promoted by utilizing local features.

Furthermore, the current situation will be clarified in order to avoid damage by excessive utilization of valuable natural environments in the areas where many tourists visit; municipal administration offices, relevant entities, and NPOs will make jointly efforts to raise public awareness of conservation and utilization of nature and landscape, and nurture guides toward having adequate knowledge of endangered natural fauna and flora.

- As the candidate of the World Natural Heritage, quality conservation and management of natural environments will be promoted in collaboration with relevant administrative offices, local residents and experts for the purpose of proper conservation and utilization towards the future; the entities will cooperatively respond to anticipated situations such as development and restoration of facilities, conservation of nature, balance of traditional use of nature and socio-economic activities, and increasing expenditure for conservation of nature.
- As the candidate of the World Natural Heritage, from the viewpoint of proper

conservation and utilization in the future, a system to accept tourists will be deliberately developed to create balance between conservation of valuable nature and regional development in cooperation with municipal offices.

- Each kind of project will be implemented under required measures in consideration of impact on the diverse and rich natural environments in targeted areas.

(C) Raising Motivation

- Local residents will be encouraged to understand the importance of maintaining values as the candidate of the World Natural Heritage, and motivation towards inclusion to the World Natural Heritage Site will be arisen by taking measures in collaboration with Okinawa that is another candidate aiming the inclusion together with the Amami Island Group, and the registered site of Yakushima.

C. Conservation of Local Environment

- To maintain good regional environments, municipal offices will collaborate to conserve the air and water environments as well as control noise and malodor.
- Coastal drifting debris will be smoothly treated with relevant entities based on the Kagoshima Prefecture Regional Plan for the Promotion of the Clearing of Coastal Drifting Debris.
- *Chamberlinius hualienensis* will be effectively eliminated and its spread prevented depending on the situation of regions; measures to eliminate suited to local features will be further discussed at the same time in which development of environments will be also encouraged.

D. Formation of Environmentally-Sound Material Society

- Reducing and Recycling of waste will be continuously promoted; regarding home appliances, collection sites for recycling will be designated in the Islands and measures will be taken to further decrease the burden of garbage collection and transportation fees.
Automobiles will be encouraged to be recycled.
Regarding small home appliances, a collection system will be smoothly developed.
Raising public awareness will prevent illegal dumping of waste.
- Living wastewater will be treated in a facility developed suitable to the situation of regions for proper treatment.
- Concerning industrial waste, reducing and recycling will be promoted and industrial waste treatment facilities will be developed.

A treatment facility of livestock excrement will be developed for enhanced proper treatment and recycling to compost.

Construction waste generation will be reduced, recycled and treated in proper ways.

E. Natural Environmentally-Friendly and Nature Restoration Public Projects

- When public projects start, an environmental impact assessment will be performed based on the Environmental Impact Assessment Act, toward inclusion to the World Natural Heritage List; public projects will be conducted in consideration of conservation and formation of habitats of valuable endangered natural fauna and flora; public projects for restoration of nature will be considered and adopted based on the concept of the Law for the Promotion of Nature Restoration.

From the viewpoint of maintaining value as a candidate of the World Natural Heritage, integrated guidelines for environmental consideration will be formulated to take necessary measures.

Concerning red soil runoff, measures will be taken at each stage of public projects; research and investigation of effective prevention will be promoted; developers and constructors will be reminded and instructed to be careful.

Farmers and local residents will be also informed of the importance of prevention of red soil runoff from farmlands.

5. Promotional Measures of Tokunoshima Island

(2) Deployment of Measures

I. Measures to Promote Settlement

i. Promotion of Industry

D. Promotion of Industry Utilizing Local Feature

(B) Forestry

a. Development of Forests

- Forests will be developed depending on functions to be valued in each category such as the forest managed for publically-beneficial functions and the forests to be maintained and increased for productive functions, such as timber, and promoted to enhance forest resources and the functions which benefit the public.
- Measures against damage such as that by pine weevils will be operated in pine forests that should be protected. Monitoring will be continued to prevent damaged or infested wood products being brought from outside of the Islands.

b. Development of Base of Forestry Production

- Due consideration for the natural environment will be given when forest roads are developed and existing forest roads are restored and paved.

c. Development of Systems for Production, Processing and Distribution of Forestry Products

- Balance of conservation and utilization of forest will be taken into consideration for development of efficient and stable production of timbers as well as promotion of utilization of wood to interior materials and furniture materials.

d. Promotion of Special Forest Products

- Creation of production areas will be promoted regarding special forest products with unique regional characteristics by developing production and shipping systems of mushrooms.

e. Recruiting and Training of Forestry Workers

- Forestry workers will be recruited and trained by utilizing a system of a training course for forestry technologies. The Forest Owner's Cooperative Association will be united over all islands to reinforce the management base.

f. Promotion of Programs to Experience Forests

- Forests will be developed and conserved by utilizing features of nature and landscape of the Tokunoshima Islands to be served as oases for local residents. Moreover, nurturing forest volunteers will provide support for interactive programs for visitors. Forest environmental education will be actively developed for elementary and junior high school students.

- g. Research on New Usage and Conservation of Forest Resources
 - *Pinus luchuensis* will be encouraged to use for timber products of the Amami Island Group. Research and investigation on conservation of subtropical forests will be advanced.

II. Measures to Stimulate Exchange and Interaction

i. Utilization of Local Resources of History and Culture Only in the Amami

A. Expansion of Tourism Measures Utilizing Local Resources

(A) Utilization of Tourism Resources

- Attractiveness and resources such as unique natural environments, culture, and local industries will be organically connected with a story line to integrally promote industry and culture focusing on tourism.
- Using rich local resources will enhance experience programs for visitors. Interactive programs and stay-type tours will be encouraged to be held in the event called the “Amami Island Expo” and promotion of eco tourism.
- A tourism network will be developed so that visitors can enjoy the natural environment and culture in the Amami Island Group while walking.
- The islands’ features of “longevity, blessing of many children, and healing” will be utilized for tourism promotion.
- Events will be invited and held by utilizing the warm climate of the Islands. Sports events such as marathons, ekiden, and triathlons in the Amagi Cross-Country Park, and cultural tourism events such as bull fighting will be included.

(B) Development of a System to Accept Visitors

- Marine recreation facilities such as the Yonama Beach Park, Aze Price Beach Park, and Setaumi Sea Park as well as an information center of local culture such as the Tokunoshima Nakusami Center will be encouraged to be utilized; tourism facilities will be developed for interactive programs and stay-type tours; a round-trip course will be created with the combination of unique regional resources such as Kanamizaki Cycad Tunnel and Inutabumisaki Cape.
- To help visitors move smoothly between destinations, more guide signs will be developed and while existing signs will be improved, and information of transportation among islands will be provided on the Internet.
Moreover, comfortable and convenient environments for visitors will be improved by making facilities such as public restrooms and resting areas as well as managing green areas.

- Towards the National Athletic Festival to be held in 2020 in Kagoshima, sports facilities will be developed and improved to meet high quality demands of sports camps in which top athletes would participate, coming from domestic and international areas.
- Capacity development of tourism will be enhanced by service training targeting tourism workers in order to offer visitors full hospitality; guidance for foreign visitors will also be improved to enable all tourists to enjoy their travel with no concerns.
Human resources will be nurtured and organized, such as island coordinator, goodwill guides, instructors, and tour guides, all of whom show visitors the attractiveness of the islands; an event will be designed to integrally offer visitors unique interactive programs and stay-type tours such as marine sports and a program of making *oshima tsumugi* kimono cloths dyed with mud.
Special systems of guide-interpreters and tour agents targeting the Amami Island Group will be spread and established to fulfill the acceptance system of visitors.
- Tourism facilities and accommodations will be developed to meet new necessities emerging from interactive programs and stay-type tours.
- “Amami Numbers”, which may contribute to the promotion of tourism and the activation of local communities, will be encouraged.

(C) Development of Transportation for Tourism

- Airports and harbors will be developed as bases of transportation in order to promote round-trip tours connecting locations inside and outside of the Islands.
- Chartered flights will be continuously supported and required facilities will be developed.
- Methods of how to speed up regular lines and improve the comfort will be discussed; a cruising network will be formed so that visitors can travel around the islands via sightseeing ships.
- To improve transportation to airports and harbors, development of a loop line will continue.
Main routes for sightseeing, parking areas and public restrooms will be constructed along the routes so as to enable tourists to take a break and enjoy sceneries of the Islands; greening along the routes will be created to conserve landscape unique to the Amami Island Group.

(D) Dissemination of Attractive Tourism Information

- Attractive information regarding tourism will be spread via various media to areas inside and outside the Islands like the website of Amami Archipelago Tourism and

Products Association.

- The Amami Archipelago Tourism and Products Association will take a central role to implement measures of business activities targeting tour agencies outside the prefecture, inbound activities, and planning and sales of round-trip tours around the Islands, aiming to have high recognition and attract more tourists.

(E) Collaboration with Local Industries

- By cooperating with local industries such as agriculture, forestry, fishery, and production and sales of local products, various kinds of interactive programs will be offered to visitors, and natural cultural assets in the Amami Island Group will be used to produce new local specialties.

(F) Promotion of tourism measures targeting Asian countries

- To attract visitors from Asian countries, increased amounts of multilingual information and guide signs will be provided.
Development of an organization will be considered in order to assign CIQ officials who can smoothly regard international chartered flights.

B. Inheritance and Creation of local culture enabling residents to have attachment

- In order to inherit rich local culture based on the climate of Tokunoshima Island, local residents will be encouraged to have direct access to excellent works of art and unique culture, and actively use cultural facilities.
- Local cultural properties will be conserved and utilized, and the spirit of protection of cultural properties will be disseminated and raised to the public, through conservation and management of natural monuments and development of historical sites.
Measures will be taken to protect and inherit traditional performing arts, for example offering opportunities to show island folk songs and August Dance at schools and facilities of lifelong learning. Interactive and exchange programs will also support indigenous culture to be inherited and used.

C. Exchange with regions inside and outside of the Islands

- Exchange with the Asian region, which expects remarkable growth in the future, while having a deep connection with the Islands both geographically and historically, will be promoted more for the purpose of increasing the population of exchanges.
- To advance inter-prefectural exchange with Okinawa prefecture, whose geography, history and culture have a deep connection with the Islands, transportation and information networks will be developed to form a base of exchange and collaboration;

tourists destinations of each prefecture will be connected to form a sightseeing network; cultural exchange between the prefectures will be also be held through showing traditional performing arts of each region.

In particular, public and private sectors will jointly promote exchange and collaboration under local initiatives through the Council for the Promotion of Amami-Yambaru Regional Exchange as a central part.

ii. Measures toward Inclusion to the World Natural Heritage List

A. Formation of a Symbiotic Society Network

- In order to conserve and utilize the “treasures” such as diverse and rich natural environments as well as lifestyles, history, culture, traditional techniques and arts, and local specialties, which are grown in Tokunoshima Island’s natural environments, a project of interviewing and making oral transcripts will be implemented; based on the “Amami Islands Group Symbiosis Society Network Plan”, formation of a network among relevant entities, local residents, and NPOs will be promoted to disseminate the value of them widely both inside and outside the Islands.
- Promotion of research and studies on the connection between nature and culture, the origins and diversity will be stimulated to accumulate and disseminate information.

B. Promotion of Measures towards Inclusion to the World Natural Heritage List

(A) Conservation, Management and Development of National Parks

- Designation of national parks will be promoted through stronger collaboration with the relevant entities for taking appropriate measures as the candidate of the World Natural Heritage towards the future; protection zones will be properly managed and conserved, and park facilities will be developed, while raising public motivation of natural conservation.

(B) Maintaining Values as Candidate of the World Natural Heritage

- “Roadkill (traffic accidents)” of endangered natural fauna and flora and illegal collection will be controlled, and measures toward alien species will be taken to implement prevention of migration of alien species from both inside and outside the country, elimination of mongoose and feral goats, dogs and cats, as well as promotion of proper breeding of pets.

In addition, conservation and regeneration of coral reef will be promoted through measures to eliminate crown-of-thorns starfish, monitoring research and development of environments with regards to the establishment and growth of coral reef.

- In cooperation with the Amami Wildlife Center, investigation and research on endemic ecosystems of the Amami Islands will be spread and encouraged, and base functions will be taken into consideration to observe and conserve endangered natural fauna and flora.
- Measures of restoration will be undertaken to revitalize natural ecosystems damaged by human factors in the past, and conservation of habitats of endangered natural fauna and flora will be cared for, even outside of protection zones.
- There will be a prohibition to enter areas vulnerable to human factors in which many endangered species, and the area of use will be strictly controlled. Eco-tours and environmental learning activities will be also controlled based on the concept of environmental conservation in Tokunoshima Island, while such programs are promoted by utilizing local features.
Furthermore, the current situation will be clarified in order to avoid damage by excessive utilization of valuable natural environments in the areas where many tourists visit; municipal administration offices, relevant entities, and NPOs will make jointly efforts to raise public awareness of conservation and utilization of nature and landscape, and nurture guides toward having adequate knowledge of endangered natural fauna and flora.
- As the candidate of the World Natural Heritage, quality conservation and management of natural environments will be promoted in collaboration with relevant administrative offices, local residents and experts for the purpose of proper conservation and utilization towards the future; the entities will cooperatively respond to anticipated situations such as development and restoration of facilities, conservation of nature, balance of traditional use of nature and socio-economic activities, and increasing expenditure for conservation of nature.
- As the candidate of the World Natural Heritage, from the viewpoint of proper conservation and utilization in the future, a system to accept tourists will be deliberately developed to create balance between conservation of valuable nature and regional development in cooperation with municipal offices.
- Each kind of project will be implemented under required measures in consideration of impact on the diverse and rich natural environments in targeted areas.

(C) Raising Motivation

- Local residents will be encouraged to understand the importance of maintaining values as the candidate of the World Natural Heritage, and motivation towards inclusion to the World Natural Heritage Site will be arisen by taking measures in collaboration with the

registered sites of Yakushima and Okinawa, which also aims the inclusion together with the Amami Island Group.

C. Conservation of Local Environment

- To maintain good regional environments, municipal offices will collaborate to conserve the air and water environments as well as control noise and malodor.
- Coastal drifting debris will be smoothly treated with relevant entities based on the Kagoshima Prefecture Regional Plan for the Promotion of the Clearing of Coastal Drifting Debris.
- *Chamberlinius hualienensis* will be effectively eliminated and its spread prevented depending on the situation of regions; measures to eliminate suited to local features will be further discussed at the same time in which development of environments will be also encouraged.

D. Formation of Environmentally-Sound Material Society

- Solid waste has been treated in a wide area of Tokushima since 2003 at the incineration plant, final disposal site and recycle plaza, which were jointly developed by the cross-regional federation consisting of three towns in Tokushima. Reducing and Recycling of waste will be continuously promoted; regarding home appliances, collection sites for recycling will be designated in the Islands and measures will be taken to further decrease the burden of garbage collection and transportation fees. Automobiles will be encouraged to be recycled. Regarding small home appliances, a collection system will be smoothly developed. Raising public awareness will prevent illegal dumping of waste.
- Living wastewater will be treated in a facility developed suitable to the situation of regions for proper treatment.
- Concerning industrial waste, reducing and recycling will be promoted and industrial waste treatment facilities will be developed. A treatment facility of livestock excrement will be developed for enhanced proper treatment and recycling to compost. Construction waste generation will be reduced, recycled and treated in proper ways.

E. Natural Environmentally-Friendly and Nature Restoration Public Projects

- When public projects start, an environmental impact assessment will be performed based on the Environmental Impact Assessment Act, toward inclusion to the World Natural Heritage List; public projects will be conducted in consideration of conservation and formation of habitats of valuable endangered natural fauna and flora; public

projects for restoration of nature will be considered and adopted based on the concept of the Law for the Promotion of Nature Restoration.

From the viewpoint of maintaining value as a candidate of the World Natural Heritage, integrated guidelines for environmental consideration will be formulated to take necessary measures.

Concerning red soil runoff, measures will be taken at each stage of public projects; research and investigation of effective prevention will be promoted; developers and constructors will be reminded and instructed to be careful. Farmers and local residents will be also informed of the importance of prevention of red soil runoff from farmlands.

4-35 The Amami Island Group Symbiotic Society Plan (Excerpt)

Part 3: Basic Policy

Chapter 1: Basic Concept

This “Plan” proposes regional development by “symbiosis with human beings and nature” as the mainstay based on the idea of transforming conventional standards, aiming at revitalization of local communities, namely setting principles as “transformation of our lifestyle to a symbiosis society with nature”, “transformation towards regional diversity”, and “transformation of initiatives from national level to local level”. Based on the current situation of the Amami Island Group, the Plan indicates a new way of “symbiosis with human beings and nature” in the Islands.

In order to discover a new way of “symbiosis”, the Plan sets basic policies to take measures based on “conservation of biodiversity” and “interaction with nature” with the Amami Island Group’s “treasures” as a core. The Amami Island Group’s “treasures” on the Plan are defined as regional resources having academic and social value of nature, which the local residents of the Amami Island Group explored during “treasure hunting” that they independently undertook. Measures on the “Plan” show direction of appropriate usage according the value of the “treasures” of the Islands that local communities autonomously discovered.

These basic concepts intend to allow local communities to recognize the value of local natural environments and use them subjectively by themselves. By experiencing recognition and utilization repeatedly, the connection between human beings and nature is expected to be better and deeper in the Amami Island Group and become worthy to be called the “symbiosis society with human beings and nature”.

Chapter 2: “Treasures ” of Amami

Section 1: Overview

1. “Treasure Hunting” in the Amami Island Group

When the Plan started to be formulated, local communities of 14 cities, towns and villages of the Islands participated in “treasure hunting” in cooperation with local residents and administrative organizations. The activity of “treasure hunting” offers local residents to independently reaffirm and rediscover “treasures” buried in each region.

The “treasure hunting” has significance to raise public awareness of local people’s pride and identity; namely, as the traditional connection between human beings and nature is weakening due to socio-economic change, this activity provides a chance for local residents to positively realize the value of the connection again.

At the same time, this activity is meaningful as basic research for planning and operating measures in accord with the Plan; as the result of “treasure hunting”, each local community discovered various “treasures”, which will be subject to a variety of measures to be planned and implemented.

2. “Treasures” of Amami

The “treasure hunting” has unearthed many “treasures” of the Amami Island Group such as nature, history, culture, lifestyle, masters, and industries. All have diverse values in each area, but some of “treasures” can be specified as remarkable assets having representative and universal values for the whole island chain. Ecosystems of coral reef and marine life, coastal landscapes, and forestry ecosystems and landscapes consisting of natural fauna and flora can be identified as natural environments with remarkable academic value; nearby nature and landscapes can be categorized as nature with outstanding social value; furthermore, culture and industries which deeply relate to such kinds of nature, for example, religion, traditional events, island folk songs, and food materials can be included as “treasures”.

Chapter 3: Management of “Treasures” of Amami

Section 1. Overview

Development of regions with the Amami Island Group’s “treasures” as a core shall be proceeded through proper management so as to harmonize nature and society with each other.

Management of “treasures” should be based on conservation and utilization of them. Recognition of the academic and scientific values of “treasures” will allow appropriate maintenance. After conserving them like this, they will be utilized in various ways as resources of revitalization of regions. Premising that conservation will protect the values of them as resources of regional development, they will be able to be utilized in a sustainable manner.

Conservation and utilization shall be integrally promoted. Promotion of only one of them might cause imbalance between nature and society, namely “symbiosis with human beings and nature” in the future. Neither utilization setting aside conservation, nor conservation without consideration of possibility provided by utilization will not be suitable for “symbiosis with human beings and nature”.

Each relevant entity shall correctly recognize challenges regarding conservation and utilization of the “treasures”, and make decisions with coordination of multiple stakeholders to implement efficient measures and actions; it is also important to develop a base for information, systems and facilities to respond to these demands.

Section 2: Conservation of “Treasures”

1. Basic Concept

Conservation of “treasures” means to maintain good condition without damage to the values of the “treasures” by placing positive influence on the “treasure” and reducing negative impacts to them. Several methods of conservation measures and policies can be enumerated, such as protection of important targets, measures against influence factors, and development of bases for conservation (accumulating and disseminating information, system development, and facility development). The value of “treasures” and characteristics as resources is required to be incorporated to measures and policies by means of each direction and various methods associated with the directions.

2. Direction of Conservation

Taking into account of the values of “treasures”, it is important to properly select and combine the following methods depending on the characteristics of “treasures” and situations around them.

(1) Protection of Important Targets

The “treasures” shall be utilized in many ways. They support local communities in the Amami Island Group and have a great effect on local people. As long as they are utilized in a proper way, there is no problem, however, the method of utilization may unexpectedly cause damage to the value of “treasures” and creating difficulty in maintaining sustainable utilization in the future. Important targets should be conserved in accordance with laws and ordinances for protection.

(2) Measures against Influence Factors

In the case that the value of “treasures” would be damaged by various socio-economic activities and natural phenomena besides direct utilization of them, it is necessary to specify the influence factors and take appropriate measures.

(3) Promotion of Management

Some type of “treasures” may need proactive human intervention in the form of operation management and maintenance to protect the value. Management would be promoted in order to conserve such “treasures”. Basically, an owner of a treasure is required to protect it with the proper methods, depending on the characteristics.

(4) Development of Bases for Conservation

Efficient conservation may require development of bases of information, systems, and facilities to support measures and actions of conservation.

Corresponding to concrete measures, capacity building of relevant entities, fulfillment and enhancement of

information and facilities may be enumerated.

(5) Regeneration of “Treasures”

Conservation of “treasures” aims to keep a good condition of them based on the current situation, however, if a “treasure” would be lost, it is necessary to restore, recover, and recreate it by implementing appropriate measures and activities.

(6) Consideration to “Treasures”

Consideration to “treasures” is generally required to all socio-economic activities even if the activities do not need to directly utilize the “treasures”.

Section 3: Utilization of “Treasures”

1. Basic Concept

Utilization of “treasures” means to properly use them and connect the value of them with vitalization of local communities.

As examples of utilization, use as resources for tourism, food, and industrial products can be listed. Each of them is inevitable for local communities. However, inappropriate utilization might cause damage of the value of “treasures” and create difficulty in maintaining sustainable utilization in the future.

Elaborating on the forms of utilization and proper use can reduce such kinds of risk. For example, as resources for tourism, they can be used in eco-friendly learning tours (eco-tours); branding can enhance the value of them when they are used as materials of food and industrial products.

Several directions of measures and actions for utilization can be enumerated, such as presentation of concepts, formulating concrete efforts in accordance with the concept, and development of bases for utilization (accumulating and disseminating information, system development, facility development). These directions are required to be incorporated to measures and policies depending on the forms of utilization.

2. Direction of Utilization

Taking into account the conditions of utilization, it is important to properly select and combine the following methods:

(1) Presentation of Concepts

Concepts of utilization shall be clearly displayed as indicators in a manner in which various entities in local communities can elaborate on forms of utilization and promote appropriate use.

As premises of which the “treasures” are surely protected, the concept should be presented to enable two factors for harmonizing with each other; namely, on one hand economic benefit derived from utilization of

“treasures” is returned to local communities, and on the other hand utilization of “treasures” does not damage the connection between human beings and nature in local regions as well as residents’ lifestyle, culture, and identity.

It is crucial that responsible authorities take initiative to show the concept depending on the forms of utilization.

(2) Concrete Efforts

It is important that various relevant entities such as administrative offices, private companies, regional NPOs, and local residents discuss original and effective methods of utilization, incorporate ideas make to concrete effort, and proactively implement them.

(3) Development of Bases for Utilization

Efficient utilization may require development of bases of information, systems, and facilities to support measures and actions of utilization. Corresponding to concrete measures, capacity building of relevant entities, fulfillment and enhancement of information and facilities may be enumerated.

Part 4: Specific measures

Chapter 3: Conservation of Forest and Endangered Wild Fauna and Flora

Section 1: Basic Concept

Diverse ecosystems established in the Amami Island Group, where various kinds of fauna and flora inhabit, and especially endangered wild species such as *Pentalagus furnessi* or Amami Rabbit have an extremely high academic value. Subtropical broad-leaved forests left in the Amami Island Group, which are close to natural vegetation, are not only valuable itself, but also precious as the main habitats of endangered species. In addition, such subtropical broad-leaved forests grow in quantity and form the endemic and significant landscape.

In this context, endangered wild fauna and flora as well as forests in the Amami Island Group are of paramount importance for the “treasures” of the Amami Island Group, which shall be subject to the promotion of integrated measures of conservation.

Section 2: Implementation of Measures

1. Protection of Important Targets

Focusing on area and species will institutionally protect habitats of endangered wild species and subtropical broad-leaved forests, which are important for conservation of biodiversity and landscapes. Various institutional schemes are available for protection, and these schemes will be properly combined and enhanced to sufficiently ensure the protection of important targets.

(1) Designation of Natural Parks and Wildlife Protection Areas

Protection areas such as National Parks and Wildlife Protection Areas play an important role in the conservation of paramount regions of habitats of endangered wild species and forests.

Currently the Amami Islands Quasi-National Park (496.0ha as the Special Protection Zone; 446.0ha for Marine Park; 7,332.0ha as the Special Zone, 24,611.0ha as the Ordinary Zone) is designated in accordance with the Natural Parks Act. Activities such as building construction, cutting down trees or bamboo, and collecting of animals and plants are prohibited in each category of protection zone.

Mt. Yuwandake National Wildlife Protection Area (320ha) is designated based on the Wildlife Protection, Management, and Proper Hunting Act (Wildlife Protection Act), and a part of the area is designated as a Special Protection Zone (103ha). Additionally, prefectural protection areas are set in 5,208ha in a total in 23 areas. Hunting of wildlife is prohibited in the Wildlife Protection Area.

From the viewpoint of conservation of biodiversity and landscapes, however, designated places and areas do not necessarily match the current status. The Review Committee on Candidate Natural Sites for Nomination to the World Heritage List held in 2003 pointed out that protection measures were not

sufficient in some parts of important areas including habitats of endangered wildlife.

Protection measures suited to characteristics of targeted areas shall be enhanced more in the existing Protection Areas designated by the Natural Parks Act and Wildlife Protection Act; particularly in protection areas including habitats of endangered wildlife shall be expanded; more protection areas under the responsibility of the national government will be subject to new designation as National Parks.

(2) Measures based on the Act on Conservation of Endangered Species of Wild Fauna and Flora, and Ordinance to Protect Endangered Wild Fauna and Flora of Kagoshima

The Act on Conservation of Endangered Species of Wild Fauna and Flora (Act on Conservation of Endangered Species) and the Ordinance to Protect Endangered Wild Fauna and Flora are important to avoid extinction of endangered wildlife.

Concerning the Act on Conservation of Endangered Species, 8 fauna and flora populating the Amami Islands (*Luscinia komadori* or subspecies of Ryukyu Robin; *Scolopax mira* or Amami woodcock; *Zoothera dauma major* or Amami thrush; *Dendrocopos leucotos owstoni* or Amami Woodpecker; *Garrulus lidthi* or Amami Jay; *Polystichum obai*; *Liparis elliptica*; *Vaccinium amamianum*) are designated as domestic endangered wild species, in which hunting and transfer are controlled; 2 species out of the eight (Amami woodcock and Amami thrush) are subject to the Program for the Rehabilitation of Natural Habitats and Maintenance of Viable Populations. These measures will be enhanced.

In 1999, The Kagoshima Prefectural Government started a research project of endangered wild species, and summarized the results in the Red Data Book of Kagoshima published in March 2003 including the list of endangered wild species in the Amami Islands. In the same month, the prefectural government also established the Ordinance to Protect Endangered Wild Fauna and Flora in Kagoshima; species subject to protection will be designated in order to control hunting and transfer based on the ordinance.

Yamato Village also established the Ordinance to Protect Endangered Wild Fauna and Flora, and implements measures to designate protection areas to 98 endangered wild species. Measures in accordance with these acts and ordinances shall be further enhanced from now on.

(3) Measures based on the Act on Protection of Cultural Properties and Ordinance of Protection of Cultural Properties of Kagoshima Prefecture

The Act and Ordinance of Protection of Cultural Properties take a role of conservation of endangered wild species by designating animals and plants that have academic value and their habitats as Natural Monuments.

Currently the Act on the Protection of Cultural Properties designates the Amami Rabbit as a Special Natural Monument of the Japanese government, and animals and plants including *Tokudaia osimensis*, *Diplothrix legata* or Ryukyu Long-furred Rat, Ryukyu Robin, Amami Thrush, Amami Woodpecker, Amami Jay, and *Coenobita cavipes*, as well as natural forests in Kamiya and Yuwandake, are designated as Natural Monuments. In 2003, *Odorrana splendida*, *Echinotriton andersoni*, and *Goniurosaurus kuroiwaie splendens* were designated as Prefectural Natural Monuments. Municipal governments manage these species and control changes of the current status and actions that would influence conservation.

The proper management of the Act on Protection of Cultural Properties will continue to be maintained.

2. Measures against Influence Factors

Some introduced species were found in a part of the Amami Island Group that greatly impacts native ecosystems including endangered wild fauna and flora.

There is a concern that native and endangered species may be hunted and eaten by introduced species such as mongoose on Amami-Oshima Island, feral cats and dogs, and *Mustela itatsi*. It is anticipated that native species (*Tokudaia osimensis* and Ryukyu Long-furred Rat) may be reduced by competition with *Rattus rattus* or black rats. It is pointed out that there is a risk of genetic invasion to native insects by hybridization with introduced species. Moreover, 70-130 species (varies depending on each island) out of 1,300-1,500 species of vascular plants populating in the Amami Islands are introduced from outside, and may have a negative impact on native species.

While the Amami Island Group contains the habitats of endemic and endangered species, the region is subject to be exposed to introduced species, which requires integrated measures against introduced species including prevention of invasion, controlling species after establishment, and monitoring, in collaboration with the national government.

To prevent dogs, cats, and goats from entering habitats of endangered wild species, proper management of those animals shall be enhanced, and careless releasing of animals will be controlled by appropriate measures. The current status of species such as boars, which are already established in Okinoerabu Island will be researched to consider targets of control, and measures of elimination and containment will be taken in proper way.

It is particularly clear that mongoose established in the Amami Islands have a devastating effect on endangered wild species, thus the national government has already undertaken the project of elimination of mongoose. From now, measures of complete elimination will be continued and further enhanced by introducing more effective ways of hunting.

3. Promotion of Management

Management of operation and maintenance in protection areas will be properly implemented to conserve forests and endangered wild fauna and flora.

Forests in the Amami Island Group are categorized as “Forests for Water and Soil Conservation”, “Forests for Symbiosis of Forest and People”, and “Forests for Cyclical Use of Forest Resources” according to each preferential function. In the “Forest for Symbiosis of Forest and People”, in particular, management for conservation will be promoted based on natural transition and operation dealing with single-stored forest and uneven-aged forest. National Forests in Amami-Oshima Island and Tokunoshima Island will be necessary to be properly managed according to the current classification of protected forests.

4. Development of Base for Conservation

(1) Scientific Investigation and Research

An inventory (a list of species) will be compiled by implementing investigation from a scientific viewpoint to continuously accumulate information of distribution, population and density of specific species.

(2) Participation of Various Entities

Participation and consensus building with local communities may be required for conservation of endangered wild species as necessary. Especially various entities will be encouraged to participate in the initiatives related to control of introduced species such as mongoose.

(3) Function as a Hub of the Amami Wildlife Center

The Amami Wildlife Center owned by the national government was opened in 2000, and the function of the center will be enhanced regarding research projects of endemic ecosystems in the Amami Island Group, in addition to accumulation and dissemination of related information.

Chapter 8: Intensifying Consideration to Nature

Section 1: Basic Concept

The awareness of local residents living in each region in the Amami Island Group is important to inherit the “treasures” of Amami such as nature in the Islands that is valuable to the world. In other words, residents are required to proactively play a main role to create a unique and symbiotic society of people and valuable nature in the Amami Island Group. As a base of regional development, residents need to take the initiative in basic living activities and each kind of project in order to consider nature by energy saving, reducing waste, and controlling living wastewater.

Concerning the general socio-economic activities in the Amami Island Group, impact on “treasures” shall be appropriately controlled with the consideration not to harm the value of them when implementing measures, projects, and industrial activities.

Section 2: Implementation of Measures

1. Consideration by Residents

(1) Ways of Consideration by Residents

The Kagoshima Prefectural Government is implementing the “Citizen’s Eco-Friendly Activity in Kagoshima”; three initiatives of development of eco-friendly lifestyles, regional development in harmony with environment, and social system development based on circulation are being operated by the “Conference for Citizen’s Eco-Friendly Activity in Kagoshima” as a promotion center.

It is desirable that circulation is independently established in each island as much as possible because the Amami Island Group consists of independent islands. Residents in each local community are expected to proactively work on energy saving, reducing waste, conserving water, conserving the natural environment, participating in environmental conservation activities, and properly treating waste.

(2) Measures to Support Consideration by Residents

To support such activities of consideration by residents, measures relating to waste management will be promoted; in addition to control of generation of waste, promotion of recycling, facility development to ensure the proper treatment of waste, and measures against illegal dumping.

Setting designated collection sites and developing a system of collection and transfer will enhance recycling of home appliances. Recycling of automobiles will also be properly implemented.

Several other measures will be also implemented: facility development for water and sewage, wastewater from agricultural and fishery activities, a combined sewage treatment tank, as well as introduction of new energy resources such as wind and solar power.

2. Consideration upon Implementation of Industrial Activities

(1) Environmental Assessment

As it is crucial for environmental conservation that the environmental assessment is preliminarily undertaken to the “treasures” before implementing projects, the Environmental Impact Assessment Laws of both the national government and the prefectural government will be continuously operated in the proper way.

(2) Promotion of Environmentally-Friendly Public Projects

When a public project is anticipated to have an impact on the “treasures” but necessary to be implemented for socio-economic reasons, it is important to reduce the impact as much as possible. The “Opinion Survey” shows 73% of residents responded that public project shall be implemented with due care to natural environments”. In this regard, public projects will be encouraged to be implement in an environmentally friendly manner.

Public projects for roads, rivers, ports and harbors, and development of agriculture as well as agricultural villages have been implemented with care to natural environments. Development of agriculture and agricultural villages has been also promoted in an environmentally friendly manner. Forests are being treated to demonstrate their multiple functions. Forest roads are being developed with care for conservation of landscapes and ecosystems; National Route 58 was designated as an “eco-road” with consideration for the ecosystem, and tunnels and bridges are constructed so as not to separate ecosystems; cross paths along the route are built for animals.

The “Development of Multi-Natural Rivers” project is promoted for the development of rivers such as the Yakugachigawa river; environmentally friendly efforts including conservation of diverse watersides, making of green slopes on river banks, development of facilities excellent in hydrophilicity, and construction of revetment with natural stones are being incorporated to each project.

The “Review Committee for the Natural Environment for the Construction of the Yamato Dam” promotes the dam construction as a reservoir of living water in an environmentally-friendly manner. Projects for prevention of soil erosion are implemented with consideration for the environment of streams. Green slopes on revetments are developed with consideration for hydrophilicity at ports and harbors. Around the ports and harbors, trees and plants of native species are used for development of green areas.

Projects will be implemented in an environmentally-friendly manner continuously from now on such as: development of roads and multi-natural rivers with care to habitats of endangered wild species in the Amami Island Group, setting of fishways, blowing seeds of native species to slopes; skills and technologies with consideration to natural environments will be introduced based on the features of nature in the Amami Island Group.

Regarding housing, environmentally symbiotic houses will be developed and supported by both public and private sectors based on the climate in the Amami Island Group, for the purpose of the conservation of the global environment such as energy saving and resources.

(3) Promotion of Environmentally Friendly Agriculture

Productive activities, which may have an impact on the “treasures”, will be also operated while avoiding impact.

Regarding agricultural production, “environmentally friendly agriculture”, namely sustainable agriculture will be promoted with consideration both to utilizing the function of natural circulation provided by agricultural activities and to reducing the impact on environments. As it is difficult to recover the valuable nature in the Amami Island Group such as endangered species if it is once lost, agricultural production will be promoted with special care for the environment.

With respect to environmentally-friendly agriculture, various measures will be further promoted aiming at “development of environmentally friendly production centers” for reducing environmental impact: facility development for compost, production, transportation and utilization of quality compost by securing composting materials, land reform by subsoil plowing and breaking, proper fertilizing based on soil assessment, proper control on pests based on prevention measures, proper treatment of agricultural waste plastics.

Concerning environmentally friendly stock farming, management of livestock excrement, required technologies for treatment, and circuit teaching will be enhanced; treatment facilities of livestock excrement will be developed in accordance with the current situation of each region based on the Plan for Utilization of Livestock Excrement in Kagoshima Prefecture”.

(4) Measures to Prevent Erosion of Red Soil

There is a concern of environmental impact caused by the erosion of red soil to rivers and the sea along the coastline of the Amami Island Group at each kind of development; measures to prevent red soil erosion are now implemented based on the “Keys of Prevention of Soil Erosion” (by municipal offices), Measure of Prevention of Red Soil Erosion of the Oshima Sub-prefectural Office (by the prefectural government), and the Practice Standard of Soil Erosion by Development and Construction Projects in Tokunoshima Island (by the national government). Grit tanks will be set at each project, and research and investigation will be promoted.

Chapter 9: Efforts for Inclusion to the World Natural Heritage List

Section 1: Basic Concept

The World Heritage Convention is an international agreement to protect and conserve natural heritages and cultural properties having “Outstanding and Universal Value”. On the other hand, it also attracts attention as a measure of regional activation such as sight seeing and contribution to identity in each region.

The Amami Island Group has unique natural environments including subtropical broad-leaved forests, endemic and endangered wild fauna and flora, and coral reefs with rich diversity. These “treasures” of Amami are highly valuable throughout the world; and the Review Committee on Candidate Natural Sites for Nomination to the World Heritage List held in 2003 chose the Islands as one of the regions that have great potential to meet the requirements for inclusion to the List as regulated by the World Heritage Convention.

Inclusion to the List requires setting a framework of conservation and utilization of the “treasures”, thus consensus building with local residents will be the keys as they are regarded as the main entities of conservation and utilization. The “Opinion Survey” indicates that many natives and inhabitants of the Amami Island Group support the Inclusion to the List based on consensus with residents.

In this context, efforts aiming toward Inclusion to the List will be positively promoted.

Section 2: Implementation of Measures

1. Measures to Ensure Conservation

(1) Necessity of Measures to Ensure Conservation

For inclusion to the List, the World Heritage Committee examines properties nominated by countries with criteria of natural features including topography, soil type, ecological system, and biodiversity. Besides these criteria, it also requires that a property must have a measure to ensure its protection not to damage the value based on laws and regulations. Namely, no matter how valuable a property is, it is not included to the World Heritage List without sufficient measures to inherit the value in the future.

The Amami Island Group sufficiently meets the criteria of natural features; the Review Committee acknowledged that the Ryukyu Chain including the Amami Island Group meets the standard criteria of topographic feature of an arc-trench system, ecosystem widely and mutually related to subtropical broad-leaved forests and coral reefs, and diverse beauty of landscapes. The committee also pointed out that the endangered wild fauna and flora including endemic species is especially valuable as the center of a World Natural Heritage Site.

On the other hand, however, the committee indicated that it requires setting of more protection areas for habitats of endangered wild species regarding measures to ensure conservation based on laws and regulations.

Therefore, in order to aim toward inclusion as a World Natural Heritage Site, it is necessary to provide satisfactory measures to ensure conservation from the viewpoint of biodiversity for important areas, in particular habitats of endangered species.

(2) Discussion on Measures to Ensure Conservation

Inclusion to the Lists requires; firstly, institutional establishment of protected areas with a certain level of areas of effect in important regions, and secondly, establishment of management plans regarding such protected areas.

Concerning establishment of protected areas, areas subject to protection will be identified, and existing protected areas will also be reviewed and expanded. Protected areas such as National Parks for which the national government is responsible will be designated by the national government.

To realize the integrated management of regions subject to the properties, national, prefectural, and municipal organizations will work cooperatively and management plans will be formulated in collaboration with each other. The management plans will include management policies, establishment of protected areas, management systems such as liaison committees, and management projects such as restoration of nature.

2. Development of Base for Inclusion

(1) Collaboration of Various Entities

Efforts for inclusion to the World Natural Heritage List shall be promoted not only at the national level, but

also prefectural, municipal, and community levels, with collaboration with various and diverse entities. As the Review Committee selected the candidate site including Okinawa Island Group, collaboration with Okinawa Prefecture will be the key of implementation of such efforts.

To ensure the collaboration of various entities, a liaison committee will be formed to discuss operational aspects of actions for inclusion. Consensus building with local communities will be promoted through workshops with participation of local NPOs and residents as well as open learning courses of nature in the Amami Island Group.

(2) Promotion of Investigation and Research

Scientific information about nature in the region is inevitable to promote the inclusion to the World Natural Heritage List. Investigation and research activities will be encouraged to gather information about nature in the Amami Island Group; study groups consisting of experts will be established.

(3) Promotion of Exchange and Dissemination of Information

Symposiums will be held with participation widely from both inside and outside the Islands to implement opinion exchange with other domestic regions and international exchange regarding efforts for inscription to the World Natural Heritage and display of measures after inscription. As conservation and utilization of natural environments will require proactive participation of local communities, local residents' opinions will be positively encouraged to be disseminated at such conferences.

(4) Expectation for Residents as the Main Actor

It is anticipated that implementation of efforts for inscription to the World Natural Heritage Sites will activate exchange with parties outside the Islands, and opportunities to attract attention from outside will increase. From the viewpoint of those outside the Islands, it is important to maintain landscapes and scenery suited to the World Natural Heritage Sites in the non-protection areas. Attracting attention from outside the Islands will raise residents' awareness, and it is expected that it will stimulate motivation towards inclusion to the World Natural Heritage Sites.

Based on these circumstances, development of landscapes and sceneries suitable to the World Natural Heritage will be promoted through efforts with residents' positive participation.

4-36 Kagoshima Prefecture Tourism Promotion Basic Policy

Basic Policy of the “Kagoshima prefectural ordinance for a tourism-oriented prefecture.” (Excerpt)

Part 1 Basic Objective

1. The definition of “tourism-oriented prefecture”

Currently our country is encountering a major transformation period in every aspect of society. We are experiencing rapidly progressing globalization, full-scale population decline and the onset of a quickly aging society. In our prefecture, there are specific concerns of the decline or regional vitality due to depopulation of rural areas and the aging population.

On the other hand, our prefecture is blessed with “authentic” resources, such as rich biodiversity, beautiful natural landscapes, distinctive history, culture, and diverse ingredients for food.

We also believe that in this era of Asia, this prefecture has a huge geographical advantage because it is the opening to the south, and has the potential to make a great leap as a gateway to Asia in the future.

Tourism is vital to the health of our region. Also tourism benefits a wide range of related industries such as agriculture, forestry, fisheries, and other commerce. The promotion of tourism will improve the local economy by bringing more people to our area, and will also create and increase employment opportunities, or participation in the local economy.

In addition, to economic benefits, the process of various efforts to promote tourism will offer a great opportunity to rediscover our heritage and showcase the natural environment, scenery, history, and culture of our area. We can also bring attention to the area by promoting the regional motto, "Good to live, good to visit." By doing so, it is expected to lead to the creation of a sustainable and developmental community.

By promoting tourism, we will create a rich and vibrant community and society. Our goal is to build upon and improve the sustainable development of the regional economy. It is our belief that the combined efforts of the contributing local entities and tourism-related organizations will steadily advance the creation of a community that is respected by other districts in each prefecture. This will greatly contribute to the establishment of a “powerful Kagoshima”.

In order to establish Kagoshima as a "tourism-oriented prefecture", it is important to accurately understand tourism demands. By assessing demands, we can better design our tourism promotion policies and corporate activities to meet customer needs. With this in mind, we must develop tourism products and services that match customer demands, and promote effective attraction activities. We also believe that it is necessary to advance strategic initiatives such as the promotion of environmental management.

2. Background and purpose of formulation

In March 2008, the "Kagoshima Future vision" was formulated, which outlines the medium and long-term status of this prefecture as well as the future direction. This vision states that Kagoshima should be seen as a sightseeing destination that fascinates the world and outlined the future ten-year vision for Kagoshima.

In addition, in March 2009, The "Kagoshima prefectural ordinance for tourism" (hereinafter referred to as "the ordinance") set out the basic items of each role and measure.

It states that every citizen of the prefecture should deepen their understanding of the "tourism-oriented prefecture ", and accept responsibility to educate future generations, and cooperate and collaborate with prefectures, municipalities, prefectural citizens, tourism-related business operators, and tourism-related organizations in order to deeply understand the “tourism-oriented prefecture “.

The Kagoshima Prefecture Tourism Promotion Basic Policy (hereinafter referred to as "the Basic Policy") is a complete and comprehensive measure and policy in order to achieve "Kagoshima's Future Vision" and promote tourism in Kagoshima. In the fiscal year 2009, public comments will be implemented and discussed at the "Kagoshima Prefecture Tourism Promotion Council" per ordinance and voting at the prefectural assembly. After the decision was made, the Basic Policy will be planned to establish the timeframe for 2010 to 2014 and move ahead on policies and measures, and now various measures are being worked on. Also, the current Basic Policy is being followed, and the next Basic Policy is being created. Based on this Basic Policy, municipalities, citizens, prefectural citizens, tourism related business operators and tourism related organizations are working together in order to establish a "tourism-oriented prefecture in Kagoshima". Measures aimed at the goal will be promoted.

3. Characteristics of Basic Policy

The Basic Policy is based on the philosophy stipulated in the ordinance. It outlines the future ten-year vision for Kagoshima. Its purpose is to meet the goal of establishing a "tourism prefecture in Kagoshima." In addition, the Basic Policy includes the responsibilities of the prefecture, municipalities, citizens, tourism-related business operators, and tourism-related organizations to recognize and respect each other's characteristics, roles and to unite in order to establish a "tourism prefecture in Kagoshima". It is a guide (guideline) to comprehensively and strategically accomplish the establishment of a "Tourism prefecture in Kagoshima".

Part 4 Action Guidelines to Establish "Tourism-Oriented Prefecture in Kagoshima"

Each region must play a role and take responsibility in creating regional tourism. These responsibilities are not limited to the tourism industry. Various entities performing diverse projects and activities share the mission and purpose for the region while trying to cooperate beyond the boundaries of industry.

For these reasons, using the following five action guidelines as a basic viewpoint to establish a "tourism prefecture in Kagoshima will be fulfilled."

All parties responsible for sightseeing share a score based on these areas and are required to play their respective roles.

1. Designing an area

- Determine the resources unique to the region such as local nature and landscapes, history, culture, food, traditional arts, etc and explore their charms from the viewpoint of sightseeing.
- Aim to construct diverse tourism selections that enhances regional attractiveness, such as narrative and thematic trips that take advantage of regional characteristics.

2. Deliver the message from the region

- Deliver a consistent message by having a common understanding of the vision.
- Understand the views of the audience and create a strategic plan to disseminate information.

3. Connect regions

○ Facilitate collaboration within the regions, strengthen ties between organizations and industries within the regions, and link tourists with people living in the areas. This will lead to the creation of new regional attractiveness.

○ As regional partners promote improvements and enhancements of the traffic access connecting the regions, and focus on wide-area tourism, so that each region mutually complements each other. This will enhance the attractiveness of the whole area and synergistically expands each region throughout the area.

4. Hospitality in the region

○ Everyone who visits should do so with peace and comfort. Aim to be a tourist destination where travelers feel they want to visit again. The goal is to foster a feeling of hospitality that warmly welcomes tourists which spreads to the whole area.

○ Based on the recognition that "people are important regional resources", discovering and developing human resources who see the attractiveness of the region by providing high quality training regarding specific features of the community will proceed.

○ Provide information and services required by tourists, enhance functions of automated tours, etc, and prepare destinations corresponding to the needs of tourists throughout the region.

5. Protect the regional environment

○ This region of Japan has a lot of biodiversity that naturally attracts tourism. It is necessary to utilize the natural environment through protection.

○ In addition to protecting the natural environment; protection of the residents' lifestyle environment is needed. It is greatly desired to create a mutual feeling that this region is a good place to live, visit, and share the experience of this region's rich history and culture.

○ Using Yakushima (famous as a World Natural Heritage Site) as a model, environmental conservation and development of the region in harmony with the environment will be actively engaged.

○ Aim to show the world-renowned natural heritage of the Amami Island Group. Each island is different in its flora and fauna. Actively promoting the Amami Island Group as a World Natural Heritage Site, Kagoshima can establish the image of creating a tourist destination that coexists with the natural environment.

Part 5 Measures to Establish "Tourism-Oriented Prefecture in Kagoshima"

Section 2 Direction of measures

Oshima region

Amami-City, Yamato-Village, Uken-Village, Setouchi-cho, Tatsugo-cho, Kikai-cho, Tokunoshima-cho, Amagi-cho, Isen-cho, Wadamari-cho, China-cho, Yoron-cho.

<<Regional characteristics>>

There are the following attractive tourist resources.

- The subtropical climate and rich natural marine environment of Kinsakubaru the original natural forest, Oshima Strait, Mt. Yuwandake, Inutabu Cape, Mushiroze, Fu-cha (cave), Yurigahama (beach), Tebiro-kaigan (Tebiro coast), and rare plants and animals such as the Amami rabbit.
- Local produce such as authentic Oshima-Tsumugi weave (type of pongee), Kokuto-Shochu (liquor distilled from brown sugar), tropical fruits and local foods such as Keihan (dish of seasoned chicken with rice, pickles, etc.)
- Various traditional festivals and events such as Shodon Shibaya, Agina's Arasetsu festival, Yoron Island Jyugoya dance, Shima Uta (Shima song), Hachigatsu Dance, Bullfights and iron man race
- Historical resources such as Ushuku Kaizuka and Sumiyoshi Kaizuka, which are designated as historical sites by the government
- Amami Park, Tanaka Isson Memorial Museum, Thalasso Amami no Ryugu, Kuroshio no Mori Mangrove Park, Hyakunodai Park, ShoRyuDo, and unique tourism-related facilities such as the forest of the Amami Nature Observation.

Having these attractive tourism resources as a background adds to this region's already existing healing characteristics.

<<Direction of measures>>

We will proceed with the development of the region by maintaining the natural trails in harmony with the natural environment while working on the World Natural Heritage registration of the region in collaboration with Okinawa. Based on the characteristics of the region, this area can promote its rich and unique environment and culture such as ocean recreation and cultural-based song to the island (Shima song).

We will promote LCC (Low Cost Carrier) services and establish an acceptance system compatible with cruise ships. These systems will include a formation of wide-ranging tourist routes within the Amami Island Group. We will promote unique foods and healing therapies such as thalassotherapy; which will appeal to various groups such as sport camps.

Section 3 Expansion of measures

Based on the “system of polices” in the prefecture, the following measures base on Part 4 “Action guidelines to establish tourism-oriented prefecture in Kagoshima” will be developed.

Creating a tourist region with attractive healing benefits

In order to create a competitive tourist attraction the unique characteristics of each area (both city and nature) will be utilized by conserving the rich natural environment. This will create an ideal tourist destination for those looking for healing through nature and food because it is in harmony with nature.

①The conservation, utilization and creation of regional tourism resource

We aim to create and enhance new travel products unique to Kagoshima that accommodates the diverse tourism needs through the preservation of rich natural beauty and culture of the area such as story telling of the

area's history and the conservation of natural resources with cooperation among government, industry and academia.

< Examples of implemented measures >

- Promotion of various events utilizing the resources unique to the areas
- Promotion of utilization of the historical heritage and culture as tourist resources
- Promotion of the establishment of transportation routes, connecting each tourist resource in the region.
- Promotion of development and economic stimulus in a variety of communities in the region
- Promotion of utilizing cultural art centers

② Securing high-quality services that make full use of local strengths

The highest quality services will consistently be promoted by working closely with a wide range of industries including agriculture, forestry, fishery, and manufacturing. The goal is to create unique products produced by using local foods, nature, and ancestral know-how with these products and services.

< Examples of implemented measures >

- Promotion of utilization of local agriculture, forestry, and fishery products cooperated by producers and tourism-related business operators
- Creating a brand of 'Kagoshima's food' that is safe and secure
- Promotion of value added local produce
- Promotion of value added tourism such as the allocation of tour guides

③ Maintenance of tourism-related facilities

In order to make it easier and more comfortable for tourists to visit, we will promote improvements of roadsides and city scenery. Create easier access to transportation networks (bus, train, etc.), as well as domestic and overseas flights.

< Examples of implemented measures >

- Promote maintenance and improvements of streetscapes unique to the cities, urban areas, parks, waterfront environments, etc.
- Improvement of public transportation networks connecting both domestic and overseas areas, as well as enhancing regional public transportation networks, and the maintenance of highways.
- Improve tourist access and convenience of the Osumi area; known for Cape Sata and its surrounding areas which is a famous nationwide tourist destination located at southernmost tip of the mainland.

- Promoting the development of tourism-related facilities

④ Development of new types of tourism

Various types of exchanges of tourism through interactions with the local people, life, culture, etc; in relations with the seasons, and cultural history of the area will be promoted.

< Examples of implemented measures >

- Promote new types of sightseeing tours such as community-based tourism, green tourism, blue tourism, ecotourism, walking tours, and industrial tourism.
- Promotion of new tourism, that focuses on long staying visitors for the purpose of healing and beauty.

⑤ Conservation of the environment in tourist spots

A sustainable tourist resort will be created and promoted, as well as the utilization and conservation of natural tourist resources, maintenance of enriched biodiversity, and beautiful tourist destinations. Efforts are also being made to register the Amami Island Group as a World Natural Heritage.

< Examples of implemented measures >

- Promote harmonious interactions between the natural environment and tourists.,
 - * Promotion of ecotourism
 - * Maintenance and management of natural sidewalks and preservation of the natural environment
 - * Awareness of environmental issues and the manner of how they should behave
- Promotion of environmental preservation by hosting activities such as preservation of natural environment and wildlife at tourist destinations
- Planned tourism management - Zoning protected areas and buffer areas in tourist destinations
- Management and preservation of natural parks.

4-37 Master Plan of the Amami Island Group Sustainable Tourism

1. Beginning

1.1 Background

“The Master Plan for sustainable tourism in the Amami Island Group (hereinafter called “The Master Plan”) is a policy to actively promote “the sustainable utilization of tourism” in the Amami Island Group. Promoting local sustainable tourism associated with the preservation of the natural environment in a planned and consistent manner, utilizing local resources. The aim is the preservation and succession of environmental culture¹, and the promotion of the local economy and society.

(1) Why promote sustainable tourism?

Sustainable tourism seeks the sustainability of society, economy and environment, and is a new style of tourism expecting to replace mass-tourism.² Mass-tourism is a phenomenon in which tourism used to be limited to the rich, but has spread more widely to other economic classes³, and has recently been referred to as the “mass tourism phenomenon”⁴. Mass-tourism, which brings a large number of people has been giving great impact to tourism sites and their surroundings. This has caused the destruction of the natural environment, local communities and their traditions, and also troubles of inappropriate tourist facilities, in which the lack of manners and ignorance of the tourist was highlighted. In reflection of these problems, new modes of thought “Alternative tourism” and “Appropriate tourism” were generated in the 1980s, instead of mass-tourism. Based on the principle of “sustainable utilization of local resources” and “coexistence with nature”, new local community development in the Amami Island Group aims toward the realization of a sustainably fulfilled local community. Aiming toward “sustainable tourism” as one aspect of local development means to show “objectives which are easily understood and make effort” toward local people. In “tourism” programs which local communities are proactive in doing, there are many people engaged, not only tour agencies but also local people, and it directly contributes to the promotion of the local community and economy. Therefore, aiming for the realization of sustainable tourism in the Amami Island Group through the use of the Master Plan Guide will help ensure the sustainability of the local nature, culture, economy and community while using “tourism” as a tool which is very closer to the relevant local constituencies. We will positively use the Master Plan as a tool to preserve the natural environment and the succession of the environmental culture, which has been greatly changed by World Heritage registration, as well as to pursue the promotion of the local community and economy. The Master Plan is one of the ways of thinking to develop “a

¹ Environmental culture: It is the relation between nature and people, which built up for many years, and it is the local life and culture that people formed while getting meal without destructing nature.

² “Towards the sustainable earth from self-sustaining tourism~Challenge of the ecotourism~” (tentative translation title), Shikida Asami. Research Faculty of Media and Communication, Hokkaido University, Series of researches 70, 2008

³ “JTB Tourism Research & Consulting Co.”, <http://www.tourism.jp/tourism-database/glossary/mass-tourism/> (Access date: 2016/3/15)

⁴ “A Study on Requirements for “Sustainable Tourism”: Two Process for Constructing the Concept, Miyamoto Yoshinori. Aichi Toho University publication, Vol.38,2nd issue, December, 2009

new local community” where various local proactive agencies use tourism as a method and they will be connected for the preservation of the natural environment and promoting and improving the wealth of the Amami Island Group.

(2) What is sustainable tourism in the Amami Island Group?

Reflecting on the negative effects of mass-tourism, new tourism types such as ecotourism and green tourism were born.

Ecotourism is defined as “the experience and study of the natural environment while minimizing the burden of it, and providing appropriate benefits and contributions to local destinations of tourism sites (Shikida, Shigemori, 2003)”, “The idea of tourism to experience and study the subjects of natural environment and historical culture, and have the responsibility for preserving the natural environment and historical culture of local target tourism sites, (Ecotourism Propulsion Council, 2003~2004, Ministry of Environment)” and so on. The aim is to preserve the natural environment while promoting the tourism industry and local community. However, promoting tourism types like ecotourism and green tourism are not necessarily equal with achieving sustainable tourism. The causes of the negative effects of mass-tourism, which have been considered problematic, are not popularization and extension of tourism, but it because that tourist industry kept going without preparing proper structures to reduce bad effects toward tourism related sites and people. In the existing mass-tourism model, the aim is to pull in excessive amounts of customers in the short period in the pursuit of profits by outside constituents, which tends to progress the commodification of local resources, regardless of the local community’s intentions. Usage by many people or groups of people, which is the characteristic of mass-tourism, brings great economic effect to local sites.

If ecotourism only had formal characteristics such as “small number of people-based”, “experience-based” and “community-based”, its might give a lot of burden to tourism sites like the existing mass-tourism system. Furthermore, depending on the planning, even mass-tourism can be sustainable, and it brings great positive effects to the local economy, utilizing the advantages of it. On the basis of prior experience, the promotion of tourism from a viewpoint of the community development should be considered, and it is necessary that local community manage it by themselves.

According to our experience, to make the Amami Island Group tourism sustainable, it is important to clearly divide into distinct areas for the usage of both large (mass-tourism) and small groups of people, and it is important to manage local tourism appropriately by using each area’s uniqueness.

1.2 Definition

Since the Amami Island Group has been registered as a national park and World Natural Heritage Site, approaching the local society's sustainable development, while the protection and succession of diverse rich nature and environmental culture is demanded. Therefore, to cope with the change of local society and economy after the heritage registration, it is important to promote a new "building local community" based on the heritage value principle of the preservation of the natural environment. This Master Plan is defined as a common guideline among relevant related authorities, namely the central government, prefectural governments, municipalities and private sectors, to promote "Systematic tourism management", which is one of the strategies of the Amami original community development. Through promotion of the sustainable usage of tourism, we seek preservation and succession of the Amami's peculiar nature and environmental culture, and sustainable development of the community.

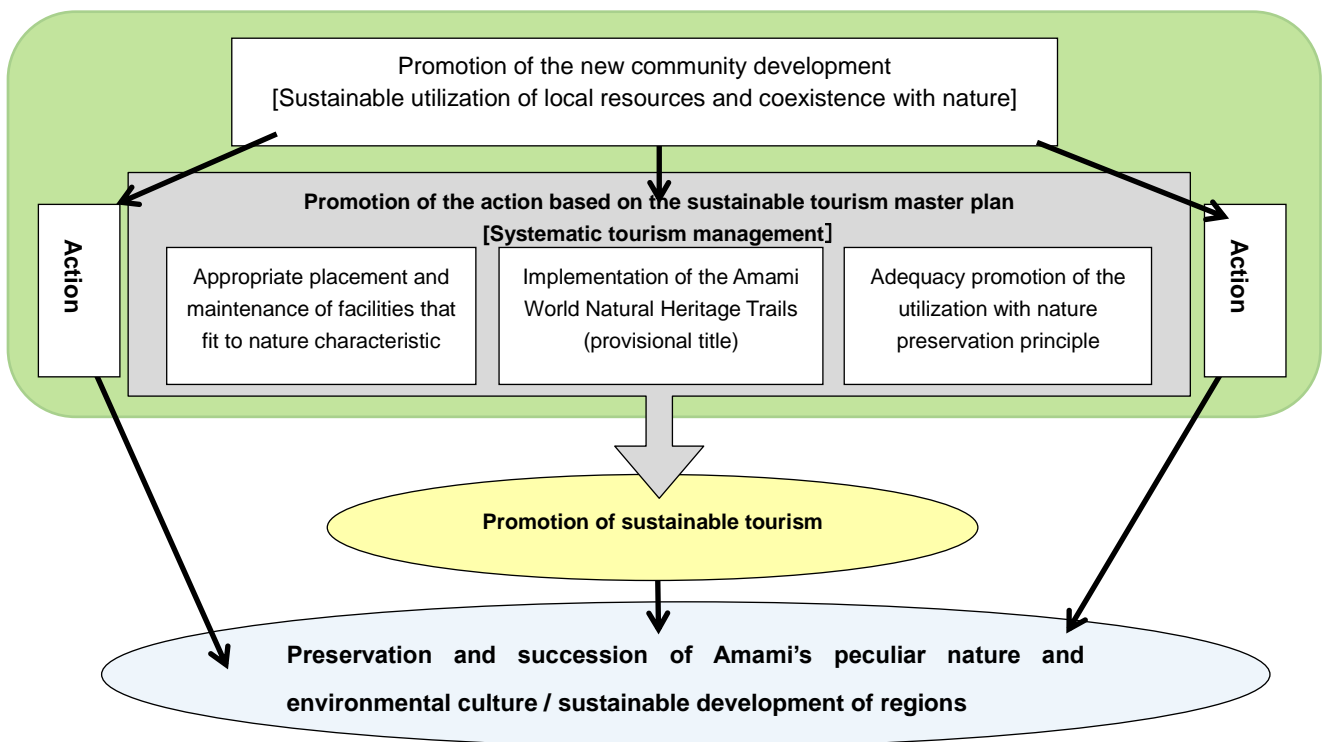


Figure 1 Framework of the Master Plan

2. The recent conditions and problems of the Amami Island Group

2.1. Nature and life

The original rich natural environment has been preserved, and the livelihood and faith at Shima (village) continued having a close relationship with the natural environment. You can experience it in the current lifestyle, and deep environmental culture in the community. This experience becomes an attractive reason the Amami Island Group.

(1) Biodiversity in Kagoshima prefecture

Through 600km from Shishijima Island (northern edge) to Yoron Island (southern edge), there are mountain areas, which are over 2,000 meters above sea level in Kagoshima, and you can see the vegetation of cool-temperate, warm-temperate and subtropical zones. It corresponds approximately to an expanse from Hokkaido to the Nansei-Shoto Islands. Kagoshima is the both northern and southern limit of many kinds of species along Japanese islands. In Kagoshima, there are many islands having a long history after isolation from the main island. Therefore, almost a half of wildlife species, which are seen in Japan, can be confirmed, and they contain a variety of rich species. In addition, Kagoshima prefecture belongs to two biogeographical regions separated by Watase's Line⁵, which cuts through the Tokara Islands. Biogeographical regions are divisions of the Earth's land surface, based on the distributional patterns of terrestrial organisms. The warm-temperate group of organisms locates on the north side of Watase's Line, and the subtropical group of organisms locates on south side of it.

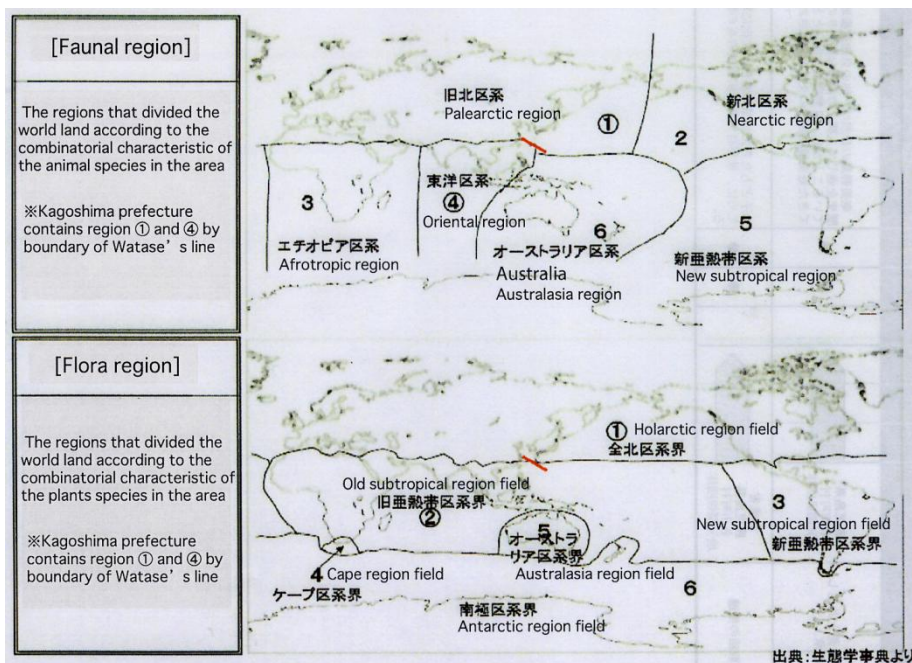


Figure 2 World Biogeographic Region (Red line is the Watase's Line: between Akuseki Island and Kodakarajima Island)

⁵ Watase's Line: A biogeographical regional line that cuts through the Tokara Islands to the east and the west which is located between Yakushima, Tanegashima Island and The Amami Island Group. It divides two biogeographical regions. Biogeographical regions are divisions of the Earth's land surface, based on the distributional patterns of terrestrial organisms. They were confirmed by the zoologist, Shozaburo Watase, and named after of him. It is an important boundary line for the distribution of Japanese flora and fauna.

(2) History of the Amami Island Group

The Nansei-Shoto Islands, which include the Amami Island Group, are located on the border of the Eurasian plate and the Philippine sea plate, and it was formed by the formation of the Okinawa trough 15 million years ago, a series of ridges and troughs created by crustal movement, the change of the sea level due to climate change from 1.7 million years BCE, and sedimentation of the Ryukyu limestone with the development of the coral reef.

The current Amami Island Group contains eight inhabitant islands, Amami-Oshima Island, Kakeroma Island, Yorojima Island, Ukeshima Island, Kikaijima Island, Tokunoshima Island, Okinoerabu Island and Yoron Island.

(3) Nature environment

① Geography: A variety of scenery and organisms on every island.

Among the Amami Island Group, Amami-Oshima Island (including Kakeroma Island, Ukeshima Island and Yoro Island) and Tokunoshima Island are relatively high-altitude islands with precipitous mountains. These islands have few flatlands and most of the land areas are covered by forest. The dominant tree species are evergreen broadleaf trees such as *Castanopsis*, *Distylium racemosum*, *Schima liukiuensis Nakai*, *Quercus miyagii* and *Amamiana hatusima*. Because there are many mountains, there are also many valleys, and swamps with enough water volume and small rivers are frequently seen in these islands. In addition, Kuroshio warm current and monsoon, which flow through the coast, brings rain. Near the northern latitude of 27 and 28 degrees where the Amami Island Group is included, there are countries such as Pakistan, Saudi Arabia, Egypt, Morocco and Mexico. There are not so many areas that have a large amount of precipitation and richly developed forests at this latitude, like the Amami Island Group. The Amami forest is a humid laurel forest that only exists in very limited areas in the world's subtropical zone, and it is a rare area in the world. These forest are not only the habitation of many wild animals and plants including endemic species, but also delivering organic substances and nutritious salt to mangroves, tidelands, seaweed beds and coral reef by river flow, which is the basis of the ecosystem of the Amami Island Group.



Mt. Amagidake Waterfall
(Tokunoshima Island)



Gregariousness of Otani-watari:
Asplenium antiquum (Yuwan river,
Amami-Oshima Island)



Subtropical evergreen broadleaf
forest (Amami-Oshima Island
central forest road)

Figure 3 Evergreen broadleaf forest of the Amami Island Group

On the other hand, Kikaijima Island, Okinoerabu Island and Yoron Island are lower flat islands, which are created by the Ryukyu limestone from the original coral reef. Kikaijima Island is continuing to rise at the speed of 1.5m per 1,000 years. Even though there are evergreen broadleaf forests such as those on Amami-Oshima Island and Tokunoshima Island which are spread around the Hyakunodai (203.2m above sea level), Kikaijima Island's highest point and Daisen (240.1m), Okinoerabu Island's highest peak, you can see typical subtropical ocean areas and undersea scenery around coastal places of these islands, such as coral forests and mangroves. Furthermore, there are a lot of calcareous caves underground on Okinoerabu Island and Yoron Island. As described, the Amami Island Group has a variety of sceneries on each island.



Hyakunodai hill
(Kikaijima Island)



Shoryu-do limestone cave
(Okinoerabu Island)



Terasaki beach (Yoron Island)

Figure 4 Sceneries of Kikaijima Island, Okinoerabu Island and Yoron Island

②Endemic species

The Amami Island Group was formed by repeated separation and combination with the Eurasian continent. In the process of establishment a small island group was separated by the ocean, Terrestrial organisms, which were inhabitant of these areas, were isolated in those islands. In these organism groups, some species became extinct on the main continent but survived only in islands, and some of them differentiated in several species after the isolation from the continent. In this way, organisms were born and it became endemic species that only exist in Ryukyu Chain now.

1,334 species of vascular plant (included 68 kinds of endemic species), 14 species of mammals (included 10 kinds of endemic species), 257 species of birds (included 2 kinds of endemic species), 18 species of terrestrial worms (included 13 kinds of endemic species), 13 species of amphibian (included 4 kinds of endemic species), 3,824 species of insect (included 1038 kinds of endemic species), 23 species of freshwater crustaceans (included 4 kinds of endemic species), 226 species of land-freshwater-brackish snails (no information of endemic species) have been confirmed in the Amami Island Group. For example, *Rhododendron latoucheae* var. *amamiense*, *Lilium alexandrae*, *Calanthe amamiana* as endemic species of plants, and Amami rabbits, Ryukyu

long-furred rats, Amami spiny rats, Amami Thrush, Amami jays, Ryukyu grounded geckos, and Ayu fish as endemic species of animal, are included as the Amami Island Group origin organisms.

③Diversity

At the northern part of the Amami Island Group and between Tokara Islands and Kodakurajima Island, there is a boundary line of the biogeographical region called “Watase’s Line” that is the distribution border of varieties of organisms which are gathered, and it is the both southern and northern limits of most of the species.

Accordingly, 132 kinds of plants are assumed in the Amami Island Group as the northern limit. The representative animals, such as Okinawa habu and Okinawa pit viper defines the Amami Island Group as the northern limit, and organisms that cannot be seen on the mainland are living and existing. On the other hand, some northern organisms, which also have seen on the mainland, are also distributed, and twenty kinds of plants assume the Amami Island Group as the southern limit.

According to the above, various elements including the coexistence of organisms from north and south, rich precipitation and moist environment, a history of separation and independence from the continent, create a variety of biota in the Amami Island Group.

There have been approximately 37,000 confirmed organism species in the entirety of Japan, and 5,716 species out of that number are confirmed in the Amami Island Group. Approximately 16% of domestic organism species are confirmed in the Amami Island Group, which is only 0.3% of Japan’s land.

In addition, the Islands group is an important stopping point, wintering place and breeding site for wide-area mobility animals, such as sea turtles’ spawning place, sea birds’ breeding area (Sterna and Bulwer’s petrel), butterflies’ wintering place for Chestnut Tiger butterflies, and marine mammal’s breeding site for dolphins and whales. In the marine area, there are 220 species of hearmatypic coral, and it is forming a typical habitation place for a variety of organism for fish, shellfish and crustaceans. It is an important northern limit location in the world, which has a coherent scale and certain biodiversity of coral reef.

Due to the flora and fauna like above, rich marine biota have also become a factor to improve the biodiversity of the Amami Island Group.



Rhododendron latoucheae var. amamiense



Amami rabbit



Green turtle

Figure 5 Characteristic flora and fauna of the Amami Island Group

(4) History

①Local life and culture

It is thought that human beings have been living in the Amami Island Group since 25,000 years BCE. There have been excavated stone artifacts from the Tsuchihama site in Kasari-chō, Amami-Oshima Island and the

Garasao site in Isen-chō, Tokunoshima Island, and these archeological sites are estimated to be older than the Stone Age, 25,000 years BCE. It is an unusual fact in the world that people already existed in this area before other people had started to live in other islands in the world, after 10,000 years BCE.

Generally, islands don't have enough food resources, so only agricultural people tend to be the first living populations. However, it is considered that an existence of the hunter-gatherer had continued until the Gusuku era from the 8th to the 12th century. Exceptionally, in the islands around the world, the hunter-gatherer have existed in places applicable to one of the conditions or plural numbers as follow; ①large land size like Japan's main island, ②closer to a continent, ③where large marine mammals are available (food purposes), and ④ those who brought in organisms from the continent. It is considered as a very rare example that the hunter-gatherer was able to settle in the small island like the Amami Island Group, which is a remote area from the continent. Natural destruction such as the deforestation and animal extinction happens when a person enters an island, but it was more likely minimal in the Amami Island Group. Since the prehistoric age, the people of the Island continued living together with nature for a long time without causing depletion of resources and environmental deterioration, and have been using resources stably. The hunter-gatherers and the later agricultural people in the Amami Island Group, continued living life in harmony with the natural environment, and it can be called as sustainable life in present terms.

The rich natural environment of today's Amami Island Group existed mostly by local life and the culture that the wisdom to live of creating balance between human and nature, and the art of living are fully applied.



Traditional event to pray for the production of grain, Shyochogama (Amami-Oshima Island)



Stone wall of the coral (Aden village, Kikaijima Island)



Traditional bullfighting (Tokunoshima Island)

Figure 6 Life and culture of the Amami Island Group

②Interchange and trade

The shellfish bracelet, which was found at a Yayoi period site in Kitakyushu, was made from a large shellfish (strombus latissimus, cone shell) of south sea origin. According to this, the Amami Island Group was the south sea's special large shellfish supplier, and it had been recognized as a long-distance trade post since the Yayoi period.

During the Heian era, a great-green turban appeared in the diary of imperial court nobles, and it became raw materials of the domestic Raden⁶. Since the great-green turban was only available from the Ryukyu Chain, it is

⁶ Raden: A Japanese decorative method that uses the cut linings of mother-of-pearl to fit into the surface of engraved

highly probable that it was the source of the material. Moreover, the great-green turban was an important export material of trade between Japan and the Sung Dynasty China. Based on these factors, there was an exchange between the Amami Island Group and mainland through shellfish trade from the Yayoi and Kofun period. At the Kamuiyaki kiln site in Isen-chō, Tokunoshima Island, unglazed ceramics with a gray surface were excavated, which were made mainly between the 11th and the 13th centuries. The distinctiveness of this ruins site is that 11 kiln sites (more than 100 kilns) were distributed in a very large forest of approximately 120 hectares. Since the Kamuiyaki was carried from South Kyushu to Sakijima Islands and products of Kyushu were brought to the Ryukyu Chain with the Kamuiyaki. It is obvious that the Amami Island Group performed the important function to be the base of trade to bind Kyushu and Okinawa Island together.

Furthermore, at the Gusuku archeological site of Kikaijima Island (with the peak between the 11th to the 12th century), many of the old ceramics excavated were brought from China and the Korean peninsula, and a lot of large-scale buildings and many other remains were discovered. Basically, these remains were brought from outside of the Island.

Therefore, the Gusuku archeological site is assumed to be the transborder of the trade base, where people from the Goryeo, the Sung dynasty and mainly from Kyushu stayed. The possibility is suggested that the surroundings of Kikaijima Island were a connecting place for large-range trade in the East China Sea, which was from the southern China to the Nansei-Shoto Islands, Kyushu and the Korean peninsula.

(5) The complicated administration and the unique culture

The Amami Island Group had an unusual historical transition, which was administrated by the Ryukyu kingdom in the 15th century. It belonged to the Satsuma governance from 1609, and was registered to mainland Japan after the Meiji period, governed by the US armed forces in the postwar period, and returned to Japan in 1953. From its historical background that was affected by many countries, the Amami Island Group has developed a unique culture with strong individuality, which coexists with and assimilates characteristics of various cultures. In addition, looking at the Amami Island Group from the view of local life and culture, there is common space recognition, such as the Kaijin (God of sea) that comes over from the Utopia of the distance of the sea to bring fertility, The Kamiyama (God of mountain) that is located behind the village to protect it, a water resource and farmland for the food of the Kamiyama, the Shin-do which is the God's road, and haunting of the Kenmun (yokai) in the neighboring forests and at the borders of villages.

Those are unique faiths and natural views of the Amami Island Group in which people have lived together with, and paying awe and respect to nature. The traditional culture and entertainment such as Shima-uta (Island song), Hachigatsu odori (dance in August), Hounen-sai (harvest festival), and Oshima-tsumugi (type of pongee), which represents the local industry.

Furthermore, there are cardinal rules of using neighboring nature sustainably, and wisdom and skills to make use of the circulation system in daily life in each village, even today. The lifestyle of Island people that live in nature with the feeling of awe and respect to nature has protected and succeeded the nature of the Amami Island Group.

materials such as lacquer ware and woodwork.

However, the relationship between people and nature has been changing rapidly. Therefore, the Amami Island Group’s unique traditional life and culture are not passed down enough among locals, and it is concerned whether it will be handed on to the next generation in the future. Nevertheless, local tradition still plays an important role in the Amami Island Group forming a basis of unique climate still now, and it is considered to be important for preserving and managing the natural environment that includes inheritance sites to the future.

2.2 The general condition of the use for tourism

(1) The number of visitors to the Amami Island Group

① The change of the number of visitors in the Amami Island Group

The total numbers of visitors to the entire Amami Island Group were 708,763 people in 2014, and it is increasing in recent years. This increasing tendency is most prominently visible on Amami-Oshima Island.

Change in the number of visitors

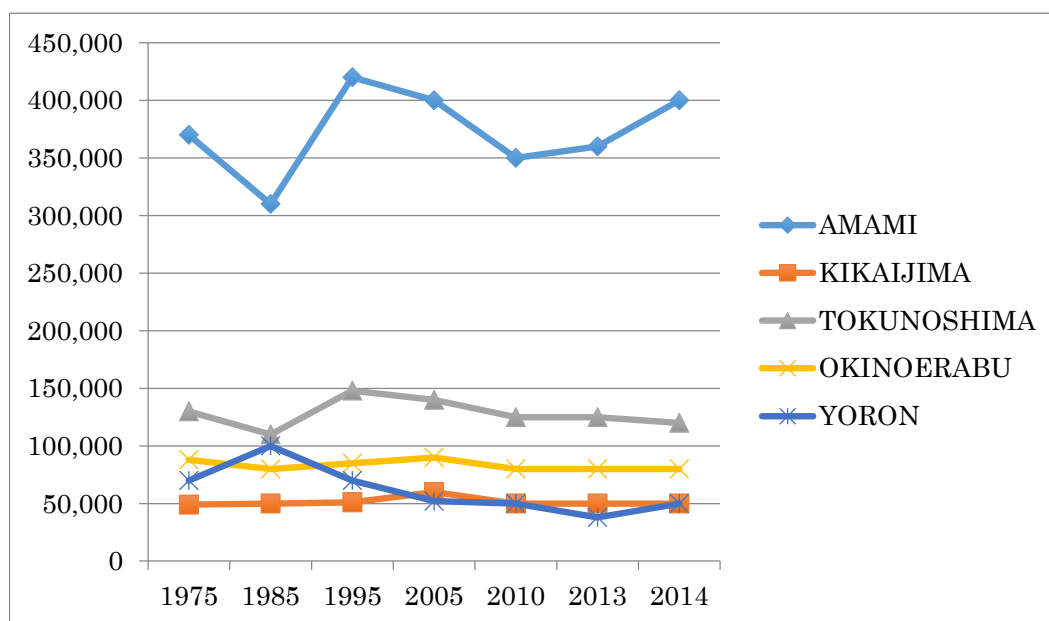


Figure 7 Change in the numbers of visitors

Reference: The general condition of the Amami Island Group in 2014: Oshima Subprefecture

② The total number of the foreign lodgers in individual regions

The numbers of the foreign lodgers from 2012 to 2013 increased nationwide, but it decreased in the Amami Island Group in 2014.

Table 1 The total number of the foreign lodgers in individual regions

2011			2012			2013			2014		
Entire Prefecture	Amami	Composit ion rate	Entire prefect ure	Amami regio n	Composit ion rate	Entire prefect ure	Amami regio n	Composit ion rate	Entire prefect ure	Amami regio n	Composit ion rate
85,280	1,287	1,5	138,120	785	0.6	186,600	1,116	0.6	252,330	1,093	0,4

Reference: Trend of tourism in the Amami Island Group (2011~2014) Kagoshima Prefecture

(2) Transportations and destination

①Traffic

According to the Road Traffic Census in 2010, the traffic in the center of Naze district and the northeastern part of the Island that connects Naze district and Amami Airport are heavy. On the other hand, the traffic in the southwestern part of the Island is light.

On Tokunoshima Island, on Isen-Kametsu Tokunoshima Airport road, which is the collecting road of cargo in the southeastern part of the Island, traffic is heavy. Traffic in the northern part of the Island is light.

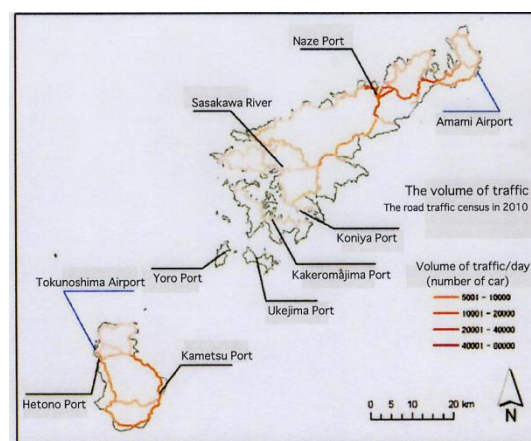


Figure 8 The road traffic in 2010

Reference: Kagoshima prefecture

②Destination

According to a 2015 survey by the Special Mission Committee for Promotion of Amami-Oshima Island, the most visited place was “Naze district, Amami City (65.4%)”, and also “The northern district of Amami-Oshima Island (58.3%)”, “Amami City Sumiyo district (33.7%) follows.

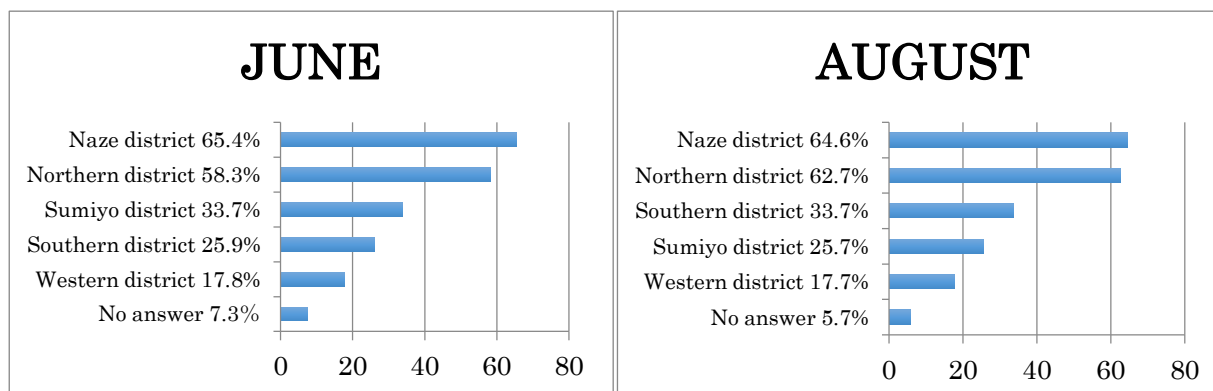


Figure 9 The visitor’s demographic statistics of Amami-Oshima Island in 2015

(Date of June and August) summary reporting (QE)

(3) Capacity of the facilities

The capacity of accommodations in the entire Amami Island Group is for approximately 2.3 million people, and the rate of operations of accommodation facilities is approximately 20%, compared to the number of the annual accommodations. The accommodation facilities and lodgers are concentrated in Amami-Oshima Island.

Table 2

The capacity and annual number of guests at accommodation facilities in the Amami Island Group

Unit: building, person

Unit: thousand

		2008	2009	2010	2011	2012	2013
AMAMI-OSHIMA ISLAND	Number	122	124	121	120	113	118
	Capacity	3439	3428	3547	3482	3024	3091
KIKAIJIMA ISLAND	Number	17	17	16	16	15	14
	Capacity	325	315	295	295	285	272
TOKUNOSHIMA ISLAND	Number	27	23	24	24	32	35
	Capacity	1051	978	950	965	1067	1081
OKINOERABU ISLAND	Number	17	17	16	18	20	22
	Capacity	595	595	554	588	465	481
YORON ISLAND	Number	30	25	25	24	23	31
	Capacity	1986	1597	1597	1577	1342	1379
AMAMI ISLAND GROUP	Number	213	206	202	202	203	220
	Capacity	7396	6923	6943	6907	6183	6304

Reference: The General Condition of the Amami Island Group

Name of island	Municipalities	Number of guests
AMAMI-OSHIMA ISLAND	Amami city	225.3
	Yamato village	1.2
	Uken village	5.3
	Setouchi village	22.2
	Tatsugo town	5.8
	Setouchi town	6.9
Amami Oshima Island's total		266.7
KIKAIJIMA ISLAND	Kikai town	30.1
TOKUNOSHIMA ISLAND	Tokunoshima town	52.2
	Amagi town	16.7
	Isen town	16.7
Tokunoshima Island's total		67.1
OKINOERABU ISLAND	Wadamari town	22.3
	China town	27.9
Okinoerabu Island's total		50.2
YORON ISLAND	Yoron town	65.2
Total		479.3

Reference: The Remote Island Statistic Annual Report 2012

(4) Utility form and needs

① The average length of stay and purpose of tourists

According to the “Interchange Demand Promotion Special Project Effectiveness Verification Survey in the Amami Island Group in 2014”, the rate of air passengers from outside of the Amami Island Group are 29% for 2 days stay, 30% for 3 days stay and 31% for 4 or more days stay.

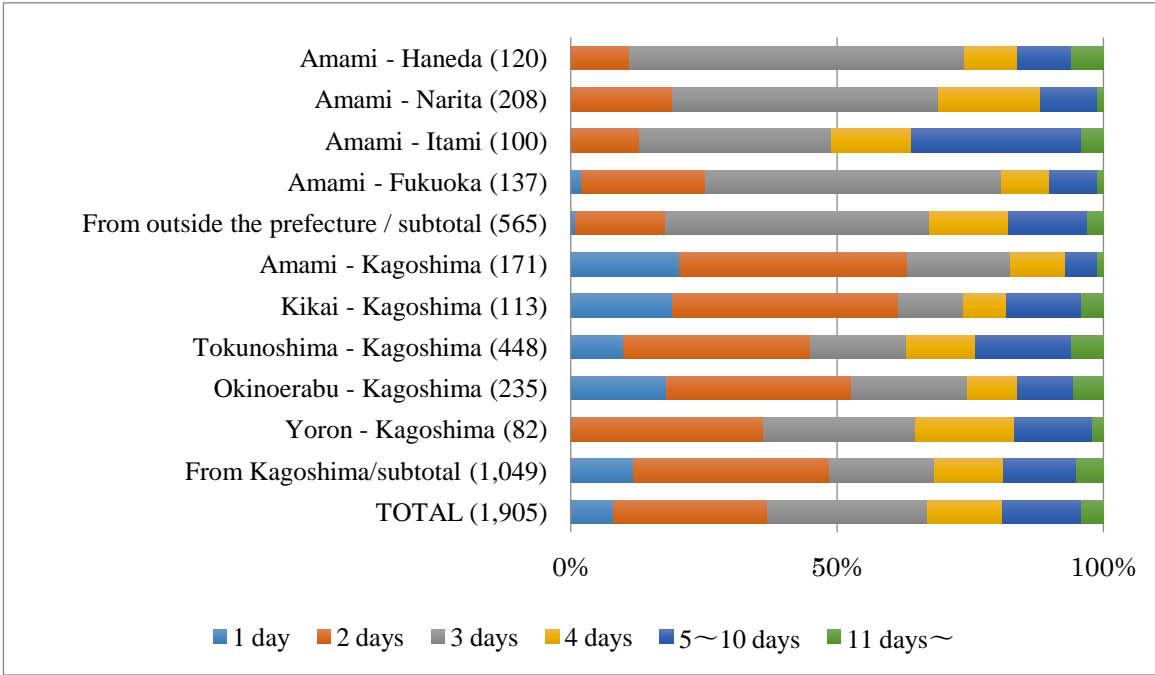


Figure 10 The Amami Island Group Interchange Demand Promotion Special Project Effectiveness Verification Survey

Reference: Committee for fare reduction of aviation and vessels of the Amami Island Group

On the other hand, visitors arriving by ship for 2~4 days stay is 51% and 5~10 days stay is 42% and the length of stay tends to be longer than air user.

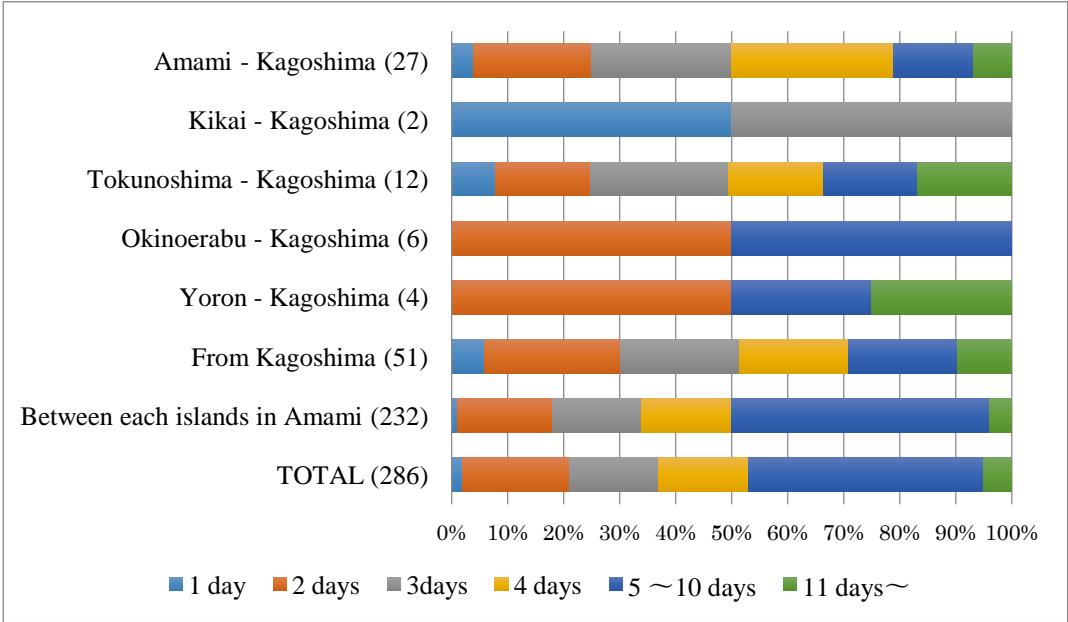


Figure 11 The Amami Island Group Interchange Demand Promotion Special Project Effectiveness Verification Survey

Reference: Committee for fare reduction of aviation and vessels of the Amami Island Group

②The reasons for visiting

The reasons for visiting to Amami-Oshima Island are more often “seeing the beauty of nature”, “enjoying the sea” and “healing tiredness” rather than “enjoying forest” and “experiencing traditional culture”.

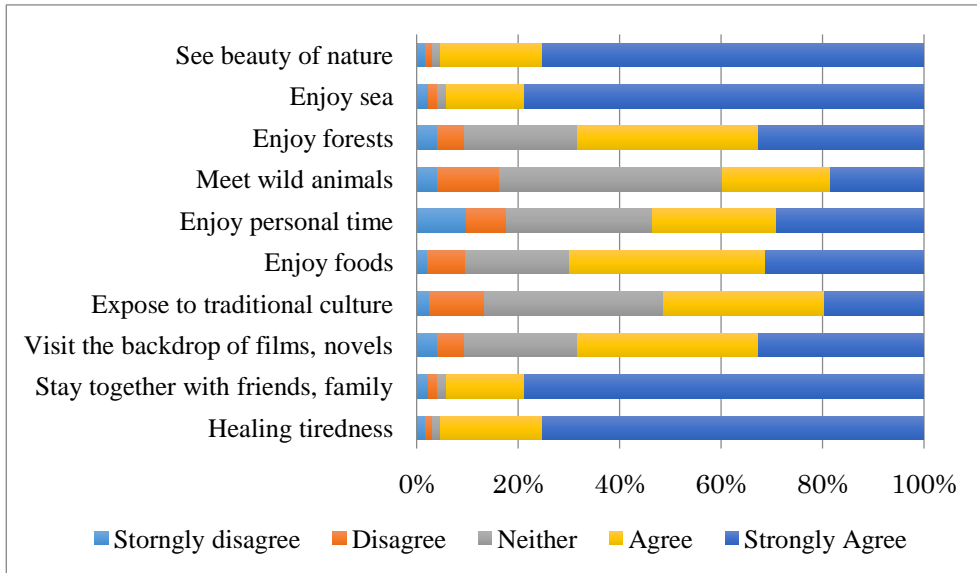


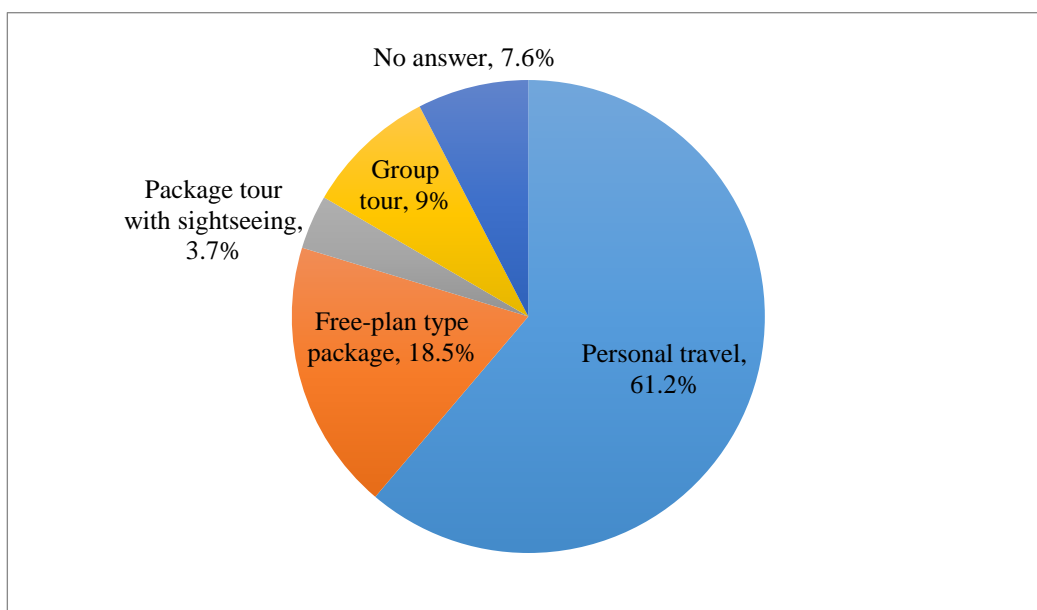
Figure 12 The visiting incentive to Amami-Oshima Island

Reference: The Survey of National Institute for Environmental Studies in 2014: Provided from Mr. Kubo

③The type of visit

According to a 2015 survey by the Special Mission Committee for the Promotion of Amami-Oshima Island, “personal travel (61.2% in June and 73.6% in August)” is the biggest reason, and “Package trip of the free plan type (18.5% in June and 21.5% in August)” is next. “Group travel” is 9.0% in June and 0.2% in August.

JUNE



AUGUST

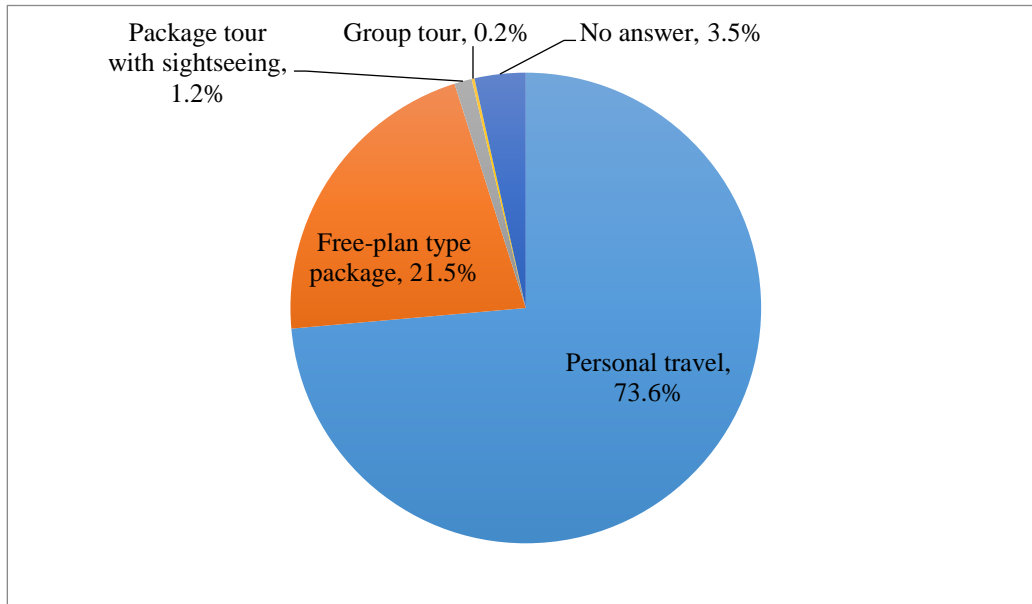
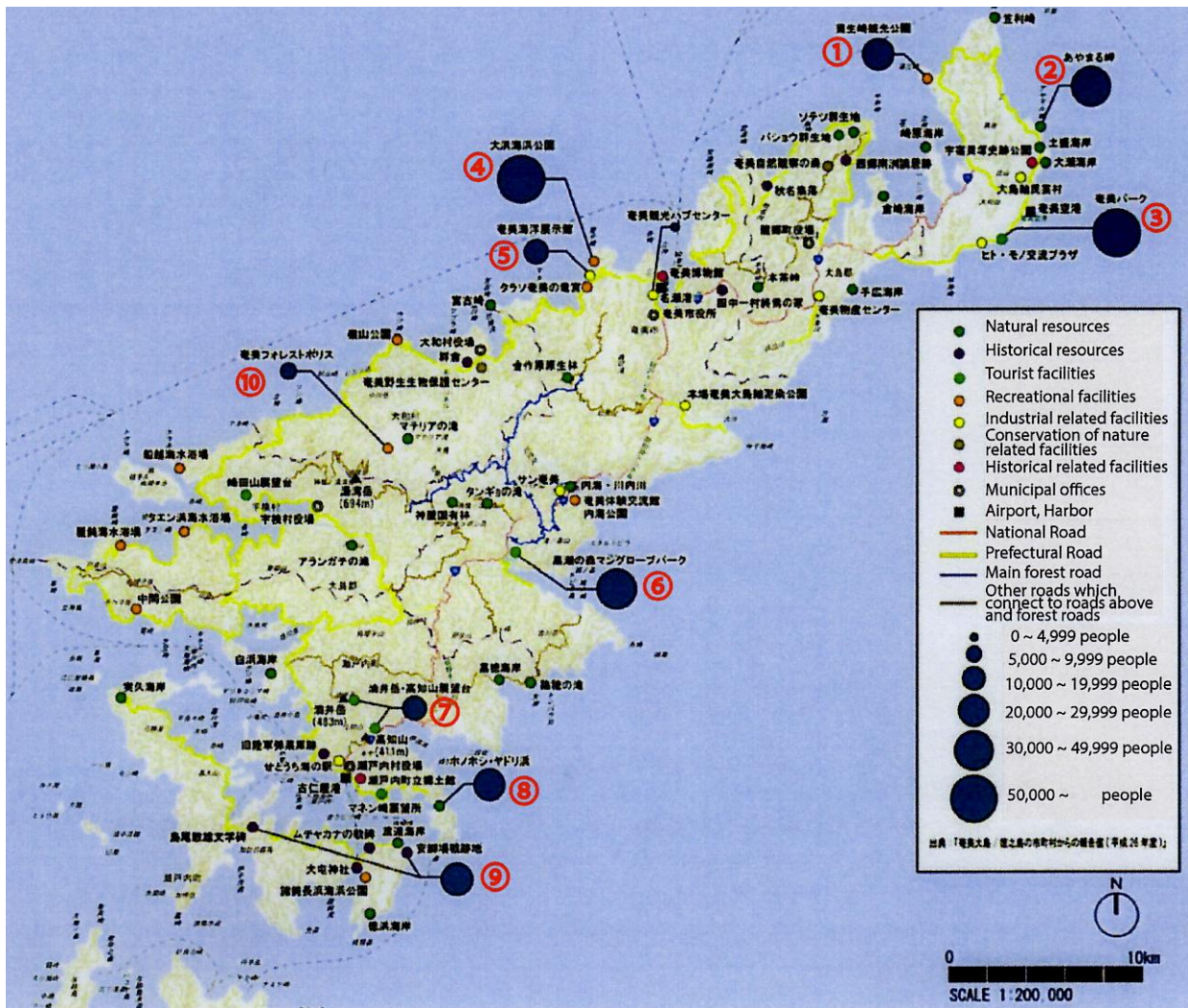


Figure 13 Visitor's demographic statistics of Amami-Oshima Island in 2015 (Data of June and August), summary reporting (QE)

Reference: Committee for fare reduction of aviation and vessels of the Amami Island group

(5)The resource locations and the number of the users

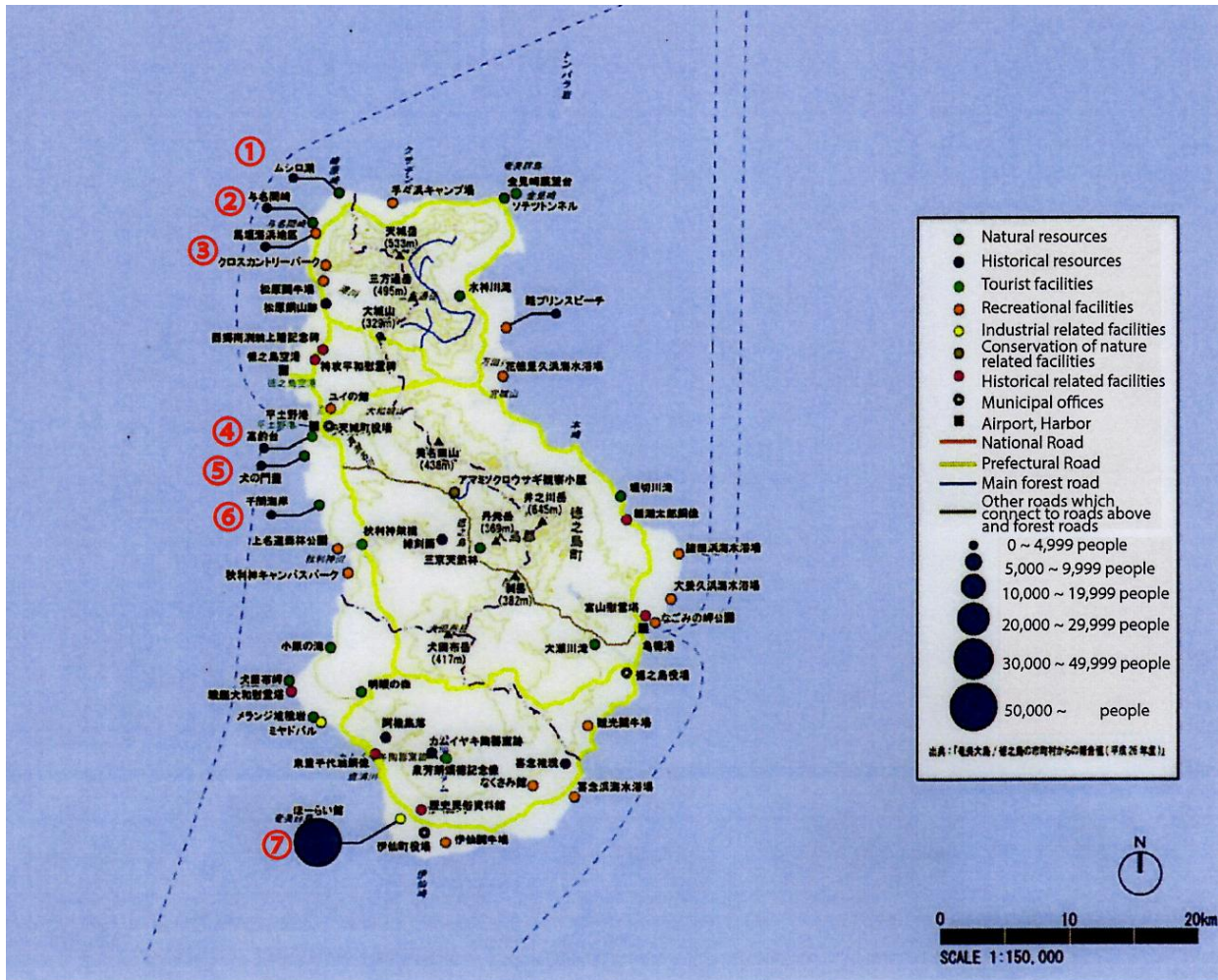
Among the tourist resources and facilities that reported the number of the visitors in Amami-Oshima Island in 2014, more than 50,000 people visited to Amami Park and Ohama Seaside Park, more than 30,000 people to the Ayamaru Cape and the Kuroshio no Mori Mangrove Park, and more than 20,000 people to the Honohoshi-Yadori Beach. The number of the visitors at the Amami Nature Observation Forest in the north and the Amami Forestpolis in the south were less than 10,000. Also, the numbers of the visitors to Kinsakubaru National Forest were 2,321 cars (daily average is 6.4 cars, 16.3% change from the previous year), and 1,631 cars to the Sutarumata forest road (daily average is 4.5 cars, 20.6% change from the previous year) in 2015. (Vehicle counting measuring result by Kagoshima)



- ① Gomozaki Sightseeing Park ② Ayamaru Cape ③ Amami Park
- ④ Ohama Seaside Park ⑤ Amami Marine Museum ⑥ Mangrove Park
- ⑦ Yuidake, Kouchiyama Observatory ⑧ Honohoshi-Yadori Beach
- ⑨ Ankyaba Battle Site Park ⑩ Toshio SHIMAO Monument
- ⑩ Amami Forest Police Campground

Figure 14 Locations of resources and facilities in Amami-Oshima Island
 Reference: Report from municipalities of Amami-Oshima Island (2014)

In Tokunoshima Island, it was only possible to count the number of users at Houraikan, which was more than 50,000. The facility contains a local product market and sports gym, and it has the function of both of tourism facility and local use facility.



- ① Mushiroze Scenic Area ② Yonamazaki Lighthouse
- ③ Umagaki Seashore Area ④ Takatsuridai Hill ⑤ Innojoyofuta Cliff
- ⑥ Senma Beach ⑦ Houraikan Community Center

Figure 15 Locations of resources and facilities in Tokunoshima Island
Reference: Report from municipalities of Tokunoshima Island (2014)

(6) Activities

① Activities during the travel

Regarding activities during travel in Amami-Oshima Island “visiting sightseeing sites”, “bathing and marine leisure”, “enjoying the Amami food”, “meetings and training” and “business” have been increasing. On the other hand, the rate of experiencing the Amami original culture such as “Shima-uta (local song)”, “Oshima-tsumugi”, “events” and “Hachigatu Odori” are decreasing.

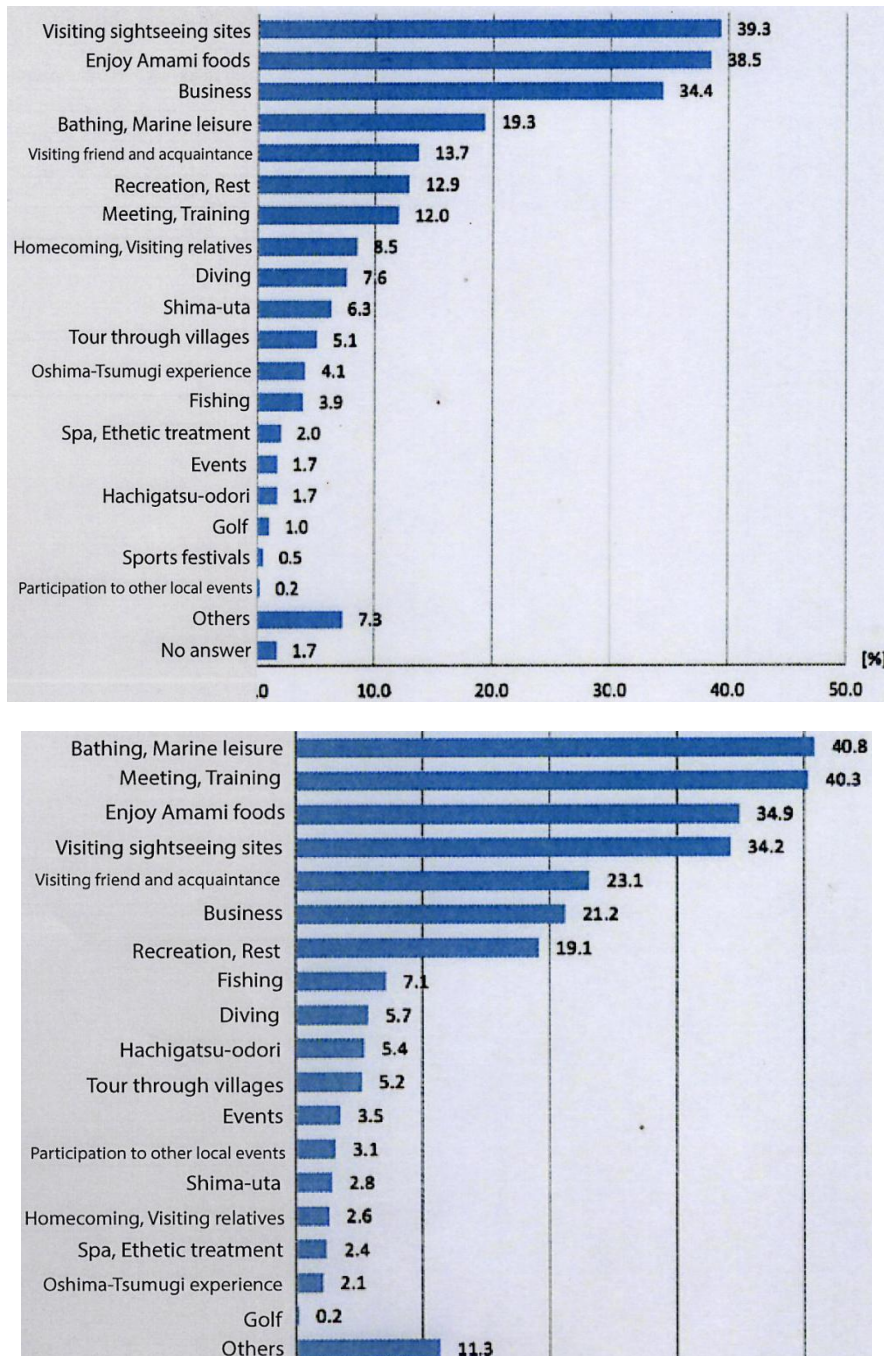


Figure 16 The visitor’s demographic statistics of the Amami-Oshima in 2015 (Date of June and August), summary reporting (QE)

Reference: Committee for fare reduction of aviation and vessels of the Amami Island Group

② Nature using experience

[General overview]

According to questionnaire results, trekking and canoeing through the mangrove forest are popular activities. Moreover, the rate of the nature experience with guide's accompaniment is increasing.

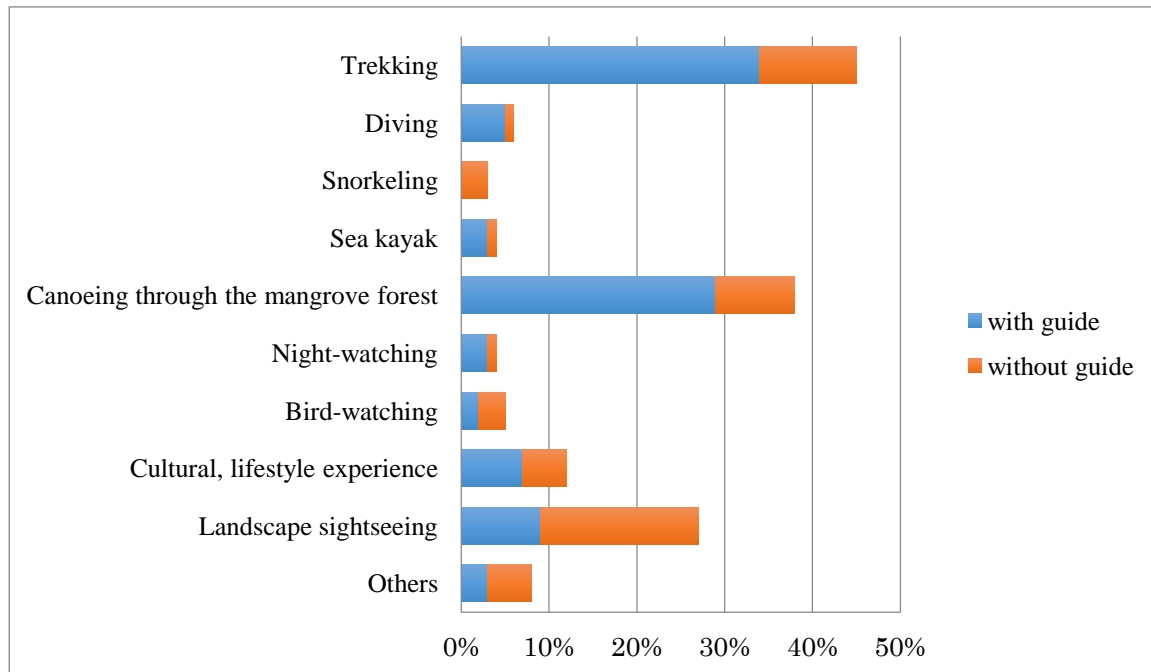


Figure 17 Nature use experience in Amami-Oshima Island

Reference: “The Investigation of Utilization Method of Amami Natural Resources” 2007, Kagoshima

[Forest utilization]

According to the “Investigation and Survey of Utilization Strategies for Forest Areas in Amami-Oshima Island” (Ministry of Environment, 2008), the Kinsakubaru National Forest and the Sumiyo-Mangrove Forest encompasses over 60% of the forest area on Amami-Oshima Island.

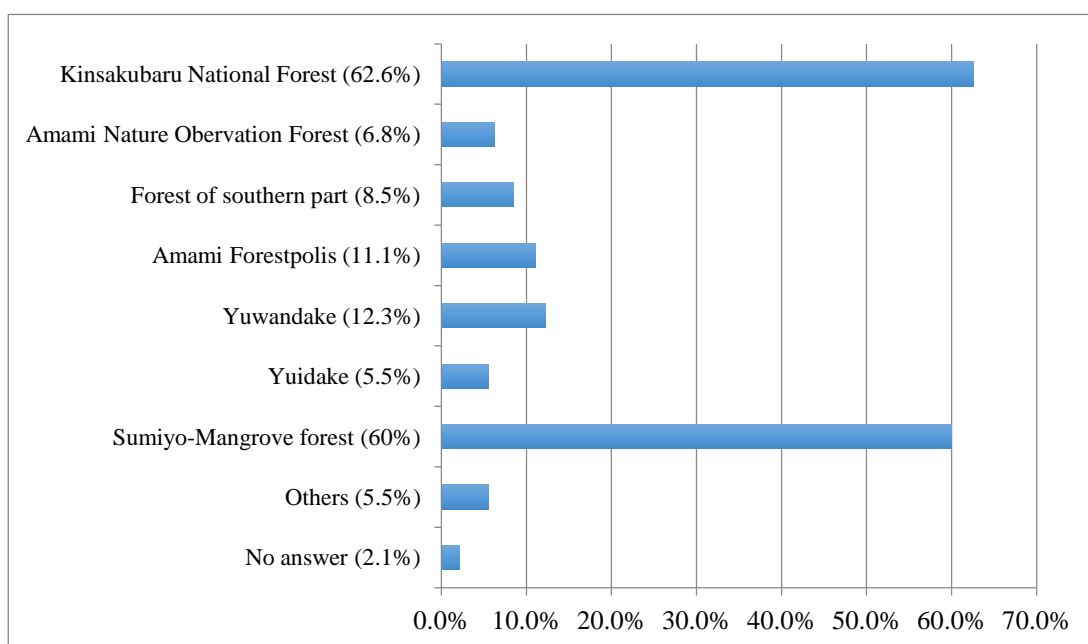


Figure 18 Visiting destinations in the Amami-Oshima forest area

Reference: Investigation and survey of utilization strategy to forest area in Amami-Oshima
(Ministry of the environment, 2008)

According to the vehicle counting investigation of Kagoshima, when comparing the daily average number of vehicles in both year of 2014 and 2015 at Sutarumata Forest Road and Kinsakubaru National Forest, increases have been realized in both places, from 3.9 to 4.5 vehicles at Sutarumata forest road and from 5.3 to 6.4 vehicles at Kinsakubaru National Forest. The growth rate is 16.3% for Sutarumata Forest Road and 20.6% for Kinsakubaru National Forest. It is showing that both the number of vehicles and the growth rate of Kinsakubaru National Forest is higher than Sutarumata Forest Road.

Table 3 The daily average numbers of vehicles at the Sutarumata line and the Kinsakubaru line (2014, 2015)

	2014			2015			Increase-Decrease Rate [%]
	Average	Total	Measurement days	Average	Total	Measurement days	
Sutarumata	3.9	1,018	261	4.5	1,638	361	16.3
Kinsakubaru	5.3	1,555	295	6.4	2,321	365	20.6

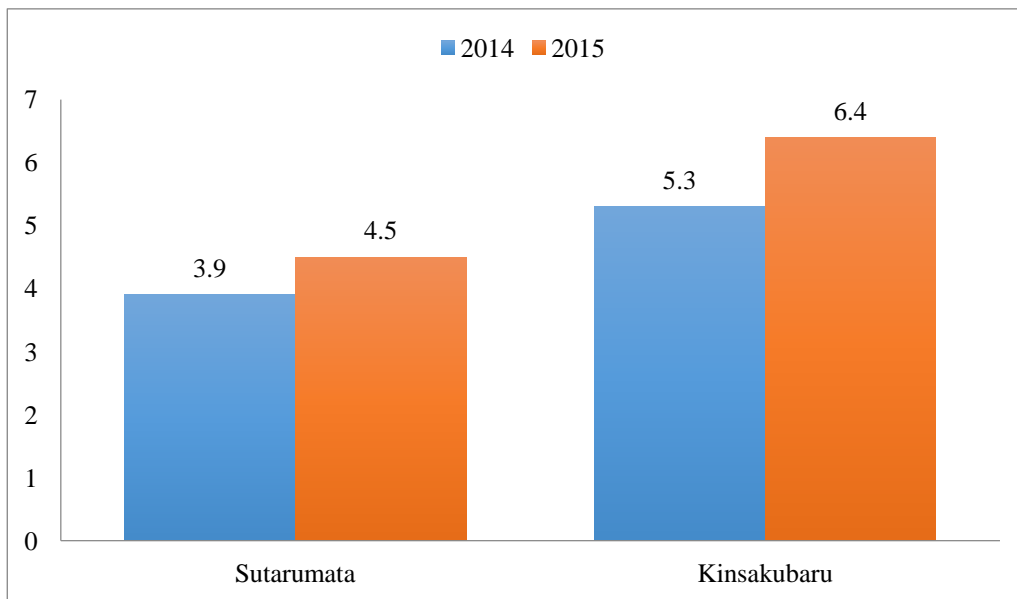


Figure 19 The Number of Vehicles Passing Through the Sutarumata Line (city road) and around the Kinsakubaru Area

Reference: Kagoshima Prefecture

(7) Transition of the number of tourists at domestic World Natural Heritage Sites

Among the domestic World Natural Heritage Sites, the change of numbers of increasing tourists are different according to every site.

- Yakushima Island: After registered as the World Heritage Site, the numbers of visitors are increasing and it has been growing to around 320,000 in recent years.
- Shirakami-Sanchi (white god mountain area): Although the numbers of tourists increased at each town for about ten years, it is returning to a preregistration level in recent years.
- Shiretoko: Although tourists increased for two or three years after registration, it tends to be decreasing since then.
- Ogasawara Islands: The numbers of tourists are increasing drastically since registration time in 2011.

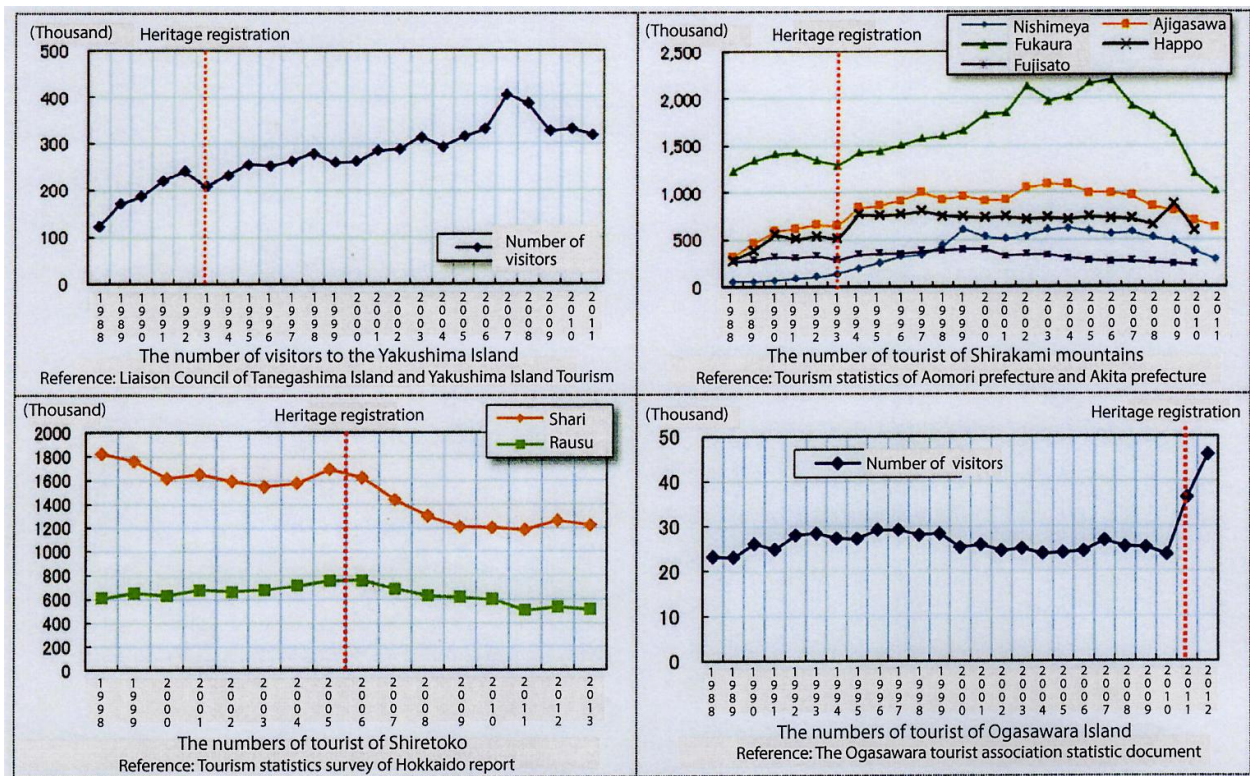


Figure 20 Change of the number of tourists at World Natural Heritage Sites

Reference: The Amami Island Group World Natural Heritage Site Promotion and Registration Project in 2012 (Kagoshima prefecture)

(8) Establishment and promotion action of sustainable utilization by the relevant local individuals

In anticipation of registration as a World Heritage Site, the approach to sustainable utilization is progressing via various relevant authorities such as the central government, prefectural governments, municipalities and private sectors.

① Nature experience promotion

While making the basic policy of ecotourism, organization of the Amami-Oshima Island Ecotour Guide Liaison Council and Eco-Tourism Promoting Council, implementing the cultivation and authorization system of ecotour guides, and executing trial package tours, are ongoing. In addition, green-tourism (taking a relaxed holiday in a forest, or other natural area) and blue-tourism (taking a relaxed holiday at a marine or island area) are also being carried out.

② Explore Shima (local community) and experience local life and culture

There are several experience type plans and actions to enjoy Shima life, such as Amami-shima exhibition, developing and creating a walking course map of Shima by municipalities and NPOs, and experiencing

traditional events and foods.

③Preparation of an acceptance mechanism

The promoting of coordination among Minpaku (B&B or inn) by the establishment of a Minpaku Council, a study group for people to start Minpaku, learning from advanced areas, establishment of a tourism association beyond different municipalities, implementation of a group to think about tourism and Shima as well as searching for resources, and the formation of a local platform function with various related authorities and private sectors are progressing.

④Maintenance project of facilities

Establishment and improvement such as an observatory station, a rest station, a walking trail and information board are commensurate with convenience and comfort.

2.3 Agenda of the promotion of sustainable tourism in the Amami Island Group

1. We will consider agendas of the promotion of sustainable tourism in the Amami Island Group based on ; 1. way of thinking toward sustainable tourism, and 2. current situation in the Amami Island Group (“2.1 Nature and Life” and “2.2 The general condition of the use for tourism”).

(1) The assumable transition after heritage registration, and sustainable utilization of local resources

After the registration of National Park and World Natural Heritage Site, it is expected that tourism users to Amami-Oshima Island and Tokunoshima Island would increase. After heritage registration, it is assumed the number of tourists on Amami-Oshima Island would increase with the same tendency as Yakushima, the daily numbers of tourists are estimated at approximately 1,800. Even though the condition varies depending on season, climate, and time, large numbers of individuals and groups cause more damage to nature than the small numbers of users do, generally. There are concerns about various problems if large numbers of people visited a forest at the same time, such as damage of plant life and the deterioration of living environments for animals, derogation of usable environment quality and tourist’s satisfaction. It is important to progress the usage scale to fit to each localities’ natural capacity for promoting sustainable tourism while minimizing the load on the natural environment by tourists. For this reason, it is necessary to define areas for mass-tourism use only and small number of people use only. It is crucial to categorize user’s areas appropriately both for small number of people and mass-tourism, and it premises that only small numbers of people are allowed to access important preservation areas, and utilize urban areas and roads which have been already developed for mass-tourism use.

(2) Corresponding to user’s needs

It is assumed that the people's needs will diversify with the increase of users after heritage registration. According to a questionnaire result of Amami Island Group users, first-time visitors’ purposes for taking a tour is visiting famous places and historical sites, and enjoying local foods, which is the same as “visiting sightseeing sites”, “enjoying the Amami foods” and “bathing and marine leisure”. By contrast, those people

who experienced ecotourism in the forest; their next purpose of visit will be having a deeper experience, such as “trekking” and “animal observation”. Improvement of user satisfaction and the acquisition of repeat visitors to avoid the increase of tourists will be part of the transitory change. It is necessary to correspond to various needs by learning from the majority needs of first-time visitors, which will be the motivation for repeat visits, such as “I want to do it again”, “I want to know more” and “I could not do it this time, but I want to do it next time”.

(3) Implementation of original tourism style in the Amami Island Group

The forests of Amami-Oshima Island and Tokunoshima Island symbolize the value of World Heritage, and the use of these places will characterize future tourism of the Amami Island Group. There are several characteristics of the Amami forest, such as less symbol like grand scenery and Yakushima, knowledge is necessary to observe valuable endemic species of flora and fauna, many places have complicated geography and are precipitous, such as the existence of highly poisonous Okinawa habu. From the above-mentioned characteristics, there are few suitable factors for large group use and thus, is more appropriate for small number user’s experience types such as guided ecotourism.

In addition, there is unique life and culture in the Islands. The wisdom, and life and culture, which is in accord with nature, is continuing from the prehistoric age, and leaves a lasting impression with visitors. Moreover, the existence of the local people, who have always lived with nature in a balanced manner, is considered to be the greatest message as a symbol of coexistence. It is conceivable that the closeness with local people, the experience of local life and culture, and the high quality natural experience by a small number of people in the forest will be the major elements to lead tourism in the Amami Island Group. We will put those elements in the center of tourism in the Amami Island Group and take the opportunities presented from registration as a World Natural Heritage Site, and promote mass-tourism and marine tourism simultaneously. We believe that those actions are linked to the Amami Island Group original tourism style.

(4) Autonomous tourism management by locals

It is necessary to supervise the effects on the natural environment and the social environment due to tourism usage in order for Amami Island Group tourism to be sustainable. For example, if even only a small number of people experience the forests and each person’s load is small, it still causes a big impact due to the accumulation effect, and there are problems as more success brings more people and it expands the scale. Keeping these problems in mind, it is important that various local constituencies communicate voluntarily to talk about the direction of tourism and conceive sustainable ways to use local resources such as the natural environment. Furthermore, if the local people manage tourism by themselves, they are able to maintain benefits from tourism locally, linking adaptable correspondence toward environmental change of local tourism, and it reduces the chances of unconscious damage of the local natural environment. Also, in anticipation of registration as a World Natural Heritage Site, various related officials are creating projects and holding meetings to build a framework of preparedness to receive and to produce tours. Those core members cooperate together toward the goal of “sustainable tourism”, and collaborating on each plan that is being carried out separately, producing a synergistic effect.

(5) The balanced utilization and development in Islands

According to the road traffic census in Amami-Oshima Island and Tokunoshima Island, the southwestern part of Amami-Oshima Island and the northern part of Tokunoshima Island tended to have lighter traffic. It is important for reaching balanced development of the Islands that the central government, prefectural governments, municipalities and private sectors think about the flow through the entire Island, promoting locations of appropriate facilities to be the base of experience usage, and create equal usage around the Island.

(6) Development in the entire Island group

The Islands of the Amami Island Group are connected in various parts such as the history of intercommunion, common living things and lifestyle, and people's concept of nature. On the other hand, there are animals which only exist on certain islands, and the transformation of the musical scale of Shimauta, and methods of events and ritual ceremonies on each Island that individually exist in each natural environment and culture. The Amami Island Group united together to take action that begins to send the strong image of the Amami Island Group, while maintaining both connection and individuality. It is expected that these condition lead to strengthened cooperation among the Islands, to entice tourist from Amami-Oshima to go to four other Islands, and to connect sustainable development of the entire island group.

(7) Development with perspective of the Asian region

The Amami Island Group is suggested as a possibility that it was the connecting hub of wide range trading in the East China Sea Rim during the Middle Age, which started from the southern part of China to the Nansei-Shoto Islands, Kyushu, and even connected to the Korean Peninsula. With this Asian based dynamic history, the presence of National Parks and the World Natural Heritage Site with international brand power, and the Japanese traditional lifestyle that harmonized with nature, those elements might be interesting for the increasing number of foreign tourists. Therefore, it is essential to take action such as the building of systems and infrastructure, and transmission of information, including the Asian region.

3. Basic idea

2. Based on the recent conditions of the Amami Island Group's endemic nature and life culture and agendas, the Master Plan's goal and basic principles will be implemented for systematic tourism management in anticipation of changes after the heritage registration.

3.1 Objectives

The Master Plan promotes action with the following 3 objectives.

Objective 1. Systematic instruction of the use with the best fit to the local characteristic

Objective 2. Spreading the heritage registration effects to the entire region

Objective 3. Realization of high quality tourism and improvement of user satisfaction

3.2 Basic principles

The basic principles of objectives will be defined as follows.

(1) Promotion of the appropriate utilization of the zone. (Targets: Amami-Oshima Island, Tokunoshima Island)

After the heritage registration, if assuming the volume of tourists in Amami-Oshima Island would increase with the same tendency as Yakushima, the daily numbers of tourists are estimated at approximately 1,800. There are concerns about various problems if the large numbers of people visited forest on at the same time, such as damage of plant life and deterioration of living environments of animals, derogation of environment quality due to usage, and tourist satisfaction. For that reason, the core forest area of Amami-Oshima Island and Tokunoshima Island, which would be registered as World Natural Heritage Sites, is only available for a small number of people as a basic principle, and the rule of utilization will be set. Furthermore, a small number of walking trails will be set up when facilities are established.

In contrast, it is assumed that the numbers of group tours and many people usage will increase after the heritage registration. To prevent the visit of many people to the forest at the same time, it is important to provide facilities and fields where large numbers of tourists can enjoy Amami's attractive points so people feel satisfied. Secondary forest and farmland are spreading outside of the laurel forest where rare animals and plants are inhabit and grow. It is possible to prepare the experience-based fields so guests can enjoy Amami's attractiveness, such as forest walks and observation of wild animals, with the utilization of these secondary forest areas. In addition, the general utilization base that many people can use at the same time and is easy for large numbers of tourists to use without causing a big impact on resources, which appropriately located at living areas such as urban area where accommodation facilities and tourist utilization facilities have already been made and the road side of the highway.

Accordingly, we will do zoning that depends on the capacity and the characteristics of natural environments, where to situate the possible utilization areas for large numbers of people and small numbers of people. Setting rules and facility maintenance appropriate to the industry and life environment within the area, and providing

utilization experiences, we will improve load reduction of the natural environment and increase satisfaction of users. Therefore, we will promote the utilization among 3 local regions as described in the next figure.

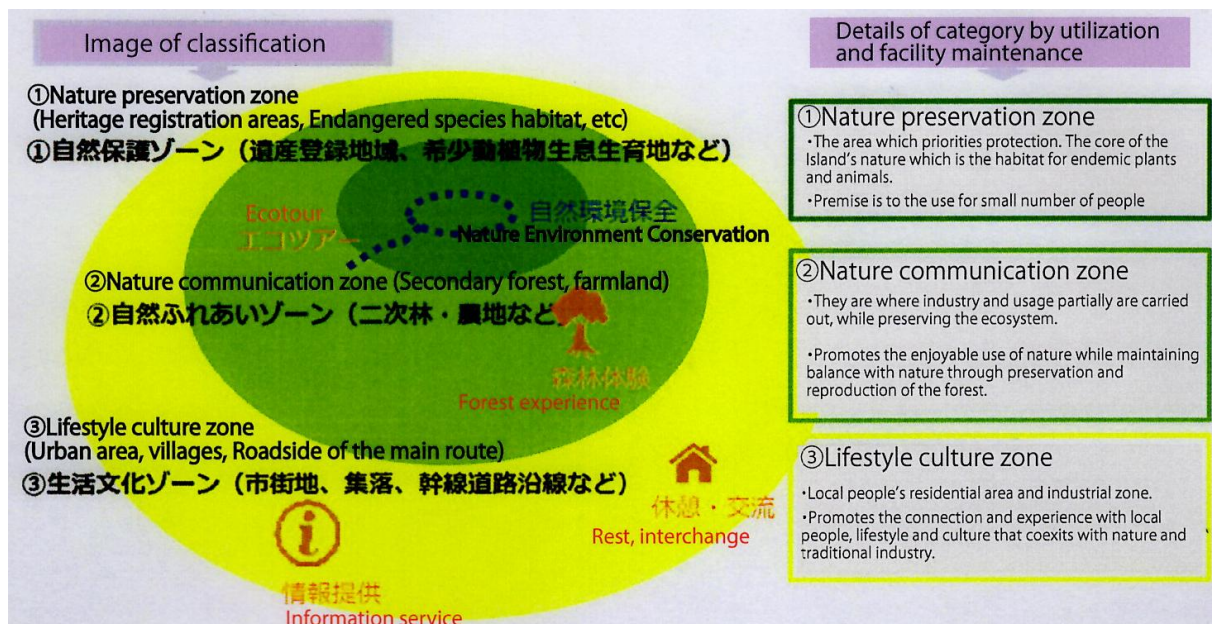
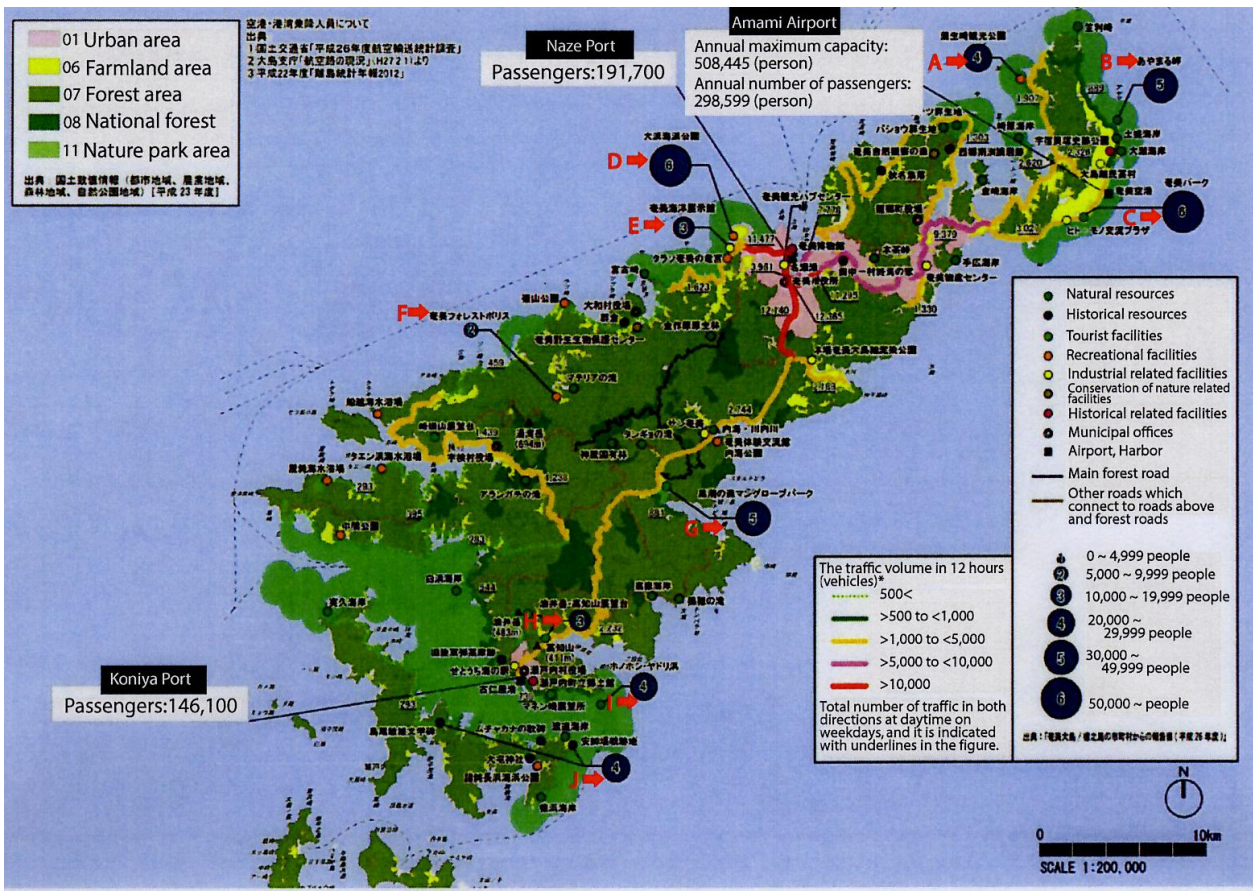


Figure 21 Area classification image by nature characteristic

(2) Implementation of the action with local characteristics (Target: entire island group)

Among the Amami Island Group, local uniqueness of each island has seen, such as forests, marine areas, cities, land utilization like farmland, presence of facilities like airports and harbors, natural resources and cultural resources, and the Natural Park Area designation. We will execute the necessary action while being aware of these characteristics.



(A)→ Gomozaki Sightseeing Park (B)→ Ayamaru Cape (C)→ Amami Park (D)→Ohama Seaside Park (E)→Amami Seaside Museum (F)→Amami Forest Police (G)→Mangrove Park (H)→Yuidake, Kouchiyama Observatory (I)→Honohoshi-Yadori Beach (J)→Toshio SHIMAO Monument

Figure 22 Local characteristics of Amami-Oshima Island

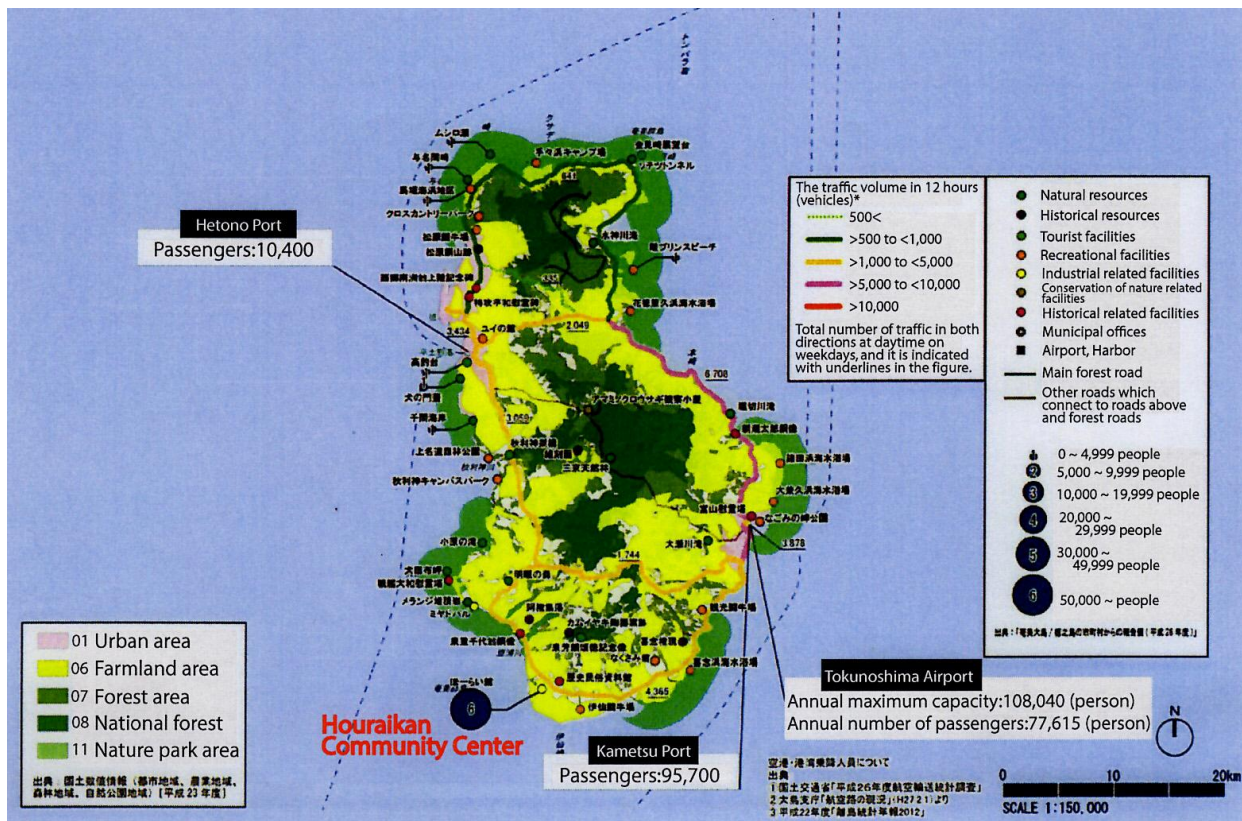


Figure 23 Local characteristics of Tokunoshima Island

(3) Maintenance of the flow line that meets various tourism needs and the type of utilization (Target: Amami-Oshima, Tokunoshima Island)

To promote balanced utilization inside the Islands while fulfilling individual tourist's needs, it is important to set courses and flow lines that correspond with items such as the utilization scale of large numbers people and small numbers people, and experience-based usage and circular tour usage. For that reason, we will locate facilities with appropriate size and functions to meet local characteristics as mentioned above, and promote experience type utilization based on that.

We will consider locating the comprehensive utilization base (important base) within lifestyle culture zone, which accept large numbers of people, to the Island's entrance or urban areas like the airports, the ports, and roadside of the main line. Regarding maintenance, to gather tourists effectively and to better improve tourist satisfaction, we will consider putting facilities, which have different functions, in certain areas with the cooperation of the central government, prefectural governments and municipalities, and local sectors. Also, we will consider setting up the quasi-base (sub-base) following the important base inside of lifestyle culture zone and the contact with nature zone. For example, it is assumed that the forest experience zone will be located at the contact point with the nature zone, as the place, which large numbers of people can use. And we will create flow lines where large numbers of people can move around inside the Islands through the preparation of courses

to connect these bases.

Moreover, we will consider a decentralizing arrangement of the resources and the small nature communicating bases that are scattered inside of Islands now, with the promotion of the experience type utilization bases which will be the starting or transiting points, and try to produce flow lines for small numbers of people. For instance, we will decentralize arrangement of small size facilities such as waterfalls, forest observation stations, trails and the lifestyle culture experience bases. Accordingly, we will guide tourists systematically by creating a network between the main bases, sub-bases, small bases and experience utilization bases.

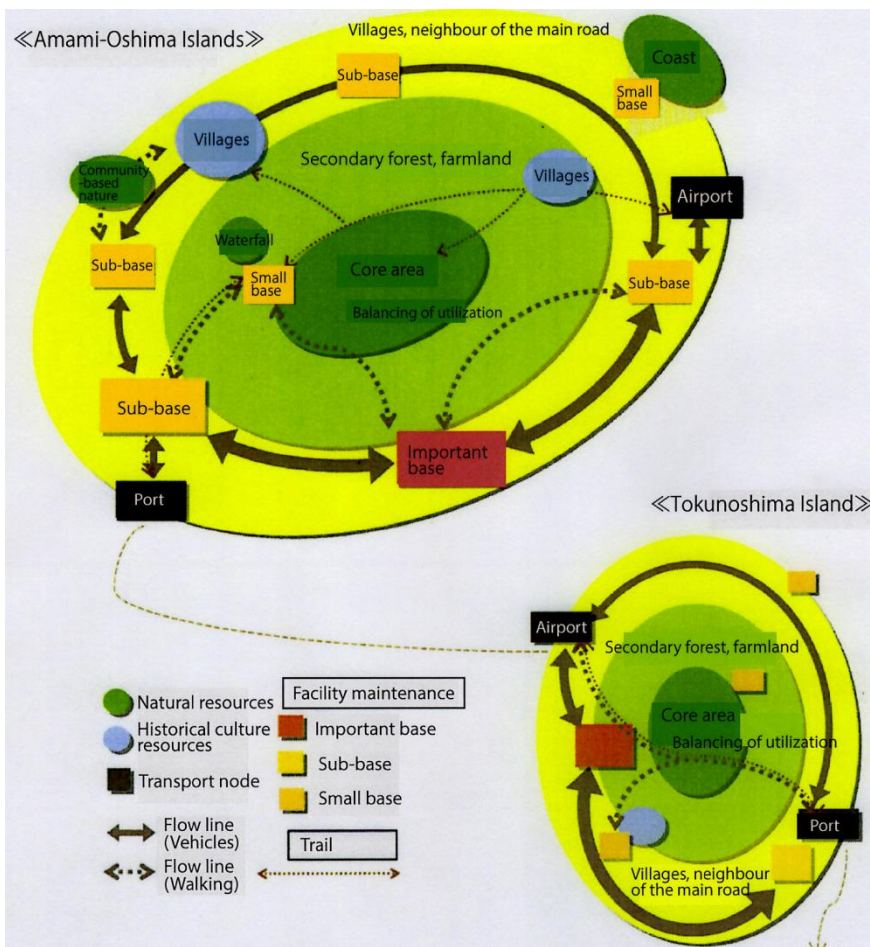


Figure 24
Conceptual diagram of the functional layout based on the Master Plan

Important Base

It is the World Heritage general utilization base, which includes different functions such as the World Heritage exhibition display with explanations and exhibits, and a gift shop. We will invite a large numbers of people through the accumulation of services, and try to protect the core zone and improve user satisfaction.

Sub-Base

It is the place that provides information and users can experience each island's characteristics and resources. It will be located in a place connecting important bases and small bases, and creating anadromous flow line.

Small-Base

It is the place where you can feel scattered nature of the Islands, such as waterfalls, forests and observation stations. We will spread the utilization while corresponding to the ecotourism and the lifestyle culture experience for usage by small numbers of people.



The flow line assumes the walking. The flow line which starts from the base facilities and the sub-base facilities.



The Amami Natural World Heritage Trail is the line that connects everything by footpaths through the Amami Island Group.

(4) The creation of the space to connect with attractiveness of nature, people, life and culture (Target: entire island group)

We aim to establish the Amami Island Group unique sustainable tourism style, through the creation of the improvement of satisfaction for the mass tourism of large numbers of people, while achieving high quality experience style utilization for small numbers of people as the focal point.

Inside of the core part of the forest that symbolizes heritage value, we will promote high quality nature experiences with guide accompaniment for small numbers of people.

At the lifestyle culture zone, which is outside of the core part, we will create a space where large numbers of tourists can experience the forest, animals and plants, and environmental culture through movies and facilities.

At the village where the environmental culture takes root inside of the lifestyle culture zone, we will promote human communication and lifestyle culture experiences via walking through Shima and an experience program. Furthermore, we will promote the creation of trail courses that connect each attractive point and communication space.



Virgin Forest Tour (Kinsakubaru)



Communicate with senior



Oshima-Tsumugi experience

Figure 25 The locations to connect with the attractiveness of Amami

(5) Maintenance of the Amami World Nature Heritage Trail for spreading the heritage registration effect to the entire Islands group (provisional title, Target: entire island group)

Among the Amami Island Group, there are diverse endemic animals and plants and customs that come from different geological histories and a history with the foundation of common nature and culture. Using heritage registration as an opportunity, we will promote the maintenance of the Amami World Nature Heritage Trail to connect the entire island group and make it possible to enable visitors and local people feel the connections of the Amami Island Group's nature, history and culture as well as each local endemism. We will try to reinforce the entire Island's group collaboration to spread the heritage registration effect to all locals by forming a communication opportunity between the Amami Island Group's nature, people and culture through the walking trail.

(6) Promote proper utilization rules (Target: Amami-Oshima Island, Tokunoshima Island)

It is essential to provide high quality services based on the preservation of the natural environment for sustainable tourism promotion, without consumption of natural resources or transformation of cultural resources. Therefore, we will implement the set up of utilization rules in the nature preservation zone, which is the center of the core area. The rules will be set after discussion and consensus building by the local constituencies.

(7) The accumulation of information and knowledge, and the promotion of effective information transmission outside of the Islands (Target: entire islands group)

Local constituencies collaborate together to carry out a tourism usage survey and monitor it's usage, as well as discovering other examples to promote sustainable tourism, and we will continue conforming to respond to need. Furthermore, we will spread information about tourism usage of the Amami Island Group that is easily understood by tourists, to promote the sustainable tourism based on local aim, while responding to the needs of tourists.

4-38 Implementation Policy of Environmental Consideration Guidelines for Public Projects on Amami-Oshima Island and Tokunoshima Island

1. Basic concept

1) The background and purpose of the guideline formulation

The Amami Island Group is an area with the habitat and breeding environment for a variety of animals and plants, which includes many endemic species and rare species. Also, the Amami Island Group residents formed their distinctive culture while utilizing that nature.

While at the same time, public projects such as improvement of traffic infrastructures of route and forestry roads, disaster prevention measures, and development of agricultural infrastructure have been implemented. The public projects in the Amami Island Group have been contributing to improve local people's standard of living according reach the same level of national and prefectural route improvement rates and paved road ratios closely, exercise a constant disaster prevention function and national land conservation functions for rivers, dams and shore protection facilities. Moreover development of agricultural infrastructure is advancing to a certain level, contributing to improve the local people's quality of life, and it is the necessary public projects for improvement of convenience and safety that support island people's life in the future. Therefore, there have been various environmental consideration actions carried out to create balance with the local natural environment through public projects.

Amami Island and Tokunoshima Island have already decided to be listed as one site as "Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Okinawa Island" World Natural Heritage Nominated Property Site, and it is required to give full consideration to natural environment, history and cultural resources in Amami more than ever while implementing public projects, for realization of the World Natural Heritage Registration.

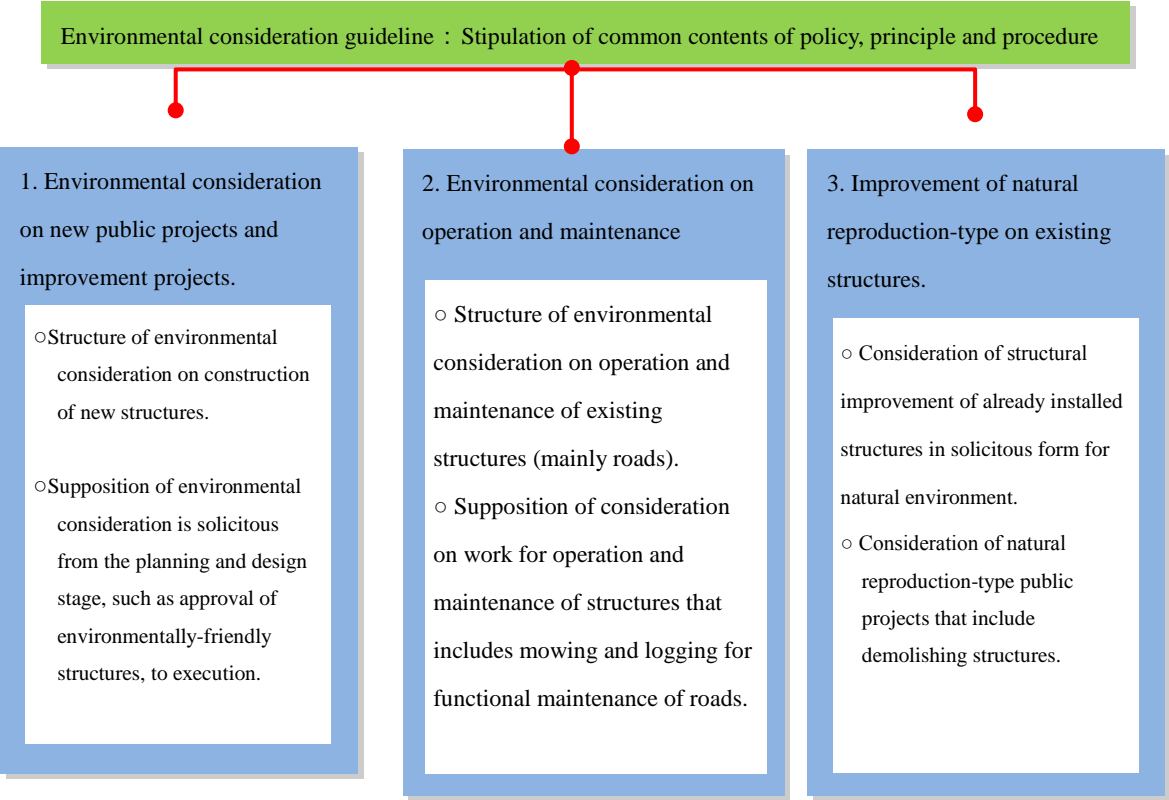
In past public projects, environmental consideration has been examined in each project individually. However, to focus on the World Natural Heritage Registration, it is necessary to have a common guideline for every location to collaborate as a whole that permanently maintains natural environment, landscape, history and culture in Amami-Oshima Island and Tokunoshima Island.

This guideline is intended to define common policy, principles and procedure of environmental consideration for the enforcement of public projects that reduce the influence on natural environment, landscape, history and cultural resources from public projects.

2) Fundamental policy

The project plan will be decided after thorough consideration to avert or reduce environmental influence, such as change of project sites, prior to the public project plan decision. Also we aim to reduce the influence on the natural environment, landscape, historical and cultural resources, and communication places between people and nature when enforcing public projects.

We will continuously reduce those influences during the maintenance process while taking reduction of influence from new projects for granted. In addition, we will attempt to improve the quality of natural environment through the betterment of existing structures and implementation of nature reproduction-type public projects.



3) Fundamental principle

The public projects in Amami-Oshima Island (including the Kakeroma Island area) and Tokunoshima Island will be constructed based on principles as below, with consideration for such ideas as natural environment, landscape and culture.

- ① Review the execution of the project after consideration of influence toward natural environment and preservation of the rare wildlife, and examine the way to avoid burden to natural environment sufficiently.
- ② When the situation of natural environment effects by public projects are essentially inevitable, try to take appropriate measures such as minimization, restoration and recovery to reduce the burden to the natural environment.
- ③ Reducing the burden of natural environment, not only at the starting time of new projects, but also during operation and maintenance stages.
- ④ Review and consider needs and possibility of improvement into environmental consideration structures for existing structures that were constructed as a public project which was deployed before this principle

was established, as much as possible.

- ⑤ Regarding public projects of nature restoration, enforcement will be determined based on adaptive resource management and scientific knowledge that is mentioned in the natural reproduction basic policy.
- ⑥ Consider measures for prevention of alien invasive species entering and expanding distribution, and preservation of species of wildlife to secure a native natural ecosystem in the Amami Island Group.
- ⑦ Aim the environmental cultural type of public project that follows local uniqueness and utilize wonderful nature, history and cultural wisdom of Amami while protecting it.
- ⑧ Consider keeping locations where people and nature communicate together, such as ecotourism fields.
- ⑨ Consider not only the natural environment, but also preservation of history and cultural resources.
- ⑩ All people engaged in public projects should try to comprehend the purpose of this principle.
- ⑪ Additionally, for matters not stipulated in this principle, environmental consideration will be conducted based on laws, ordinances, and other regulations.

4) Applicable scope of guidelines

The targeted area and projects for this guideline are defined as indicated below.

(1) The environmental consideration according to the guideline application target area and local area

The importance of environmental consideration varies according to local conditions, so that it divides into the following areas and executes environmental consideration to match each area. The applicable scope covers Amami-Oshima Island (including Kakeroma Island area) that includes areas outside of the boundaries of the heritage site, and Tokunoshima Island.

a. Within the boundaries of the heritage site

Within the boundaries of the heritage site, an advisory council will be set up which will conduct environmental research, and exercise the details of environmental consideration.

b. Buffer area [National Park Class II Special Zone, Class III Special Zone, Marine Special Zone and Foreshore that contacts with the Ordinary Zone (only marine area)]

Understand the presence of environmental consideration targets in this area, and think about environmental conditions to fit into each local situation according to advice from the advisory council and result of environmental research that depends on a scale of projects with standard principles. If there is habitation information of important species, and especially the existences of important elements for preservation identified, we will take advice from experts.

c. Other area

Basically, understand the presence of environmental consideration targets in this area, and think about the environment according to the local situation. However, if the existence of especially important elements for the preservation of nature and culture in the Amami Island Group are identified, we will take advice from

experts.

(2) Projects covered by the guideline application

All public projects have targets that are ordered by the country, prefecture, and municipalities, such as changing the features of land, constructing or reconstructing buildings and structures, removing, planting or sowing seeds of plants, releasing animals and modifying hydrological environments. Furthermore, the case of maintenance work, such as mowing against the effect of the natural environment, can be applicable objects of the guidelines.

As best as possible, a disaster recovery project will be performed based on this guideline. However, absolutely necessary cases, such as urgent restoration of functions, are exceptional.

The application of the guidelines is recommended to private sectors.

(3) Excluded projects from the guideline application

About public projects that have already started project planning before this guideline was created, this guideline does not apply to them.

5) Factors should be considered

The Amami Island Group belongs to the subtropical climate, and there is a possibility that some factors may give influence, which would not be a problem to Honshu (main island) and northward. Furthermore, regions such as the Amami Island Group's special landscape area have been protected by individual villages, and those local distinctive elements require sensitivity.

In implementation of public projects, examples of factors that should be considered about natural environment and landscape are as follows.

①Biodiversity	Habitation and breeding environment of wild animals, wild plants, and rare animals and plants.
②Fundamental environment	Geography, Geology, Water quality, Land, Ground, Bottom sediment, Hydrological circulation, Groundwater, Wave, Tide, Red soil outflow
③Local traditional life, culture, history	Cultural property, Historical sites, Village landscape, Holy places (places is have been valued for a long time in the community), Customs, Landscape, other historical legacy.
④Communication with landscape and nature	Ecotourism field, Nature landscape, Cultural landscape, Streetscape, other Communication places.
⑤Reduction of the burden to the environment	Disposition of waste, Recycling, Utilization of natural energy, Global warming countermeasures.
⑥Living environment	Atmosphere, Bad odors, Noise pollution, Vibrations

6) Method for the environmental consideration

- ① Business operators promote the environmental consideration on public projects according to this guideline.
- ② Business operators examine the environmental consideration and execute it at the each stage of “business planning”, “design”, “construction” and “maintenance”.
- ③ Setting up an examination authority. Business operators perform checks about environmental consideration at each stage and submit the results to the examination authority. The examination authority reviews the contents and will request revision to the business operators as necessary.
- ④ The examination authority accumulates information of the examination results to a database as example cases of environmental consideration.

7) Construction of structures to support the implementation of the environmental consideration guideline

(1) Check sheet

Collate factors of environmental impact due to project and environmental consideration elements of targeted areas; we will create a check sheet that can point out items that need environmental consignment. In case of problems occurred while using the check sheet, it will be updated appropriately.

(2) Database

Build a database which accumulates information about the distribution of environmental consideration elements (such as rare species, high value vegetation, history and cultural resources, and the ecotourism field) in Amami-Oshima Island and Tokunoshima Island, and make conditions of environmental consideration elements at the location of execution for public projects to be able to refer from the planning stage. In this regard, from the standpoint of rare species preservation, the information should be managed so as not to have external leaks and only be available to use with necessary approval from the administrator.

(3) Execution casebook

Create a casebook showing methods of constructions and effects (or monitoring process) of the previously executed environmental consideration projects, and use it to examine the methods of environmental consideration.

Moreover, in each public project, execute the environmental consideration, and gather summaries on a casebook sheet after performing verification of effectiveness, then information will be accumulated.

(4) Human resources

Register knowledgeable people about the local natural environment as the advisers who are trustworthy to provide on-the-ground advice and consultation. The advisers give appropriate advice regarding environmental preservation and execution of public projects.

(5) Operation manuals

Summarize basic matters and create operation manuals that should be followed by workers engaging in construction and maintenance operation to ensure environmental consideration in operation.

(6) Training programs

Conduct training programs so construction and maintenance operation workers can learn basic knowledge about environmental consideration, so they are confidently able to accomplish environmental consideration. Moreover, utilize workshops hosted by affiliates, such as construction companies.

2. Environmental consideration guidelines

1) Contents of project planning and design stage

(1) Agenda of the planning stage

At the formulation of public project planning, consideration about the bypass or reduction of environmental effects such as change of public project sites, and in case that it is inevitable, try to take appropriate measures such as minimization, restoration and recovery that reduce the burden to the natural environment.

(2) Formulation of project planning

During formulation of public project planning, pay attention to the natural environment and landscape based on the basic principle of this guideline.

(3) Examination of environmental consideration matters

Examine “environmental consideration matters” that should be considered for each project through the following procedures.

a. Confirmation of locality conditions

Project operational sites will be divided into the one of the following three category areas after confirmation, and environmental consideration will be executed to match each area.

- ① Within the boundaries of the heritage site
- ② Buffer area [National Park Class II Special Zone, Class III Special Zone, Marine Special Zone and Foreshore that contact with Ordinary Zone (only marine area)]
In addition, inside of buffer area, the projects divide into “A: large scale project” and “B: small scale project” according to the size of the project with a fixed standard.
- ③ Other area

b. Extraction of the environmental influence elements at the site of the project implementation

Depending on the location requirements of the project operation place, extract environmental consideration elements based on the following information and advice:

① Within the boundaries of the heritage site

Aside from basic contents of all public projects that should be considered, the environmental consideration elements will be extracted based on the information of the database, the advice of the adviser and the results of environmental research. Set up the committee consisting of an expert, and get advice.

② Buffer area [National Park Class II Special Zone, Class III Special Zone, Marine Special Zone and Foreshore that contact with Ordinary Zone (only marine area)]

Aside from the basic contents of all public projects that should be considered, the environmental consideration elements will be extracted from the information of the database, the advice of the adviser that based on the standard scale of the project, and the result of environmental research. In the case of large-scale projects, and if there is habitat information of important species, especially where the existences of important elements for preservation are identified, we will take advice from experts.

② Other area

Aside from the basic contents of all public projects that should be considered, the environmental consideration elements will be extracted by reference to information of the database. However, if the existences of especially important elements for preservation of nature and culture in the Amami Island Group are identified, we will take advice from experts.

c. Extraction of the environmental influence factor

According to details of project implementation, we will extract “the environmental influence factor” which has the possibility to give influence to natural environments.

d. Extraction of the environmental consideration contents

Collate “the environmental consideration factors” and “the environmental consideration elements” by using the check sheet, and extract the contents that need consideration.

e. Examination of the environmental consideration contents

Use the construction casebook as an example for the contents of consideration matters, and examine the environmental consideration contents while getting advice from advisors, if necessary. (In case of large-scale projects within the boundaries of heritage sites and the Buffer Zone, acquire advice from the advisory council.)

f. Reflection to project planning

Reflect environmental consideration contents to project planning, and clarify consideration matters on each stage of design, construction, and maintenance.

(4) Consideration in project planning and design

Grasp environmental consideration factors that occur because of the project, and examine locations, scales and contents of the facilities comprehensively, while considering influence to the natural environment. The

preservation of the natural environment is the basic condition, but in case that unavoidable influence occurs, we will try to reduce the burden based on “the basic principle” that is defined in this guideline.

(5) Consideration related to the structures

The structures should assume construction by using materials and designs which match the natural environment and landscape. Specifically, the division of habitat and micrometeorological change such as sunshine conditions caused by structures giving influence to the wildlife habitats, therefore, it is necessary to pay adequate attention in order to reduce that influence.

Moreover, it is desirable to minimize the influence to landscapes that are coupled with ecotourism fields and cultural elements. Even though the structures don't cause any major problem in other ways, it may modify local special landscape, and as such, it requires consideration.

(6) Introduced species measures

In the selection of materials and resources to use, caution about not giving negative affect to the native natural ecosystem of the Amami Island Group will be required.

Since the Amami Island Group is comprised of various islands and the ecosystem contains many endemic species, there is a possibility to get great influence from introduced species, so it is necessary to prevent the invasion of introduced species.

Not only introduced species from overseas, but also careful supervision for the prevention of the animals and plants entering from outside of the island, domestically is required.

Especially, in case of the same kind, or related species of native species from an outside Island are introduced while executing forestation projects, such as slope greening, there is a possibility of DNA disturbance by hybridization, giving great influence to the existing ecosystem. Therefore, as much as possible, it is necessary to consider prevention carefully.

As the Amami Islands Group belongs to the subtropical climate, some species possibly may give great influence, which would not be the case from Kyushu, northward, and as such, it requires attention.

(7) Application to disaster recovery projects

Even though the disaster recovery projects are usually performed with the principle to restore to the original form, we will consider the way to restore it as an environmental consideration structure by using improved methods.

(8) Application to existing structures

Regarding structures that were built before this guideline was developed, examinations will be conducted as to whether those structures are influencing precious natural environment continuously or not, mainly related to the World Natural Heritage sites, and we will consider them about repairs or improvements.

(9) Promotion of the construction recycling

Construction by-products should be processed appropriately based on applicable laws and regulations such as the Construction Material Recycling Law and the Waste Management and Public Cleansing Act. To minimize the influence to the environment, we will attempt to recycle (reuse or recycle) such available items, the diversion at the construction site or between construction sites, and processing at resource recovery facilities, while trying to expand the operating life of the structures and control the construction by-product production.

(10) Regulation of diversion between construction sites

Exchange information about diversion between construction sites and try to coordinate the promotion of construction recycling. For diversion of construction by-products at the site, the diversion between construction sites and processing at the resource recovery facilities, we will exchange information at utilization conciliation meetings on Islands and adjust the usage.

2) Contents in the construction stage

(1) The construction-planning manual

The construction operator will create a construction-planning manual based on the basic policy from this guideline with the supervision of contractee, while considering the natural environment and landscapes. Especially in the habitat of rare animals, we will carefully consider details that depend on the lifecycle of the inhabitant animals while setting construction periods that will not disturb the breeding behavior, as well as the prevention of road-kill, while also reducing the influence from night illumination.

Furthermore, except during disaster situations, we will pay attention carefully to rare plants when perform mowing and cutting, and setting temporary structures (temporary roads, etc.).

(2) Responsibility of construction operators

The construction operators must understand the details of the ordered public constructions and try to minimize influence from construction toward the natural environment and landscape of neighboring areas according to the construction plan. In case of differences caused in the field condition, it will be considered appropriately based on the consideration contents in the execution plan and the design stage.

In that regard, in cases difficult to determine, we will take advice from the advisor by contractee.

(3) Technical support for constructional operators that implement environmental consideration

At the Nature Conservation Department, training for the construction operators will be organized to teach them about environmental consideration so they can improve their knowledge and skills about environmental consideration. At the same time, we will support workers to improve their knowledge and skills about environmental consideration.

Moreover, we will make an “operation manual” gathering points of concern during the progress of work at the construction site, and support to execute environmental consideration on the field.

(4) Use of construction machines and set up of safety facilities

The construction operators should use construction machines such as low-noise, low-vibration and emission controlled types, with considering about environment. Furthermore, we will consider the color of safety facilities that cause no influence for safety, while creating harmony with surrounding scenery.

(5) Placement of the environmental consideration representative

The construction operator should place the environmental consideration representatives as shown below, and report details about the placement to the contractee or the investigation agency.

In addition, the contractee instructs the construction operator so that the construction will be performed with consideration for natural environments.

Location conditions	The environmental consideration representatives	Check
①The Boundaries of the Heritage Site	Placement	Check by environmental consideration representatives
②Buffer area [National Park Class II Special Zone, Class III Special Zone, Marine Special Zone and Foreshore that contact with Ordinary Zone(only marine area)]	<u>A. Large-scale project</u>	<u>Check by environmental consideration representatives</u>
	<u>Placement</u>	
	<u>B. Small-scale project</u>	<u>Check by construction operator</u>
	<u>None</u>	
③Other area	None	Check by construction operator

(6) Confirmation of materials

Environmental consideration representatives and construction operators (contractor) should check materials thoroughly to prevent entry of introduced species (not only from foreign countries but also domestic species) and the diffusive transfer.

Production places and storage conditions of materials will be investigated and verification of introduced species measures at the instillation time will be conducted, to prevent entry of introduced species.

Regarding the relocation of construction materials inside or among islands, preventive measures shall be performed completely as per introduced species.

Particularly, even though species are same as native species on the Island, species from outside of the Island have different DNA codes from indigenous species. Therefore, we should pay sufficient attention and caution about genetic pollution.

3) Contents at the maintenance stage

(1) Development of the maintenance plan

During development of the maintenance plan, consideration will be paid about the natural environment and

landscape based on the basic policy of this guideline.

We consider environmental consideration matters same as “2. 1) (3) Examination of the environmental consideration matters”, and reflect it to the maintenance plan.

However, environmental research and setting up of a committee are not necessary. Maintenance workers should follow this principle and ensure environmental consideration.

Examine environmental consideration matters before the start of construction, even if the maintenance plan could not be prepared on time, work executors should follow and ensure environmental consideration.

(2) Process of environmental consideration for maintenance

Technical support for the work executor and placement of environmental consideration representatives are performed by environmental consideration as same procedure as “2) Contents in the construction stage”.

(3) Execution of the monitoring survey

Execution of the monitoring survey is necessary, according to the condition of the construction site’s natural environment. If the influence to the natural environment is observed by the monitoring result, the maintenance worker should reconsider the method, and take appropriate measures. At that time, request appropriate advice from the advisor.

(4) Recovery of natural environments

Regarding facilities (structures) that fade in importance or use has been discontinued, careful consideration will be given after checking tertiary and secondary effects, and try to engage in nature recovery as soon as possible by doing processes such as removal of manufactured structures.

In the case of planting trees, use seed as greening material that would not give adverse affect to the ecosystem as much as possible, by methods (seedless) to derive the native plants of the island.

(5) Adjustment of diversion between construction sites

Exchange information about diversion between construction sites to promote construction recycling, and try for utilization adjustment.

For the diversion of construction byproducts at the site, the diversion between construction sites and processing at resource recovery facilities, we will exchange information at utilization conciliation meetings on Island and adjust the use.

4) Contents about the examination of the project

(1) Setting of the Examining Authority

Setting up the Examining Authority to verify contents of self-inspection about consideration to the natural environments, that business operators perform based on this guideline.

(2) Verification by the Examining Authority

At the construction stage, business operators perform self-inspection based on this guideline, and the Examining Authority verifies those contents.

5) The nature restoration public project

The natural environments always change due to various natural phenomenon (typhoon, heavy rain, climate change) and people's lifestyle. If those changes are determined as undesirable for the natural environment and biodiversity conservation in Amami-Oshima Island and Tokunoshima Island, the positive improvement of changing natural environment and attempting of the public project for reproduction are desired.

4-39 Biodiversity Strategy of Okinawa (Excerpt)

Preparer: Okinawa Prefecture

Date: March 2013

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(Omitted)

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(Omitted)

Section 1 Basic Approach

1. Intent behind the Enactment of Regional Strategies

In light of the challenges concerning biodiversity in Okinawa Prefecture, the prefecture has enacted the Biodiversity Strategy of Okinawa to serve as its basic plan for achieving a society in harmony with the natural environment. Such a society will be capable of conserving, maintaining, and restoring biodiversity, as well as passing it down to future generations, and will also be capable of enjoying our connections with nature and the blessings from it in a sustainable manner.

2. Positioning of the Regional Strategy

(1) Basic Act on Biodiversity

Laws and ordinances related to the conservation of biodiversity and its sustainable use span a wide range. Under the Basic Act on Biodiversity, it is important to have mutual coordination between these legal schemes so that they are applied effectively. The national strategy plays the role of indicating the basic policies for this.

The Biodiversity Strategy of Okinawa was enacted on the basis of the National Biodiversity Strategy of Japan, and has been positioned as the basic plan for Okinawa Prefecture concerning the conservation and sustainable use of biodiversity pursuant to Article 13 of the Basic Act on Biodiversity.

(2) Okinawa 21st Century Vision and Basic Plan for 21st Century Vision of Okinawa (Okinawa Promotion Plan)

The Okinawa 21st Century Vision is a basic plan that describes an ideal vision for Okinawa in the future (roughly around the year 2030) and clarifies the orientation of initiatives and the roles of the prefectural residents and government with a view towards achieving this on the basis of the participation and cooperation of the residents.

The Basic Plan for 21st Century Vision of Okinawa clearly lays out things like the “Basic policies” and “Basic measures” in the Basic Plan for 21st Century Vision of Okinawa in order to maximize the welfare of Okinawa based on things like the orientation of initiatives for achieving the future vision expressed in the Okinawa 21st Century Vision.

The Biodiversity Strategy of Okinawa was enacted in accordance with the Basic Plan for 21st Century Vision of Okinawa. Its role is to serve as a plan for promoting the Okinawa 21st Century Vision and the Basic Plan for 21st Century Vision of Okinawa in the interest of working towards the conservation and sustainable use of biodiversity.

(3) Second Okinawa Prefecture Basic Plan for the Environment

The Second Okinawa Prefecture Basic Plan for the Environment is a plan that is based on the provisions of Article 8 of the Okinawa Prefecture Basic Environment Ordinance. It is a basic plan aimed at promoting measures related to environmental conservation within the prefecture in a comprehensive and systematic manner.

The Biodiversity Strategy of Okinawa has been positioned as a plan needed in order to achieve the “Development of a pleasant region where humans and nature coexist,” which is one of the objectives of the Second Okinawa Prefecture Basic Plan for the Environment.

(4) Appropriate Responses to Roles concerning International Initiatives

The United Nations has established the ten years from 2011 to 2020 as the United Nations Decade on Biodiversity, and stipulated that all of the actors among the international community are to come together to address issues with biodiversity for the achievement of the Aichi Targets during this. When it comes to such social trends, having local government continue to promote measures related to biodiversity according to the natural and social conditions of the region plays an extremely important role in conserving Japan’s biodiversity and promoting its sustainable use.

Therefore, the enactment of the Biodiversity Strategy of Okinawa as a basic plan in aiming for the conservation and sustainable use of biodiversity in the prefecture fulfills one of the roles of the local government for this.

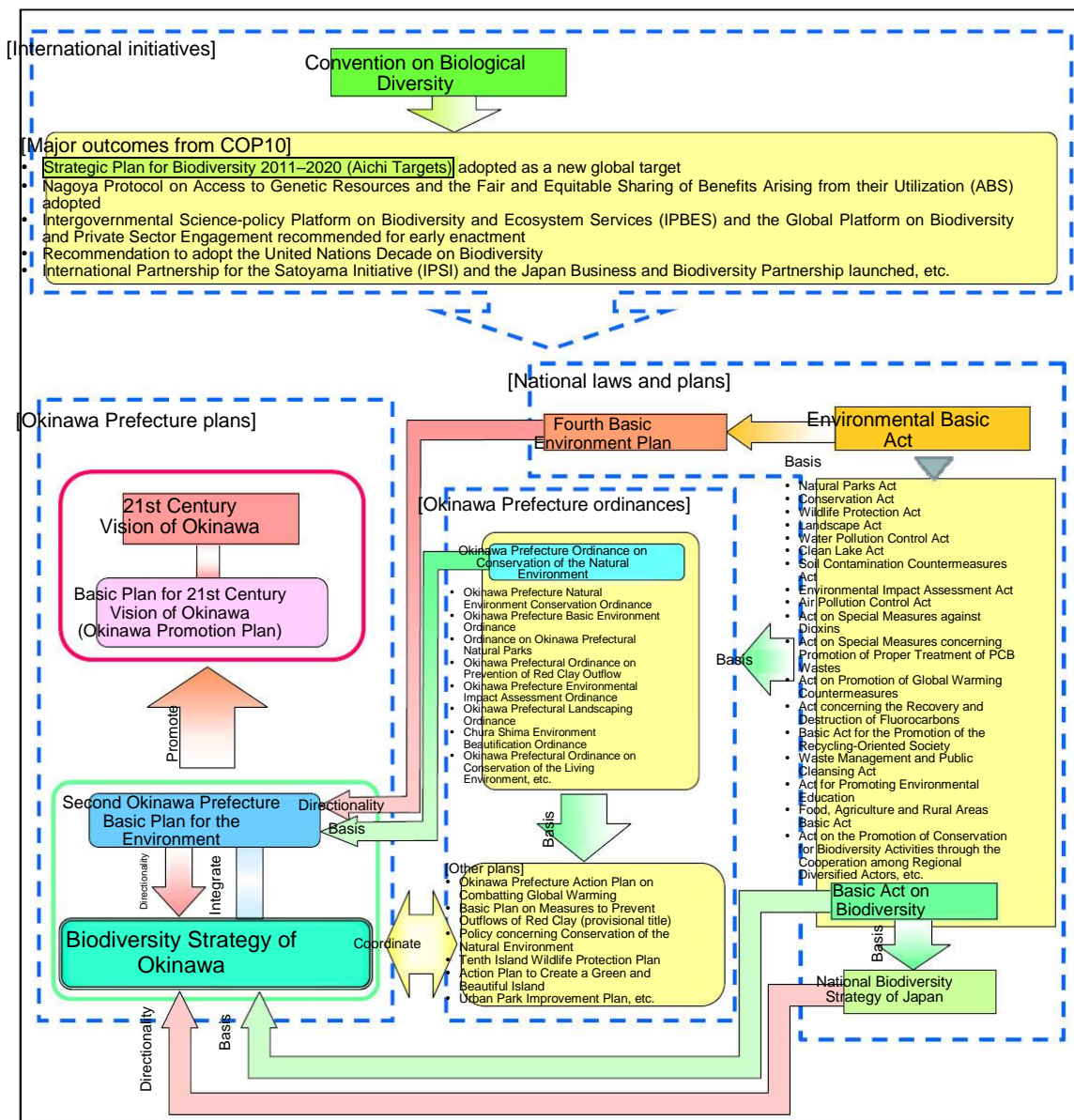


Fig. Connection between the Biodiversity Strategy of Okinawa and other laws and ordinances

In the above diagram, “Basis” indicates the law, ordinance, or so forth that serves as the basis on which something was formulated. “Directionality” indicates the directionality from higher-level plans to lower-level plans, while “Integrate” shows efforts to integrate the contents between plans that exist within a hierarchical relationship. “Coordinate” indicates the fact that measures and the like are promoted by working for coordination between plans that exist within a concurrent relationship, while “Promote” indicates that a plan has been promoted and developed from a lower-level plan to a higher-level one.

3. Area Subject to the Regional Strategy

The area subject to this regional strategy consists of the entirety of Okinawa Prefecture.

4. Reappraisal of the Strategy

The decision has been made to reappraise the Biodiversity Strategy of Okinawa, with the fifth year following its formulation set as the target year for this. However, it may be reappraised as needed in the event that drastic changes come about in regards to the natural environment, social conditions, and so forth.

Moreover, individual target years will be set for those matters for which it would be appropriate to set targets over a short time span.

Section 2 Grand Design

(Omitted)

2. Aspirational Future Vision for the Region

(Omitted)

(1) Northern Region

“A region that values a connection between the forests and sea where human activities and the workings of nature coexist”

- For the Yambaru forests, Yambaru-style Forestry has been established. This considers zoning and forest management plans that are function-specific, and combines a sustainable, recycling-oriented forestry and forest products industry with activities for experiencing nature in harmony with the environment.
- For ecotours, forethought is given to the environmental carrying capacity in order to avoid and mitigate the impact on the environment and overuse. Being a guide is becoming a popular occupation.
- Progress is being made with river improvements that give forethought to biodiversity, and fish such as the Ryukyu sweetfish have established themselves in rivers where ecosystems native to Okinawa have been restored.
- Work is being done to restore coral communities of a certain size. In addition, efforts are being made to achieve balanced conservation and use for said communities by classifying important ocean areas with coral reefs and tidal flatlands as conservation districts, as well as coordinating between national and prefectural conservation measures and the self-management of the local region. The thinking that forests and oceans form a single, cohesive unit is shared throughout the local region, and land-based impacts from

things like contamination by red clay is being reduced through a number of countermeasures. What is more, deserted arable land that has no possibility of being restored as farmland will be used to regenerate forests and wetlands and contribute to the conservation of coral reefs.

- Environmentally-friendly agriculture contributes to maintaining both the local lifestyle and the natural environment.
- Mongooses and feral cats and dogs are being completely eliminated from the northern part of Okinawa Island, and the area of distribution for endangered species like the Okinawa rail is being restored. What is more, laws and ordinances that protect endangered species are functioning effectively, and are preventing the collection and trade of rare insects and plants.
- The number of roadkill incidents involving endangered wild fauna such as the Okinawa rail and the Ryukyu long-haired rat is falling as a result of cooperation on the part of the concerned parties. In addition, all of the prefectural residents understand the importance of the nature up north and things like the recycling of garbage is common knowledge among them, so illegal dumping is no longer seen there. What is more, etiquette among dog and cat owners is thoroughly enforced, and so stray dogs and cats are no longer seen.
- As a region with an abundance of nature that has been registered as a Natural World Heritage Site and a global geopark, the area is visited by a large number of tourists from within Japan and overseas. This is bringing about a certain richness for the local people in both a physical and spiritual sense. What is more, the tourism industry takes responsibility in working to conserve natural resources, while simultaneously proactively emphasizing and spreading the word that the area is a tourist region that coexists with nature.
- Dugongs and their habitats are being conserved, and so now people can catch glimpses of dugongs out for a swim. Furthermore, the sandy beaches where sea turtles lay their eggs are being conserved.
- Traditional rituals, the natural environments involved in the rituals, and the natural systems surrounding mountains are being carefully maintained and conserved.
- The former site of the US Army's training ground up north that was returned to Japan is being carefully maintained and conserved as an asset of the prefectural residents.

(Omitted)

(5) Yaeyama Region

Islands where the living creatures that live in the abundant coral reefs and primeval forests are reared on human kindness, and that are prized by a great many people
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- This has been zoned into areas that should be conserved and areas that can be used, and tourism whereby people experience things like ecotourism and stay the night is being carried out.

- Ecotours are being carried out at major rivers like Iriomote Island's Nakama River and Urauchi River by taking their environmental carrying capacity into consideration. What is more, the tourists that visit the rivers and mountain streams have an understanding of and attachment to the natural environment, and enjoy recreational activities while being conscientious of the ecosystem.
- Efforts are being made to achieve balanced conservation and use by classifying important ocean areas with coral reefs and tidal flatlands as conservation districts, as well as coordinating between national and prefectural conservation measures and the self-management of the local region. In addition, progress is being made on elucidating the mechanism by which mass outbreaks of crown-of-thorns starfish occur, and it is now possible to observe this. In regions that have been positioned as especially important coral reefs, coral communities are being protected by means of continuous and concentrated control measures.
- The thinking that the land and oceans form a single, cohesive unit is shared throughout the local region, and land-based impacts from things like contamination by red clay is being reduced through a number of countermeasures.
- Environmentally-friendly agriculture contributes to maintaining both the island lifestyle and natural environment.
- Ordinances that protect endangered species are functioning effectively, and are preventing the collection and trade of rare insects and plants.
- The number of roadkill incidents involving endangered wild fauna such as the Iriomote cat and the crested serpent eagle is falling as a result of cooperation on the part of the concerned parties. What is more, the tourism industry, for which the island's nature is the greatest source of attraction for tourists, takes responsibility in working to conserve natural resources, while simultaneously proactively emphasizing and spreading the word that the area is a tourist region that coexists with the environment.
- As a region with an abundance of nature that has been registered as a Natural World Heritage Site, the area is visited by a large number of tourists from within Japan and overseas. This is bringing about a certain richness for the local people in both a physical and spiritual sense. It is creating a unique tourism style that uses a variety of different resources, including the historical and cultural resources; subtropical fruit trees and other agricultural, forestry, and fisheries products; and the hospitality of the residents found in the local region.
- Traditional rituals, the natural environments involved in the rituals, and the natural ecosystems surrounding mountains are being carefully maintained and conserved.
- On Uotsuri Island countermeasures are being promoted to stop goats from turning feral and vegetation is being restored. Species like the Senkaku mole, short-tailed albatross, masked booby, and common tern are breeding there as well.

(Omitted)

Chapter 5 Action Plans

(Omitted)

Section 2 Priority Measures and Initiatives

1. Priority Measures for the Whole Prefecture

Priority measure 1-1	Promote registration as a Natural World Heritage Site
Initiatives	<p>Aim to register the area as an important regional Natural World Heritage Site in its capacity as a home to a diverse natural environment and habitat for endemic and endangered species in order to conserve Okinawa's invaluable nature for the world and pass it down to future generations as the treasure of Umanchu.</p> <p>To do so, make progress on establishing ordinances aimed at expanding Iriomote-Ishigaki National Park and converting the Yambaru region to a national park.</p> <p>In addition, promote initiatives such as for the protection of endangered species, and promote the use of local resources befitting a Natural World Heritage nominated property.</p>
Division(s) in charge	Nature Conservation Division
Projects/initiatives for each related measure	<p>1-(2)-a. Expand protection and security measures</p> <p>1-(2)-b. Promote countermeasures against alien species</p> <p>1-(2)-c. Promote initiatives in cooperation with local residents</p>

<p>Priority measure 1-2</p>	<p>Conserve and restore the coral reef ecosystem</p>
<p>Initiatives</p>	<p>The coral reef ecosystem that characterizes the seas of Okinawa is being significantly affected by problems like the bleaching of coral, mass outbreaks of crown-of-thorns starfish, and the impact from red clay that flows out from the land. These are giving rise to dangers to biodiversity. Therefore, formulate a Comprehensive Coastal Management Plan that treats onshore and ocean regions as a single, cohesive unit, and have the concerned parties work together to conserve and restore the coral reefs. In addition, elucidate the mechanism by which mass outbreaks of crown-of-thorns starfish occur and take drastic countermeasures against this. Moreover, promote systematic surveys and countermeasures against outflows of red clay based on the Basic Plan on Measures to Prevent Outflows of Red Clay (provisional title), and verify the restoration of coral communities that extend throughout the entire region. Also, support coral reef conservation activities being implemented by a diverse array of entities, such as fishermen and diving business operators.</p>
<p>Division(s) in charge</p>	<p>Nature Conservation Division, Environmental Policy Division, Fisheries Division, Environmental Conservation Division, Farming Support Division, Forest Development and Planning Division, Agricultural Irrigation Division</p>
<p>Projects/initiatives for each related measure</p>	<p>2-(2)-a. Formulate the Basic Plan on Measures to Prevent Outflows of Red Clay (provisional title) 2-(2)-b. Have local residents prevent outflows 2-(2)-c. Strengthen and support countermeasures against outflows, and properly maintain and manage existing facilities for combatting this 2-(2)-d. Study and research techniques for preventing outflows 2-(5)-a. Conserve and restore coral reefs 2-(5)-c. Study and research techniques for restoration 5-(1)-a. Promote and support activities by companies, producers, organizations, and more</p>

Priority measure 1-3	Create tourist attractions that coexist with the environment
Initiatives	<p>To ensure that the tourism industry, which utilizes the rich natural environment of Okinawa, can continue to develop sustainably on into the future, it will be necessary to promote a tourism industry that coexists with nature by reducing its environmental impact and taking responsibility in working to conserve natural resources.</p> <p>To do this, promote the creation of tourist attractions and ecotourism that coexist with nature by giving consideration to the conservation of the natural environment. In addition, promote tourism that uses the cultural resources borne from the nature of Okinawa.</p>
Division(s) in charge	Tourism Promotion Division, Nature Conservation Division
Projects/initiatives for each related measure	3-(2)-a. Promote the creation of tourist attractions that coexist with the environment

Priority measure 1-4	Establish the Okinawa Prefecture Biodiversity Plaza (provisional title)
Initiatives	<p>In order to boost the visibility of biodiversity and promote initiatives geared towards conservation, network-style hubs linking various entities will be needed. These will be necessary for carrying out initiatives like deepening the awareness of prefectural residents and visitors when it comes to Okinawa's biodiversity and fostering activities to conserve biodiversity.</p> <p>To do this, establish the Okinawa Prefecture Biodiversity Plaza (provisional title), which will have the following functions.</p> <p>(1) Collect and disseminate information</p> <p><Major initiatives></p> <ul style="list-style-type: none"> • Disseminate information using a homepage, agency bulletin, and diverse media sources • Collect and organize information, create databases with it, and

	<p>provide it</p> <ul style="list-style-type: none"> • Hold events like traveling exhibitions at municipalities, museums, and schools, etc. <p>(2) Functions to support activities and human resource development <Major initiatives></p> <ul style="list-style-type: none"> • Support the holding of activities carried out in the local region • Develop expert human resources through lectures and inspection trips to advanced regions • Expand learning opportunities via traveling classes held at schools, children’s welfare facilities, etc. • Expand nature classes through travel programs • Respond to consultations regarding the aforementioned activities, etc. <p>(3) Functions for establishing networks <Major initiatives></p> <ul style="list-style-type: none"> • Foster activities sponsored by companies via matching with Corporate Social Responsibility (CSR) • Develop study sessions and hands-on activities with the potential to be viable businesses
Division(s) in charge	Nature Conservation Division
Projects/initiatives for each related measure	4-(1)-d. Establish the Okinawa Prefecture Biodiversity Plaza (provisional title)

2. Priority Measures by Region

(1) Northern Okinawa Island

Based on the current status of and challenges for biodiversity on Northern Okinawa Island, preference will be given to promoting the following three items as priority measures.

Priority measure 2-(1)-1	Coexist with nature via zoning
Initiatives	<p>In the Yambaru region, which is rich in biodiversity, there are some areas where forestry has been carried out since long ago. It is necessary to continue to promote the conservation and sustainable use of the natural environment in a well-balanced manner.</p> <p>To do this, coordinate with the concerned parties to consider modalities for forest conservation that strikes a balance between conservation and use, such as zoning districts into those where the natural environment should be conserved and those that can be used. In addition, aim to develop Yambaru-style Forestry that combines sustainable, recycling-oriented forestry and forest products industry with activities for experiencing nature in harmony with the environment.</p>
Division(s) in charge	Nature Conservation Division, Tourism Promotion Division, Forest and Green Area Division
Projects/initiatives for each related measure	<p>1-(2)-a. Expand protection and security measures</p> <p>1-(2)-b. Promote countermeasures against alien species</p> <p>1-(2)-c. Promote initiatives in cooperation with local residents</p> <p>3-(1)-c. Conserve biodiversity for forests, forestry, and greening</p> <p>3-(2)-a. Promote the creation of tourist attractions that coexist with the environment</p>

Priority measure 2-(1)-2	Protect endangered species
Initiatives	<p>When it comes to endangered species, such species are crucial components that make up ecosystems. We must be conscious of the fact that there are species that are only found inhabiting the Northern part of the island from anywhere throughout Japan or the world, and must work to protect them.</p> <p>To do this, enact the Okinawa Prefectural Ordinance on the Protection of</p>

	Endangered Species (provisional title) and work to protect endangered species in cooperation with the local region, while also promoting the protection of natural monuments. What is more, take measures to combat roadkill, such as by installing crossing boxes by giving consideration to small animals, and take measures to eliminate alien species that threaten endangered species.
Division(s) in charge	Nature Conservation Division, Roads and Street Division, Roadway Management Division
Projects/initiatives for each related measure	1-(2)-a. Expand protection and security measures 1-(3)-b. Protect endangered species 1-(3)-c. Promote countermeasures against alien species 1-(3)-d. Protect and raise awareness of natural monuments

Priority measure 2-(1)-3	Promote nature-oriented river works (river improvements that give consideration to biodiversity)
Initiatives	To date, river improvements in the form of building dams and disaster prevention measures have been taken for the rivers of Northern Okinawa Island. These have shrunk or eliminated living creatures' habitats and split up migratory routes. As such, it will be necessary to mitigate these problems and restore these. To do this, give consideration to achieving harmony between the natural environment running the entire length of rivers, local lifestyles, and their history and culture. In addition, perform river management via "nature-oriented river works" that conserve, restore, and create habitats and breeding environments for living creatures and diverse river environments.
Division(s) in charge	River Division
Projects/initiatives for each related measure	2-(1)-c. Conserve and restore river environments 2-(3)-a. Adopt construction methods that give consideration to wildlife habitats

(Omitted)

(5) Yaeyama Region

Based on the current status of and challenges for biodiversity in the Yaeyama Region, preference will be given to promoting the following two items as priority measures.

Priority measure 2-(5)-1	Protect endangered species
Initiatives	<p>When it comes to endangered species, such species are crucial components that make up ecosystems. We must be conscious of the fact that there are species that are only found inhabiting the Yaeyama Region from anywhere throughout Japan or the world, and must work to protect them.</p> <p>To do this, enact the Okinawa Prefectural Ordinance on the Protection of Endangered Species (provisional title) and work to protect endangered species in cooperation with the local region, while also promoting the protection of natural monuments.</p> <p>What is more, take measures to eliminate alien species that threaten endangered species and take measures to combat roadkill, such as by installing crossing boxes by giving consideration to small animals.</p>
Division(s) in charge	Nature Conservation Division, Roads and Street Division, Roadway Management Division
Projects/initiatives for each related measure	<p>1-(2)-a. Expand protection and security measures</p> <p>1-(3)-b. Protect endangered species</p> <p>1-(3)-c. Promote countermeasures against alien species</p> <p>1-(3)-d. Protect and raise awareness of natural monuments</p>

Priority measure 2-(5)-2	Promote agriculture that coexists with nature
Initiatives	<p>The Yaeyama Region contains cultivated ecosystems that consist of agricultural land (paddy fields and regular fields) and their surrounding forests and ground, as well as the other flora and fauna that inhabit these areas. For these, it is necessary to conserve a diverse array of environmental elements, including the surrounding forests, in the interest of maintaining biodiversity.</p> <p>To do this, work to eradicate and prevent the incursion of specific disease-carrying insects, while also making efforts to promote countermeasures against such insects that are environmentally-conscious and to take countermeasures against outflows of red clay. In addition, work to promote soil cultivation and agriculture that conserves the environment, while also promoting systems for reusing resources by means of using biomass from livestock manure and the like.</p> <p>The Yaeyama water regions in particular have the highest rates of coral coverage of those found anywhere throughout Okinawa Prefecture. Therefore, recognize that cultivated ecosystems are connected to coastal and ocean ecosystems through river basins, and promote measures to prevent outflows of red clay from farmland.</p>
Division(s) in charge	Farming Support Division, Forest and Green Area Division
Projects/initiatives for each related measure	<p>3-(1)-a. Promote agriculture that coexists with the environment</p> <p>3-(1)-c. Conserve biodiversity for forests, forestry, and greening</p>

(Omitted hereafter)

**4-40 Act on Special Measures for the Promotion and Development of
Okinawa
(Excerpt)**

(Act No. 14 from March 31, 2002)

Revised

(Omitted)

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Chapter 1 General Provisions

(Purpose)

Article 1

The purpose of this act is to work to promote Okinawa in a comprehensive and systematic manner while respecting its independence, thereby contributing to the self-sustaining development of Okinawa as well as the achievement of an affluent life for its residents. This is to be done by enacting the Basic Policy for the Promotion of Okinawa in light of the special circumstances in which Okinawa finds itself, and taking special measures to promote business based on the Okinawa Promotion Plan enacted pursuant to this.

(Considerations for the policies)

Article 2

With regard to the enactment and implementation of policies concerning the promotion of Okinawa, the national and local governments must give consideration to the geographical and natural characteristics of Okinawa. They must also give consideration to improving the underlying conditions for industrial activity and the lives of the residents, the conservation and use of the outstanding cultural output native to Okinawa, and the conservation of the environment and the creation of outstanding landscapes. In addition, they must also work to create a pleasant, affluent living environment.

(Definitions)

Article 3

For this law, the definitions of the terms listed in the following items shall be used for the stipulations in each of the applicable items hereafter.

- (1) Okinawa: Refers to the region of Okinawa Prefecture.
- (2) Local governments: Refers to the local governments of Okinawa.
- (3) Outlying islands: Refers to those islands of Okinawa aside from the main island that have been designated by governmental ordinance.
- (4) International conferences, etc.: Refers to the international conferences, etc. stipulated in Article 2 of the Act on Promotion of Inbound Tourism by Facilitating Solicitation and Implementation of International Conferences, etc. (Act No. 79 from 1994).
- (5) Activities for experiencing nature that conserve the environment: Refers to activities whereby participants receive guidance and advice from people who are knowledgeable when it comes to the local natural environment, which they come into direct contact with by taking the conservation of said environment into consideration, thereby deepening their understanding of it.
- (6) Telecommunications industry (Omitted)
- (7) Specified telecommunications businesses (Omitted)
- (8) Businesses that use telecommunications technology (Omitted)

- (9) Manufacturing and other industries (Omitted)
- (10) Projects for upgrading industry and business innovation (Omitted)
- (11) International logistical bases and industries (Omitted)
- (12) Specified international logistical base businesses (Omitted)
- (13) Foreign cargo (Omitted)
- (14) Small and medium-sized enterprise operators (Omitted)
- (15) Sites of former military bases (Omitted)

Chapter 2 The Okinawa Promotion Plan and Other Plans

(Basic Policy for the Promotion of Okinawa)

Article 3-2

The Prime Minister shall establish the Basic Policy for the Promotion of Okinawa (hereafter referred to as the “Basic Policy”) in an effort to promote Okinawa.

2. The Basic Policy shall stipulate the matters listed below.
 - (1) Matters related to the significance of and direction for promoting Okinawa
 - (2) Basic matters concerning the promotion of tourism; the promotion of the telecommunications industry; the promotion of agriculture, forestry, and fisheries industries; and the promotion of other industries
 - (3) Basic matters concerning the promotion of employment, human resource development, and other forms of job security
 - (4) Basic matters concerning the promotion of education and culture
 - (5) Basic matters concerning the promotion of welfare and ensuring medical care
 - (6) Basic matters concerning the promotion of science and technology
 - (7) Basic matters concerning the advancement of telecommunications
 - (8) Basic matters concerning promoting international cooperation and international exchange
 - (9) Basic matters concerning using the sites of former military bases
 - (10) Basic matters concerning the promotion of outlying islands
 - (11) Basic matters concerning environmental conservation, disaster prevention, and conservation of national territory
 - (12) Basic matters concerning the development of social capital and the use of land (including public waters; the same holds true for number 11 in Paragraph 2 of the following article)
 - (13) Basic matters concerning any other matters for the promotion of Okinawa other than those listed in the items above
3. The Basic Policy must include content that can be achieved within a target of about ten years, with FY2012 as the first fiscal year for this.

4. When the Prime Minister begins the process of establishing the Basic Policy, they must first hear the opinions of the Okinawa Promotion Council and consult with the heads of the relevant administrative agencies.
5. The Prime Minister must publicly announce the Basic Policy once it has been established without delay.
6. The provisions of the two previous paragraphs will apply to changes to the Basic Policy.

(Okinawa Promotion Plan)

Article 4

The Governor of Okinawa Prefecture shall work to establish the Okinawa Promotion Plan on the basis of the Basic Policy.

2. The Okinawa Promotion Plan shall stipulate the matters listed below.
 - (1) Matters concerning the promotion of tourism; the promotion of the telecommunications industry; the promotion of agriculture, forestry, and fisheries industries; and the promotion of other industries
 - (2) Matters concerning the promotion of employment, human resource development, and other forms of job security
 - (3) Matters concerning the promotion of education and culture
 - (4) Matters concerning the promotion of welfare and ensuring medical care
 - (5) Matters concerning the promotion of science and technology
 - (6) Matters concerning the advancement of telecommunications
 - (7) Matters concerning promoting international cooperation and international exchange
 - (8) Matters concerning using the sites of former military bases
 - (9) Matters concerning the promotion of outlying islands
 - (10) Matters concerning environmental conservation, disaster prevention, and conservation of national territory
 - (11) Matters concerning the development of social capital and the use of land
3. In addition to the matters listed in the items of the preceding paragraph, efforts shall be made to establish matters related to the promotion of different regions that have been divided up by taking into consideration Okinawa's geographical conditions, where its population and industries are concentrated, and other social conditions in a comprehensive manner in the Okinawa Promotion Plan.
4. The Okinawa Promotion Plan must include content that can be achieved within a target of about ten years, with FY2012 as the first fiscal year for this.
5. Once the Okinawa Promotion Plan has been established, the Governor of Okinawa Prefecture must make efforts to publicly announce it and submit it to the Prime Minister.

6. Once the Okinawa Promotion Plan has been submitted per the provisions of the preceding paragraph, the Prime Minister must notify the heads of the relevant administrative agencies of its contents. In such cases, the heads of the relevant administrative agencies can offer their opinions regarding the Okinawa Promotion Plan to the Prime Minister.
7. If the Prime Minister acknowledges that the Okinawa Promotion Plan submitted per the provisions of Paragraph 5 is inconsistent with the Basic Policy, they may request that the Governor of Okinawa Prefecture make changes to it.
8. If the Prime Minister acknowledges that it is not necessary to take the measures per the provisions of the preceding paragraph regarding the Okinawa Promotion Plan submitted per the provisions of Paragraph 5, they must inform the Governor of Okinawa Prefecture to this effect.
9. The provisions from Paragraph 5 up through the preceding paragraph shall apply with regard to changes to the Okinawa Promotion Plan.

(National government assistance)

Article 5

The national government must make efforts to provide Okinawa Prefecture with the necessary assistance regarding the smooth implementation of the Okinawa Promotion Plan.

Chapter 3 Special Measures for Promoting Industry

Section 1 Tourism Promotion

(Omitted)

3. Activities for Experiencing Nature that Conserve the Environment

(Conservation and usage agreements regarding activities for experiencing nature that conserve the environment)

Article 21

Persons who offer guidance and advice regarding activities for experiencing nature that conserve the environment as a business in Okinawa can conclude agreements regarding the implementation of said activities (hereafter referred to as “conservation and usage agreements”), and receive authorization from the Governor of Okinawa Prefecture stating that said agreements are proper.

2. With respect to applications pertaining to the authorization from the preceding paragraph, representatives must be established from among the parties taking part in the conservation and usage agreements (hereafter referred to as “agreement representatives”) to carry this out.

3. Persons who offer guidance and advice regarding activities for experiencing nature that conserve the environment as a business and operators aside from such persons who offer guidance and advice regarding activities for experiencing nature that conserve the environment as a business in regions where it has been acknowledged that no persons offer such services (hereafter referred to as “independent business operators”) can establish conservation and usage agreements independently, and receive authorization for them per the provisions of Paragraph 1.
4. The matters listed below shall be established for the conservation and usage agreements.
 - (1) Areas of land covered by the conservation and usage agreements (hereafter referred to as “agreement-covered areas”)
 - (2) Matters concerning the content of activities for experiencing nature that conserve the environment
 - (3) Matters meriting consideration regarding the conservation of the natural environment and the implementation of the activities for experiencing nature that conserve the environment
 - (4) Term of validity for the conservation and usage agreements
 - (5) Measures for when the conservation and usage agreements are violated
 - (6) Other necessary matters
5. When an application seeking the authorization listed in Paragraph 1 meets all of the requirements in the items below, the Governor of Okinawa Prefecture shall authorize it per the provisions of the same paragraph.
 - (1) It must be appropriate in light of the Okinawa Promotion Plan.
 - (2) A considerable number of persons who offer guidance and advice regarding activities for experiencing nature that conserve the environment as a business in the agreement-covered areas must take part in the conservation and usage agreement.
 - (3) It must meet the standards established in the ordinances of the competent ministry as an agreement that does not interfere with the conservation of the natural environment in the agreement-covered areas, and which contributes to properly promoting activities for experiencing nature that conserve the environment.
 - (4) The contents of the conservation and usage agreement must not be unjustly discriminatory.
 - (5) The contents of the conservation and usage agreement must not violate this law, decrees based on this law, or any other relevant laws or ordinances.
6. When the Governor of Okinawa Prefecture receives an application seeking the authorization listed in Paragraph 1, they must publicly announce this per the stipulations in the ordinances of the competent ministry. They must also provide said conservation and usage agreement for public inspection for a period of two weeks from the day on which it was publicly announced.
7. When the Governor of Okinawa Prefecture publicly announces this per the provisions of the preceding paragraph, they must inform the heads of the municipality in which the agreement-

covered area is found to this effect without delay. They must then hear the opinions of the mayor of the municipality in question from the standpoint of the conservation of the natural environment and other ways of properly promoting activities for experiencing nature that conserve the environment.

8. Once there has been a public announcement per the provisions of Paragraph 6, persons with opinions from the standpoint of the conservation of the natural environment and other ways of properly promoting activities for experiencing nature that conserve the environment may submit written opinions concerning the conservation and usage agreement in question to the Governor of Okinawa Prefecture. These may be submitted from the day after the date on which the inspection period from Paragraph 6 concludes until a date two weeks later.
9. Once the Governor of Okinawa Prefecture has provided the authorization from Paragraph 1, they shall notify persons who would like to take part in the activities for experiencing nature that conserve the environment, tourists visiting Okinawa, and other persons of the contents of the conservation and usage agreement that has been authorized. This shall be done via use of the internet, the distribution of printed matter, or some other appropriate method.

(Changes to the conservation and usage agreements)

Article 22

When attempting to change the matters established in a conservation and usage agreement that has been authorized per Paragraph 1 of the preceding article (referred to as an “authorized agreement” in subsequent articles), the agreement representatives and independent business operators must receive the authorization of the Governor of Okinawa Prefecture.

2. The provisions from Paragraph 5 through Paragraph 9 of the preceding article shall apply regarding the authorization for the changes from the preceding paragraph.

(Counsel)

Article 23

The Governor of Okinawa Prefecture can offer counsel to the agreement representatives or independent business operators involved in the authorized agreement to improve the implementation methods for the activities for experiencing nature that conserve the environment, altering the authorized agreement in question, or in regards to other necessary measures that should be taken. They may offer said counsel when it has been acknowledged that the activities for experiencing nature that conserve the environment have not been implemented according to the authorized agreement (when the changes from Paragraph 1 of the preceding article have been authorized, then the agreement following the changes; the same hereafter), or

when it has been acknowledged as being necessary to ensure the proper implementation of said activities in the agreement-covered area.

(Cancellation of authorization)

Article 24

In the event that the agreement representatives or independent business operators who received counsel per the provisions of the preceding article fail to take the necessary measures in accordance with said counsel, then the Governor of Okinawa Prefecture may cancel their authorization per the provisions of Paragraph 1, Article 21 or Paragraph 1, Article 22.

2. In the event that the Governor of Okinawa Prefecture cancels the authorization per the provisions of the preceding paragraph, they must notify the agreement representatives or independent business operators to this effect and also announce this publicly.

(Promoting activities for experiencing nature that conserve the environment)

Article 25

The national and local governments shall work to ensure that the funds needed to promote activities for experiencing nature that conserve the environment in Okinawa are secured, human resources are developed, information is collected and provided, and other necessary measures are taken to contribute to promoting the conservation and sound usage of natural environments in Okinawa.

2. The Minister of the Environment shall work to ensure that the activities for experiencing nature that conserve the environment are promoted in Okinawa through efforts like protecting and developing national parks in Okinawa.

(Omitted hereafter)

4-41 Basic Plan for 21st Century Vision of Okinawa
(Okinawa Promotion Plan)
(Excerpt)

Preparer: Okinawa Prefecture

Date: March 2012

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Chapter 4 Challenges Unique to Okinawa that Must Be Overcome

1. Resolving Base Challenges and Using the Sites of Former Military Bases

2. Overcoming the Disadvantageous Conditions of Outlying Islands and Contributing to the National Interest
3. Creating Transit Networks Linking the Ocean Island Zones of Okinawa
4. Response to Growing Local Autonomy

Chapter 5 Zone-specific Deployment

1. Basic Thinking
2. Forming Wide-area Regional Zones by Strengthening Coordination between Zones
- 3. Basic Approach to Zone-specific Deployment**

Chapter 6 Effective Implementation of the Plan

1. Connection between the Act on Special Measures for the Promotion and Development of Okinawa and this Plan
2. Implementation Methods for the Plan

Chapter 1 General Remarks

(Omitted)

2. Nature of the Plan

This plan is a comprehensive basic plan that encompasses the Okinawa promotion areas to date. Based on the approach for initiatives to achieve the future vision depicted by prefectural residents that was indicated in the 21st Century Vision of Okinawa, this plan clearly spells out the “Basic Approaches,” “Basic Measures,” and so on for the plan in order to maximize the welfare of Okinawa. At the same time, it also shares the nature of the Okinawa Promotion Plan, which has been positioned within the Act on Special Measures for the Promotion and Development of Okinawa. Therefore, this plan serves as the basis for measures by Okinawa Prefecture, and deserves the respect of the national government, municipalities, and others. What is more, it also serves as guidelines for voluntary activities by various entities, including the prefectural residents, companies, organizations, NPOs, and more.

The 21st Century Vision of Okinawa indicates a future vision that should aim for five goals. First, to be an “Island that values the nature, history, traditions, and culture unique to Okinawa,” with a mentality of loving nature and valuing its traditional culture. Second, to be an “Island where people lead spiritually rich, safe, and secure lives” with a mentality of valuing personal bonds. Third, to be an “Affluent island abounding in aspirations and vitality” with a mentality of seeking a strong and resilient economy and affluence.” Fourth, to be an “Island that coexists with and is open to exchanges with the world” with a mentality of aspiring to peace through exchanges with the world. Fifth, to be an “Island that exhibits diverse capabilities and paves the way to the future” with a mentality of fostering human resources that abound with aspirations and dreams.

Moreover, it also clearly laid out challenges unique to Okinawa that should be overcome by seeking resolutions to these under the responsibility of the national government. These include the restoration of large-scale bases and the reorganization of prefectural land that will accompany this, the new development of outlying islands, creating transit networks linking the ocean island zones of Okinawa, and growing local autonomy.

3. Plan Period

The plan period shall last for ten years from FY2012 through FY2021, which is the period for the Okinawa Promotion Plan based on the Act on Special Measures for the Promotion and Development of Okinawa. This corresponds to the first ten years leading up to the point roughly 20 years in the future envisioned by the 21st Century Vision of Okinawa.

4. Objectives of the Plan

The objectives of the plan are to exhibit Okinawa's unique qualities, connect Japan and the world, and create a cutting-edge region that will contribute to peace and development in the Asian and Pacific region. It will also set in place the underlying conditions for self-sustaining development based on the economic climate, and create a reborn Okinawa that contributes to the development of Japan. In addition, it will work to achieve a restored Okinawa that boosts Okinawa's exceptional value in the form of its nature, culture, and more, thereby striving to achieve the five future visions and resolve the four unique challenges listed in the 21st Century Vision of Okinawa. Through this, it will realize "Okinawa as a beautiful island that is mutually supportive, peaceful, affluent, and which will pave the way to a new era and engage in exchange with the world."

(Omitted)

Chapter 5 Zone-specific Deployment

(Omitted)

3. Basic Approach to Zone-specific Deployment

(1) Northern Region

(Omitted)

[Basic Approach to Deployment]

The infrastructure, facilities, and so forth built up through projects to promote Okinawa will be effectively used. In addition, progress will be made with new projects like those concerned with promoting the northern region, and efforts will be made to create employment opportunities, set in place an appealing living environment, and promote telecommunications-related industries.

Efforts will be made to promote Okinawa according to its special regional qualities. This will be done by striving to achieve harmony between the conservation of natural environments (such as the Yambaru forest that is a treasure trove of precious flora and fauna, the ocean areas inhabited by dugongs and other creatures, and the lovely seashores) and the native culture, as well as economic and social development. What is more, efforts will be made to make infrastructural and environmental improvements to it as an

international base for academic research and resorts, while also striving to promote agriculture, forestry, and fisheries industries by harnessing its unique regional qualities.

What is more, efforts will be made to round out a variety of urban functions for Nago City as a core urban area, while also promoting smooth coordination between regions and enhancing its core characteristics.

When it comes to underpopulated regions, the Okinawa Prefecture Plan on Promoting the Independence of Underpopulated Regions was enacted pursuant to the Okinawa Prefecture Policy on Promoting the Independence of Underpopulated Regions. Based on this plan and municipal plans, a variety of measures will be promoted in aiming to achieve regional communities that abound in dynamism and individuality, and which are full of appeal that will attract young people to settle in them.

What is more, remote regions are at a remarkable disadvantage when it comes to their transit conditions and other elements of their living environment as a result of their geographical characteristics. Therefore, support will continue to be provided to municipalities that are working to promote improvements to their living environment, such as by promoting the development of public facilities in a comprehensive and systematic manner.

In the outlying islands, where depopulation and the aging of communities are both advancing, efforts will be made to promote local industries by harnessing their distinctive regional resources. In addition, improvements to their living environment infrastructure will be promoted, with these including medical care, welfare, and education, in an effort to improve their settlement conditions.

A. Creating Communities that Coexist with Nature

The Yambaru Region has diverse natural environments that include secondary forests and primeval natural forests, and is inhabited by numerous endemic and endangered species. For this region, progress will be made in enhancing activities geared towards the conservation of the natural environment, such as designating it as a national park and registering it as a Natural World Heritage Site, with a view towards forming communities where people and nature can coexist.

Furthermore, to conserve biodiversity, measures to control alien species like mongooses in inland areas, and to eradicate the crown-of-thorns starfish in ocean areas, will be strengthened.

Ocean areas like tidal flats and seaweed beds, as well as inland areas that include forests, rivers, and coasts, will be zoned into regions that should be conserved and those that can be used, and efforts will be made for the conservation, restoration, and appropriate use of their natural environments. In addition, comprehensive

countermeasures will be promoted for the problem of outflows of red clay, including strengthening countermeasures against the various sources from which red clay arises, with an emphasis on farmland.

The adoption and dissemination of renewable energies will be promoted, including solar power, wind power, biomass power harnessing the abundant regional resources, and more (including on outlying islands) in aiming for pioneering energy use.

B. Promoting Industry that Harnesses the Characteristics of the Region

(a) Promoting the tourism resort industry

The creation of appealing tourist attractions that harness outstanding regional resources in a historical and cultural sense, such as Nakijin Castle and cloth made from basho (a Japanese fibrous banana) will be promoted. These tourist attractions will also make use of the region's diverse and distinctive natural environments such as lushly green mountains, beautiful coastlines, as well as the precious flora and fauna inhabiting them.

To do this, work will be done to create rules for achieving coexistence between environmental conservation activities and economic activities. Progress will be made in rounding out a style of tourism that is closely aligned with regional characteristics and local industries through initiatives for a hands-on and participatory style of tourism. This includes the production of cloth made from basho and green tourism in Ogimi Village; ecotourism in Higashi Village, Kunigami Village, and Nago City; and lodging in private accommodations on Ie Island and other places.

In addition, progress will be made in rounding out regional events, such as the Oku Yambaru Koinobori Festival, Higashi Village Azalea Festival, Ie Island Lily Festival, and the cherry blossom festivals in Motobu Town, Nago City, and Nakijin Town to boost the diverse appeal of tourism in the northern region.

What is more, initiatives will be promoted that include tourism where people stay overnight and enjoy marine-based leisure activities based around the theme of recuperating health by using the special characteristics, nature, and culture of the Port of Kin. This will take place in the circular region around the Port of Kin extending from Ginoza Village to Kin Town and as far as Uruma City in the central region.

To ensure tourism human resources in the region, tourism coordinators, tourism producers, and sightseeing guides will be fostered, and progress will be made in developing regional appeal and rounding out reception programs. In addition, efforts will be made to foster people like successors of and technical experts in traditional culture in order to ensure the human resources to take responsibility for the culture in the local region.

(Omitted)

In conjunction with this, efforts will be made to promote the development of highly distinctive landscapes befitting the region and to improve tourism impressions and regional appeal. Examples of this include by improving the landscapes along roadways and producing urban landscapes for tourism resort areas that are representative of Okinawa. In addition, interaction with local people and initiatives to unearth and spread the word on regional appeal will be promoted by using shared shops and hub facilities for urban and rural exchanges.

When it comes to tourism-related facilities, progress will be made in installing facilities that make use of regional schemes for promoting the development of tourist attractions to handle the increased number of tourists from Japan and overseas, as well as the addition of added value to tourism. What is more, efforts will be made to promote the introduction of new environmental technologies, such as energy-saving facilities.

(b) Promoting the agricultural, forestry, and fisheries industries

For items like Jerusalem artichoke tubers, goya, green beans, and mangos, the development of production facilities, fostering of production and shipping organizations, and development of sales structures will be promoted in a systematic manner, and priority will be given to the certification of new production regions and the cultivation of existing production regions. In particular, efforts will be made to develop centralized production regions for new items like the atemoya, and to strengthen production structures and perform branding.

As for sugarcane and pineapple, work will be done to improve their quality by introducing, breeding, and disseminating superior seeds and seedlings. What is more, initiatives to foster and strengthen agricultural production corporations, organizations performing work on commission, and others will be promoted, as will initiatives geared towards expanding production.

Additionally, the development and conservation of irrigation and other facilities and production bases, such as through land readjustment, will be promoted, as will shelterbelts and other measures to conserve farmland. Comprehensive countermeasures will be promoted for the problem of outflows of red clay, and efforts will be made to conserve farmland and to mitigate the environmental impact from this.

As for stock-raising, progress will be made in cultivating and expanding unique brands through the use of pigs whose lineage has been controlled, as well as in improving breeding management techniques and

adopting superior sire pigs while taking the environment into consideration. For beef cows, the stable production of high-quality calves will be promoted, such as by centralizing the production of young calves. For dairy farming, efforts will be made to supply coarse feed in a self-sufficient manner, while also striving to expand consumption of cow's milk. Regarding poultry raising, efforts will be made to promote production while striving to improve the environment in which they are raised.

Moreover, efforts will be made to add added value and brand specialty items like medicinal crops, shikuwasa, brown sugar, and black tea made in Okinawa. To do so, the development and strengthening of coordinated structures that include food processing, distribution, sales, and tourism will be promoted, and facilities for processing agricultural products will be established.

For sugar production regions, including those on peripheral outlying islands, support will be provided for stabilizing both the incomes of farmers and operations at the sugar refining businesses. Together with this, efforts will be made to increase demand for sugar through initiatives like expanding sales within Japan and to other countries, developing new products, and putting sugar to use for multiple purposes.

For forestry, efforts will be made to create production regions for lumber, promote the production of special forest products, and develop uses for prefectural lumber. What is more, the forest development needed to allow forests to exhibit the various functions they possess in a sustainable manner will be promoted, and efforts will be made for the multifaceted use of forests through forest tourism and the like.

Production, processing, and distribution functions for marine products will be strengthened by mainly focusing on Nago Fishing Harbor, which is a hub for the distribution of marine products. Maintenance and upgrades on production bases and facilities, including deteriorated fishing harbors and fishing grounds, will also be promoted in a systematic manner. Furthermore, efforts will be made to add added value in cooperation with food processors and others, as well as to expand production via resource management of the fish species found in the coastal waters.

Hubs for people from cities to hold exchanges and spend the night will be created in rural regions, and efforts will be made to further strengthen cooperation with the tourism resort industry and others.

(c) Promoting local leading industries

(Omitted)

What is more, in the aim of creating industries related to the environment, efforts will be made to hold demonstration trials in relation to, and actually implement, the adoption of renewable energies such as solar power, wind power, and biomass (including on outlying islands). Additionally, the recycling of waste and its effective use will be carried out on outlying islands and the like based on research and study on such matters, and the creation of business models related to the environment will be promoted.

(Omitted)

(d) Promoting commerce and industry

(Omitted)

Initiatives will be promoted through cooperation with agricultural commercial interests geared towards creating Yambaru brands. This includes developing products through the use of tangible and intangible regional resources, such as local agricultural, forestry, and fisheries products, and also promoting sales of said products. Moreover, the use of existing facilities for processing agricultural, forestry, and fisheries products will be promoted. Efforts will also be made to establish sales structures suited to the local region and develop human resources such as local leaders.

(Omitted)

C. Enhancing Spheres of Everyday Life

(a) Improving infrastructure for transportation and distribution

(Omitted)

(b) Improving living environment infrastructure

(Omitted)

(c) Enhancing functions related to health and medical care and welfare

(Omitted)

(d) Ensuring educational opportunities

(Omitted)

D. Promoting Use of the Sites of Former Military Bases

For the former sites of the Northern Training Area and Aha Training Area, which are facilities slated to be returned to Japan that were indicated in SACO's final report, initiatives will be taken for the appropriate conservation of the natural environment and to conserve and improve forest regions. Efforts will also be made to use them by harnessing the resources of the Yambaru forests. Furthermore, for the site of the Gimbaru Training Area, efforts will be made to install regional medical facilities and rehab-related facilities based on the plan for using the site.

E. Promoting International Exchanges

(Omitted)

What is more, efforts will be made to set in place an environment where the descriptions on informational placards are written in multiple languages to accommodate tourists from other countries. Other efforts will be made to set in place a foundation for promoting personal exchanges with people from various other countries, such as by fostering tour-guide interpreters.

(Omitted)

(5) Yaeyama Region

(Omitted)

[Basic Approach to Deployment]

Efforts will be made to conserve the rich natural environment teeming with diversity, as well as to pass down various traditional events, traditional performing arts, and traditional crafts. Tourism where people have experiences and stay in the region, such as ecotourism and green tourism, will be promoted and efforts will be made to promote the tourism resort industry unique to this region while boosting the appeals unique to each of the islands.

What is more, progress will be made with the promotion of agriculture, forestry, and fisheries industries by making use of the region's natural and geographical conditions. In addition, efforts will be made to promote personal and physical exchanges within Japan and with other countries by capitalizing on the region's quality of being situated at Japan's southwestern-most tip in working to revitalize the region.

Moreover, efforts will be made to enhance facilities for medical care, welfare, education, and more in Ishigaki City, which is a core urban area for the region, and ease of transit to the peripheral outlying islands will be improved.

In regions where depopulation and the aging of the population are advancing, such as in peripheral outlying islands, local industries that use appealing regional resources, such as their traditions or culture, will be promoted. In addition, the development of living environment infrastructure, such as for government, medical care, and education, will be promoted. Efforts will also be made to improve the conditions for settling in such regions, such as by reducing the fairly high cost of living and correcting various disparities.

What is more, by way of countermeasures against natural disasters, efforts will be made to functionally enhance public facilities in order to ensure the stability of the living environment.

A. Enhancing the Functions of Core Urban Areas

(Omitted)

For Ishigaki Port, efforts will be made to expand the port's functionality as a hub for exchange, with this to include enhancing disaster prevention functions and installing energy berths. Moreover, the installation of breakwaters and other facilities that can accommodate massive passenger ships from overseas will be promoted in an effort to strengthen its foundation as an international tourism resort area. For New Ishigaki Airport, its functions for receiving international flights will be enhanced, and initiatives geared towards expanding routes to locations in Japan and overseas will be addressed. What is more, in the interest of reducing the burden on residents, efforts will be made to reduce ship fares and airfares.

Efforts will be made to boost the region's appeal as a tourism resort area and to expand its nonresident population. This will be done by promoting the development of main roads and the municipal roads that will complement these. Said main roads will include roads linking Ishigaki Airport with wide-area transportation hubs, such as other airports and ports, central downtown areas, rural communities, tourist attractions, and more.

(Omitted)

B. Promoting Industry that Harnesses the Characteristics of the Region

(a) Promoting the tourism resort industry and advancing industry innovations

The nonresident population of Sekisei Lagoon will be expanded with a view towards revitalizing the region through the use of unique regional resources such as its natural environment, scenery, and traditional culture. To do this, progress will be made in creating a unique tourism style through the use of various resources. These include natural environments teeming with diversity, such as coral reef regions like the world-famous Sekisei Lagoon, the vast primeval forests and mangrove forests of Iriomote Island, and more. This will also include the historical and cultural resources within the region; agricultural, forestry, and fisheries products like tropical fruit trees; and the hospitality of its residents.

(Omitted)

Moreover, in order to create tourist attractions that coexist with the environment, the development of sustainable tourist attractions will be promoted. This will be done through measures like enacting usage rules for natural resources and providing thorough notification of them; developing, enhancing, and disseminating excellent tourism options that take the environment into consideration; and installing facilities that work to mitigate environmental impacts.

What is more, activities to attract tourists from neighboring countries and other areas will be promoted in concert with the region through enhancing air routes by attracting new airlines and sales activities geared towards regularly establishing airline routes, and also attracting cruise ships. In addition, the installation of facilities to accommodate the growth in the number of tourists from within Japan and other countries will be promoted by using local programs to promote the creation of tourist attractions, and the national government will be encouraged to simplify customs, immigration, and quarantine (CIQ) procedures. Efforts will also be made to enhance reception programs, such as by improving interpretation and guidance services, while also working to boost tourist satisfaction.

(Omitted)

(b) Promoting the agricultural, forestry, and fisheries industries

The development of irrigation facilities and production bases, such as by land readjustments, will be promoted. In addition, efforts will be made to reorganize and upgrade existing facilities, and measures to effectively use agricultural water will be promoted. What is more, efforts will be made to conserve farmland and reduce the environmental impact by promoting the installation of shelterbelts designed to prevent damage to agricultural produce from typhoons and other meteorological disasters, as well as comprehensive countermeasures to the problem of outflows of red clay.

For items like pineapple, okra, and tropical flowers, the installation of production facilities and establishment of distribution and sales facilities will be performed in a systematic manner, and priority will be given to fostering centralized production regions.

For things like sugarcane and beef cows, production structures will be strengthened and a type of agriculture in which resources are recycled will be promoted. For sugarcane in particular, efforts will be made to improve productivity and quality by breeding and disseminating superior seeds and seedlings, cultivating the soil, and controlling pests in the soil. In addition, efforts will be made to expand the scale of operations by aggregating the use of farmland, cultivating and enhancing agricultural production corporations and agricultural organizations performing work on commission, and more.

For sugar production, including that on peripheral outlying islands, support will be provided for stabilizing both the incomes of farmers and operations at the sugar refining businesses. Together with this, efforts will be made to increase demand for sugar through initiatives like establishing a brand of brown sugar, developing sales channels, and putting sugar to use for multiple purposes.

For stock-raising, the region will be made into a central production region for calves while taking environmental issues into consideration, the branding of “Ishigaki cattle” and other types of commercial cattle will be promoted, and a meat center will be established.

Forest development will be carried out that will allow forests to maintain and exhibit the diverse functions they possess, including for things like headwater conservation and defending against tidal, wind, and storm damage. Together with this, efforts will be made towards the multifaceted use of forests by means of forest tourism and the like.

For the fisheries industry, efforts will be made for resource management of the fish species found in the coastal waters, such as the Okinawa blue water fish, while also aiming to expand production by promoting a fishing industry that fishes and cultivates mozuku, grouper, and more, as well as through branding.

What is more, efforts will be made to enhance distribution functions by installing distributive processing facilities, and maintenance and upgrades on production bases and facilities, including deteriorated fishing harbors and fishing grounds, will also be promoted. In addition, a positive fishing ground environment will be conserved, and an orderly fishing industry will be maintained and ensured.

C. Enhancing the Spheres of Everyday Life

- (a) Improving living environment infrastructure

(Omitted)

- (b) Enhancing functions related to health and medical care and welfare

(Omitted)

- (c) Ensuring fair educational opportunities

(Omitted)

D. Creating Communities that Coexist with Nature

As an island region, this region is structured in a way that makes it fragile when it comes to environmental impacts. Therefore, measures like curbing the output of waste, reducing its weight, and recycling it will be promoted, as will the efficient disposal of waste based on the actual circumstances in the region.

Efforts will also be made to install public sewage systems and community drainage systems, and to disseminate community wastewater treatment tanks. Additionally, the effective use of water resources like rainwater and recycled water will be promoted.

Moreover, the adoption of a type of agriculture that conserves the environment and renewable energies such as solar power, wind power, and biomass will be promoted. Various measures like demonstration projects for micro-grids will be carried out in a pioneering manner, and efforts will be made to establish a resource recycling-oriented society.

In order to conserve coral reef ecosystems, the intensive eradication of crown-of-thorns starfish will be performed, and countermeasures against the environmental impact from things like outflows of red clay from inland areas will be instituted.

E. Promoting International Exchanges

Cultural exchanges such as folk entertainment, traditional handicrafts, and field trips with Taiwan and other countries will be promoted in an effort to advance mutual understanding internationally. In addition, efforts will be made to set in place a structure that supports excursions and travel within the region by promoting the distribution of information in multiple languages. Examples of this include displays on informational

placards and labels on special products in multiple languages, and tourism and public transportation information that uses ICT.

(Omitted hereafter)

4-42 Okinawa Prefecture Basic Plan for Tourism Promotion
(Fifth Plan)
Outline

1 Significance of Developing the Plan

Okinawa Prefectural Government (OPG) has positioned tourism as a leading industry in Okinawa's economy and has been making various efforts to promote it. As a result, the prefecture is now regarded as one of the best tourist and resort destinations in Japan. However, the tourism industry in Okinawa is recently facing tough realities due to the sluggish growth in the number of inbound tourists against the backdrop of various factors such as the unstable world economy, the global outbreak of the H1N1 flu, occurrences of conflicts and terrorism, and the Great East Japan Earthquake.

In order to ensure the sustainable development of tourism in Okinawa under such circumstances, it is required to take proactive measures in various ways including strategically exploiting overseas markets, developing into an eco-friendly destination, and establishing Okinawa's tourism brand. Therefore, OPG has set up the Okinawa Prefecture Basic Plan for Tourism Promotion, and other relevant plans, to take various strategic and aggressive approaches based upon these plans.

2 Nature of the Plan

The Plan has been drawn up according to Article 7 of the Okinawa Prefectural Ordinance on Tourism Promotion (Ordinance No. 39 of 1979) to define basic directions for tourism development.

The Plan presents a vision of Okinawa's tourism 10 years from now that all those involved in Okinawa's tourism, including its citizens, should recognize, and offers basic policies to achieve the vision through concerted efforts of relevant parties.

3 Period of the Plan

The Plan targets a period of 10 years from FY2012 to FY2021.



Outline of Plans Related to Tourism in Okinawa

Okinawa 21st Century Vision

Future Goal of Okinawa in 2030
Drawn up in March 2010

Okinawa 21st Century Vision Master Plan (Period of the Plan: FY2012-FY2021)

A comprehensive basic plan inclusive of all previous areas of promotion of Okinawa, which also serves as the Okinawa Promotion Plan defined in the Act on Special Measures for the Promotion and Development of Okinawa.
Drawn up in May 2012

Okinawa 21st Century Vision Implementation Plan (Period of the Plan: FY2012-FY2021)

A plan that clarifies what OPG will do based on various schemes set out in the Okinawa 21st Century Vision Master Plan and the Okinawa Prefecture Basic Plan for Tourism Promotion.

Okinawa Prefecture Basic Plan for Tourism Promotion

(Period of the Plan: FY2012-FY2021)

A plan that presents basic directions in the field of tourism promotion, based on the Okinawa 21st Century Vision Master Plan.

Drawn up in May 2012

Visit Okinawa Plan (Period of the Plan: Single Fiscal Year) (Drawn up every fiscal year)

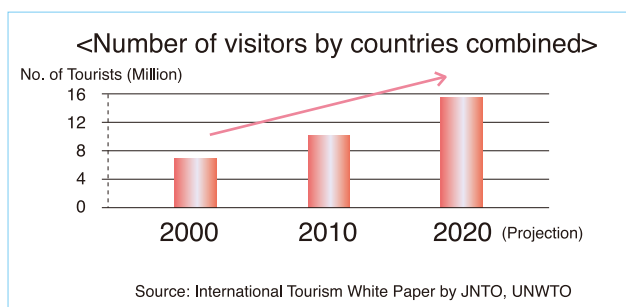
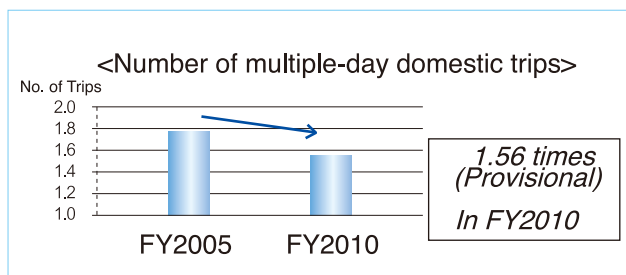
A specific action plan drawn up to attract tourists, based on the Okinawa 21st Century Vision Master Plan and the Okinawa Prefecture Basic Plan for Tourism Promotion, with target figures for each fiscal year.

Drawn up in May 2012

4 Domestic and International Trends in Tourism

Currently more than 90% of the tourists to Okinawa are Japanese. In Japan, however, the number and the length of domestic multiple-day trips per head are on the decline as well as travel-related spending per household.

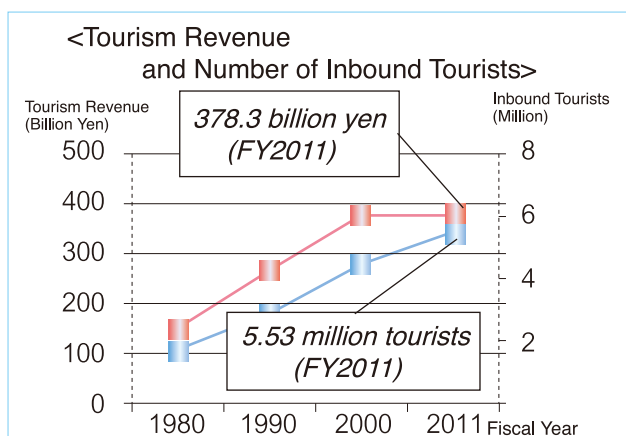
On the other hand, the number of tourists is increasing in the world as a whole, and the growth is expected to continue in the future. In light of this, the Government of Japan has set a target of receiving 25 million foreign visitors by early 2020, and 30 million visitors beyond that.



5 Situations of Tourism in Okinawa

Although the tourism-related revenue and the number of inbound tourists saw steady growth since 1972, this growth has slowed in the recent years, standing at around 4 billion yen and 5-6 million visitors, respectively. In addition, the number of nights stayed in Okinawa shows a declining trend, and in recent years, the figures have remained on the same level. Average spending in the prefecture per tourist has slowly been declining as well.

Air routes that are crucial to attract tourists have been shrinking since FY2007 for domestic flights. However, international air routes are expanding with the addition of two routes in FY2011, for Beijing and Guam, to the existing routes for Seoul, Taipei, Hong Kong and Shanghai, making the total number of international air routes to six.



6 Issues of Tourism in Okinawa that Need to be Addressed over the Next 10 Years

Considering the outer and inner situations of tourism in Okinawa, we have identified, as follows, issues that need to be addressed over the next 10 years in order to materialize the vision of Okinawa's tourism in 10 years, which is the goal of the Plan.

Issues of Tourism in Okinawa that Need to be Addressed over the Next 10 Years

- | | |
|--|--|
| 1. Responding to international competitions among tourist destinations | 4. Establishing a basis for sustainable tourism |
| 2. Responding to environmental problems | 5. Furthering understanding of tourism among citizens |
| 3. Playing a role as a mainstay industry | 6. Promoting the development of human resources that can contribute to tourism development |

7 Future Goal

We aim to establish Okinawa as a “world-class tourist and resort destination” through various efforts based on the Plan and other relevant plans.

“World-class tourist and resort destination” is defined as Okinawa being equipped with basic qualities as a sophisticated tourist destination. Together with the charm and allure of Okinawa’s unique properties, the goal consists of being broadly recognized inside and outside Japan as “OKINAWA”, a prime tourist and resort destination that stands out among other travel destinations competing in the Asia-Pacific region.

8 Key Value

Three core factors of Okinawa’s attraction are Nature: Okinawa’s sea, forests, and biodiversity; Culture: Okinawa’s history and performing arts; and People and Environment: Okinawa’s safety, relief, and comfort.

By increasing the competitive advantage through the full utilization of such factors, we will make a fully attractive tourist destination branded as OKINAWA.

9 Target Frame

We aim to achieve the following target figures in 10 years from now, by aggressively implementing various measures in the Plan.



Future Goal

World-class tourist and resort destination

Upon Materialization of the Future Goal

Tourists can:

visit destinations meeting their interests and needs, relax and enjoy memorable experiences and interactions that are unique to Okinawa.



Tourism Industries can:

obtain a stable revenue from tourism, play a leading role in the prefectural economy, and form a proud and responsible sector.



Citizens in Okinawa can:

enjoy full benefits of tourism from the viewpoint of health to social and economic aspects, recognize the value of tourism in Okinawa, and actively participate in the development of an attractive tourist destination.



Tourism Resources can be:

highly appreciated along with natural and cultural resources, utilized and preserved in an appropriate manner responding to local situations.



Figures to be Achieved by FY2021

1. Revenue from tourism: ¥1 trillion	4. Cumulative total number of nights stayed by tourists: 40.27 million nights (31.52 million nights by domestic tourists, and 8.75 million nights by international tourists)
2. Spending in the prefecture per tourist: ¥100,000	5. Number of inbound tourists: 10 million (including two million international tourists)
3. Average days per visit: 5 days International tourists are assumed to travel by air.	

10 Strategic Directions

We will materialize the future goal in 10 years by implementing measures based on the following basic directions. The complete version of the Plan offers detailed descriptions for each measure.

1 Offering a wide variety of attractive tourism experiences

<Basic Directions>

We will provide high quality tourism experiences unique to Okinawa while keeping a balance between preservation and succession, and utilization of “Nature” and “Culture”, two of the core factors of tourism in Okinawa. With such core images in the basis, we will exploit a new market by developing various tourism options that combine sports, medical services, and Okinawa’s culture and performing arts.



<Development of Measures>

- (1) Develop an Okinawan version of nature tourism
- (2) Promote an Okinawan version of culture tourism
- (3) Develop a variety of tourism options
- (4) Consider the introduction of quality assurance
- (5) Promote the differentiation of regions

2 Preparation of a basic tourism environment

<Basic Directions>

In order to ensure that tourists can stay in Okinawa with a sense of safety, security and comfort, we will improve the qualities of basic transportation and information infrastructures, and develop human resources engaging in tourism.

We will also promote the development of scenic views appropriate for tourist destinations, tourism environments unique to Okinawa, and universal designs, and will enhance emergency response capabilities in efforts to make Okinawa a more care-free, tourist-friendly and attractive destination.



<Development of Measures>

- (1) Promote the improvement of transportation networks
- (2) Work to enhance information infrastructure
- (3) Nurture human resources engaging in tourism
- (4) Promote the development of scenic tourist destinations
- (5) Promote universal designs
- (6) Enhance emergency response capabilities

3 Securing the stability of the tourism industry

<Basic Directions>

We will promote the sustainable development of the tourism industry with stable tourism revenue by promoting the increase of spending by tourist in the prefecture and the length of visits, and maintaining the number of inbound visitors all year round by leveling off seasonal fluctuations.

In addition, we will further increase the significance of tourism as a leading industry by enhancing spillover effects on related industries and maintaining employment opportunities.

<Development of Measures>

- (1) Promote measures to ensure tourism revenue
- (2) Work to enhance spillover effects on related industries
- (3) Promote measures to maintain and secure employment opportunities
- (4) Promote measures for the formulation of a responsible industry sector

4 Effective marketing

<Basic Directions>

In order to promptly respond to changes in the market and effectively attract tourists, we will conduct market researches and analyses that are high in effectiveness, take strategic approaches to exploit new markets based on the results of the analyses, and undertake promotions attentive to each target market.

In addition, we will attempt to establish a tourism brand for Okinawa in order to enhance Okinawa's competitive edge and increase the awareness of the prefecture.

<Development of Measures>

- (1) Conduct highly prompt surveys and proper analyses on markets
- (2) Strategically exploit new markets
- (3) Establish a brand for tourism in Okinawa
- (4) Undertake effective promotions

5 Reorganizing the promotion structure

<Basic Directions>

We will reorganize the structure for cooperation for all parties involved so that all the relevant people, including our citizens, can cooperate in concerted efforts.

We will also promote tourism-oriented community building in collaboration with the citizens, and deepen their understanding of tourism by promoting tourism education, and travels in the prefecture by the citizens themselves.

In addition, we will consider the use of indicators to objectively share the information on Okinawa's tourism situations.

<Development of Measures>

- (1) Organize a structure for cooperation
- (2) Build a tourism-oriented community in collaboration with the prefecture's citizens
- (3) Adopt policies based on objective indicators



11 Basic Directions by Regions

Basic directions by regions in the field of tourism promotion will be determined taking the regional features into account, based on the five basic policy directions set out in the Plan based on "Chapter 5 Basic Directions in Implementation by Regions" of the Basic Plan of Okinawa 21st Century Vision, a superior plan to this Plan.

12 Measurement of Achievements

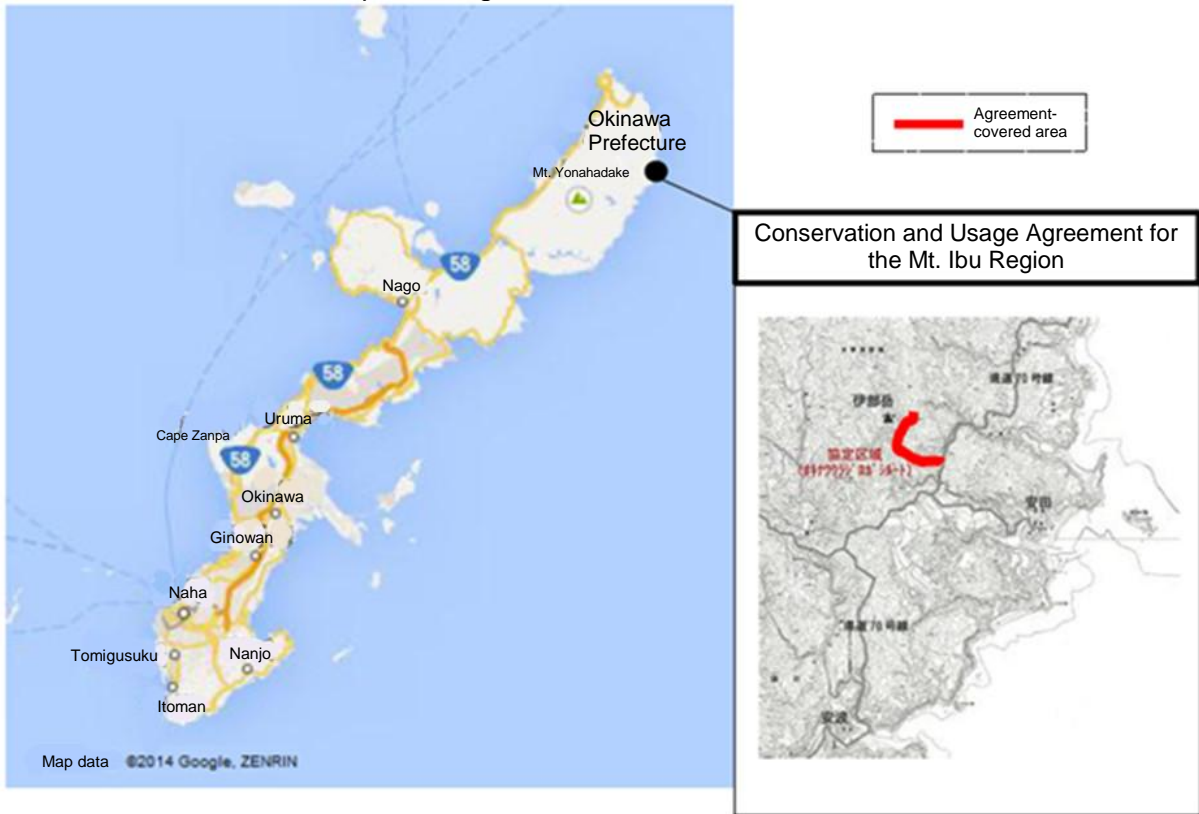
The Plan will set achievement indicators for four future pictures in materializing the "world-class tourist and destination", so that relevant parties can share information and see the achieved distances of these goals through efforts based on the Plan.

In addition, target figures for achievement indicators will be individually discussed and set, considering the future target of 10 million inbound tourists.

4-43 Mt. Ibu Conservation and Utilization Agreement (Overview)

Agreement-covered area	Mt. Ibu mountain trail—Okinawa-urajirogashi Route
Contents of activities	Trekking
Date authorized	October 31, 2014 (Term of validity for the agreement: September 1, 2014–August 31, 2016)
Businesses that concluded the agreement	Institute of Yambaru Ecotourism; Representative: Shinobu Nakane * Representative business operator
No. of business that concluded the agreement	One business in total
Main content	<p><Considerations for the natural environment></p> <ul style="list-style-type: none"> • Set an appropriate max number of people per tour (two trips per day, up to six people per trip (excluding the guide)) • Visitors may not bring along or take out pets or any other animals • Caution must be paid to ensure that people don't tread on anything like the roots of trees that are easily damaged along the mountain trail • Comply with local rules (Ada region regulations, etc.) regarding business operations • Perform monitoring about two times per year within the agreement-covered area <p><Considerations for the region></p> <ul style="list-style-type: none"> • Comply with local rules (Ada region regulations, etc.) regarding business operations • The business that concluded the agreement shall contribute environmental cooperation funds (voluntarily) • Visitors must give consideration to the residents' living environment and work to protect their privacy, such as when taking photos

Conservation and Usage Agreement Authorized by the Prefectural Governor:
Map of the agreement-covered area's location



4-44 Nakama River Conservation and Utilization Agreement (Overview)

Agreement-covered area	The Nakama River and its surrounding forests (including a natural recreation forest (Nakama River Region) and a forest ecosystem conservation district)
Contents of activities	Sightseeing boats, kayaks
Date authorized	First authorization by the Prefectural Governor (June 2004) * Date the current agreement was authorized January 23, 2013 (Term of validity for the agreement: January 23, 2011–January 23, 2015)
Businesses that concluded the agreement	<ul style="list-style-type: none"> • Tobu Kotsu Co., Ltd.; Representative director: Masamichi Tamamori * Representative business operator • Marine Leisure Kanamori; Representative: Yoshikatsu Kanamori • Haimi Papillon; Representative: Toshio Yamamoto • Churanesia; Representative: Satoru Yahata • Sea Kayak Tour Kurage; Representative: Katsumi Kaneda
No. of business that concluded the agreement	Five businesses in total
Main content	<p><Considerations for the natural environment></p> <ul style="list-style-type: none"> • Regulate the speed at which the sightseeing boats operate in order to protect the mangrove forests • Establish reduced speed sections • Adopt sightseeing boats that tend to not produce bow waves • Voluntarily restrain use of vessels with two-stroke engines • Restrict the operation of sightseeing boats as a result of tide levels • Set an upper limit for the number of boats for each canoe tour party • Limit the number of canoers • Prohibit the collection of wildlife • Have business operators join forces to pick up trash <p><Considerations for the region></p> <ul style="list-style-type: none"> • Do not enter the mountains along the Nakama River during the wild boar hunting season • Ensure that people do not come into contact with the implements used to fish for gasami blue crab • Periodically set up venues for dialog with the local residents, report on

field observations and records, and hold exchanges of opinions with them

Conservation and Usage Agreement Authorized by the Prefectural Governor: Map of the agreement-covered area's location

