

Satoyama in Japan

- For Nature-based Solutions -



Biodiversity Policy Division, Nature Conservation Bureau,
Ministry of the Environment Japan

Message from Director-General

Satoyama landscapes reportedly cover about 40% of the national land of Japan.

These vast and diverse landscapes have been created through interaction between nature and people. Thus, handing them down to future generations requires continuous interaction by all of us. Indeed there are lots of initiatives, including but of so urban residents, private organizations, and businesses not only people working in rural communities.

Many of them aim not just to conserve the biodiversity in the areas but also to solve wider social and economic issues, such as improving livelihoods, revitalizing local economies, and promoting exchange between cities and rural communities. Hence, they provide good examples of “Nature-based Solutions” that have been gathering global attention.

Now it is proposed that 30% of the global land and sea areas need to be conserved by 2030, “30 by 30” in short, as areas with healthy natural ecosystems to safeguard our lives and livelihoods. I believe that Satoyama ,that may provide areas for OECM(Other Effective area-based Conservation Measures), have a huge potential to contribute to our efforts in achieving this target.

We hope this document will widely inform the world of the values of sustainable production landscapes like Satoyama in Japan, and enhance activities contributing to biodiversity conservation with multiple benefits for the people.



Table of Contents

Examples of Satoyama in Japan

What are SATOYAMA?	• • • • • 2
Initiatives Focusing on Nature and Living Organisms	• • • • • 3
Initiatives Focusing on Economic Use of Local Resources	• • • • • 5
Initiatives Focusing on Exchanges Between Cities and Local Communities	• 7

What are Satoyama?

Satoyama are usually located in the rural areas of Japan where agriculture, forestry and fisheries are the main industries. They are known as socio ecological production landscapes and seascapes, SEPLS in short. They consist of production ecosystems like secondary forests, farmlands, irrigation ponds, and grasslands as well as human settlements.









They are created by human activities to produce food and fuels, but eventually become irreplaceable habitats for a range of fauna and flora. Moreover, Satoyama serve multidimensional functions, in a broader context, including national land conservation and headwater conservation, while providing places for healing or leisure and inspiring the creation of art and literature.

Those ecosystem services from Satoyama, including necessary resources, safety and comfort, are co-created by both nature and continued human interventions.

Therefore, it is crucial to conserve their biodiversity as they are inseparable from human activities.



Areas and Types of Examples

	Area	Type	Content
1	Initiatives Focusing on Nature and Living Organisms	 Protection	Habitat improvement, monitoring survey, etc.
		 Control of wildlife	Control of alien species, boar countermeasure, etc.
		 Landscape	Solution for abandoned farmland, forest improvement, conservation system, etc.
2	Initiatives Focusing on Economic Use of Local Resources	 New resources	Food, energy, fertilizer, tourism resources, etc.
		 Promotion of economic activities	Corporate participation, development of a sustainable mechanism, etc.
3	Initiatives Focusing on Exchanges Between Cities and Local Communities	 Environmental education	Environmental learning, nature observation workshop, etc.
		 Traditional culture	Traditional event and festival, etc.
		 Exchange between cities and villages	Agriculture work experience, eco-tourism, etc.

Habitat Restoration in Traditional Rice Cultivation System (Kubo River Ihatov Nature Restoration Council, Ichinoseki City, Iwate Prefecture)



Rural landscape in Ihatov

Program Background

The Ihatov area is one of the rare areas in Japan where semi-natural forests were not replaced by commercial timber forests in the post war period and public works for big-scale agricultural land improvement were not conducted. Thus, it maintained natural habitats for indigenous species depending on the agriculture. In recent years however, indigenous aquatic organisms, primarily in irrigation ponds, have been decreasing in number due to changes in water management methods for rice production, the use of chemical fertilizers and agrochemicals, and the impacts of invasive alien species. Adjacent forest floors now also have poor vegetation since thinning and weeding are not carried out.

The Nature Restoration Council was established in Ichinoseki City and launched restoration programs. The aim is to pass on the bountiful nature to the next generations.

Activities Undertaken

- Biota monitoring survey conducted every year.
- Eradication of invasive species such as Largemouth bass and American bullfrog from some of the irrigation ponds and continuous efforts to prevent them
- Exploring methods based on the results of research and control, including control of invasive alien species, taking care of abandoned farmlands, and biotope development
- Outreach to locals and urban residents through environmental education



Restored habitat of *Hemerocallis esculenta*



Biotope development with participants from private companies



Biodiversity conservation promotion support project

Grassland Species Conservation by Forestry Operation

(Northern Mt. Fuji Biodiversity Conservation Council, Narusawa Village and Fujikawaguchiko Town, Yamanashi Prefecture)

Background

Grassland environments in Japan have shrunk dramatically to account presently for less than 5% of the national land, rapidly causing many grassland plants and animals to become endangered.

Mt. Fuji is no exception to this trend. There is an area of semi-natural grassland selected as Important Satoyama Area by the Ministry of the Environment but many endangered plants and animals are only barely surviving. The Nature Restoration Council therefore surveys biota and its gradual changes on areas being clear-cut and newly planted, which is more or less like grassland ecosystems, while comparing it to remaining semi-natural grasslands. The purpose is to verify that afforested sites could serve as alternative habitats for endangered grassland species and that subsequent forestry operations could play a role in biodiversity conservation.

Activities Undertaken

- 2 Fixed monitoring sites were identified and 13 endangered plant and butterfly species confirmed by the survey on fauna and flora
- Climatic conditions and soil moisture monitored
- Weeding and deer fence installation conducted by forestry workers and volunteers on afforested monitoring sites to verify the positive effects on conservation of the endangered species



Paeonia obovata Maxon



Niphanda fusca



Weeding at an afforested site



Background

Suzu City has rich areas of Satoyama and Satoumi (seascape) and is home to a diverse range of living organisms. It is a leading habitat in Japan for two types of *Cybister chinensis*. The municipal government therefore developed a conservation plan for the species. Education for elementary school students, monitoring surveys, maintenance of irrigation ponds and environment-friendly agriculture have been promoted in accordance with the plan.

However, as the situation of irrigation ponds and rice paddies continues to worsen, the city started more comprehensive surveys aiming at long-term conservation going forward. The local residents are involved in the survey and the process of developing concrete methods to improve the current situation.

Activities Undertaken

- 167 different aquatic animals confirmed in 163 irrigation ponds, *Cybister chinensis* species confirmed at two of them
- Around 30% of the 218 irrigation ponds found to have been disappeared, or to be unreachable due to lack of road management
- Expert study meetings conducted
- Training sessions provided for local residents on survey methods, aiming to deepen local understanding concerning living organisms that rely on irrigation ponds
- Currently 18 citizen surveyors involved, which has been steadily increasing over the years.



Survey by citizens



Collected *Cybister chinensis*



Expert study meeting



Habitat Restoration of *Polemonium kiushianum* and other endemic plants in Aso Area (NPO Aso Flower Field Association, Takamori Town, Kumamoto Prefecture)

Background

In Aso, *Polemonium kiushianum* grows naturally on grasslands that are managed by weeding and open burning. They cannot grow in places that have become overgrown as a result of their management having been discontinued. Due to the decreasing demand of grass materials, natural habitats are scaling down year by year.

To tackle this situation, the Aso Flower Field Association has conducted survey to find out former natural habitats covered by afforested timber trees but which could be restored. Then, the association carried out logging, weeding, and open burning as conservation actions to enhance germination from the seedbank. It also restores and conserves semi-natural grassland ecosystems that are home to other endemic species of Aso, such as *Lynchnis sieboldii* and *Ligularia fischeri var. takeyukii*.

Activities Undertaken

- Survey conducted to select sites where restoration is possible out of 56 sites where *Polemonium kiushianum* has been recorded
- Restoring *Polemonium kiushianum* habitats by logging the afforested woods
- Weeding and open burning at sites where *Polemonium kiushianum* is currently growing to conserve and restore a hospitable environment for the plant



Grassland with flowering *Polemonium kiushianum*



Before weeding



After weeding and open burning

Background

Sasa palmata grows naturally in the mountainous area in the northern part of Kyoto City. Used to wrap traditional confections or make a special good luck charm indispensable for the Gion Festival, it has long been a part of the culture of Kyoto. The population is in decline due to feeding damage caused by deer as well as a shortage of workers engaged in Satoyama forest management. Local culture and industry are in a critical state on both the supply side and the user side.

This project aims not only to restore population of **Sasa palmata**, but also to secure forest workers, promote traditional techniques and distribution of **Sasa palmata** to revitalize local culture and industry. The local residents are involved in the survey and the process of developing concrete methods to improve the current situation.

Activities to be Undertaken

- Expansion of the existing fenced area to improve and restore the habitat of **Sasa palmata**, by installing new deer fences
- Support for securing young forest workers and resurrecting traditional techniques by holding workshops
- Creating new demand for **Sasa palmata**, adding high value, etc.
- Raising public awareness for a sustainable mechanism to support the continuation of activities by involving the business sector and urban residents



Sasa palmata restored with installation of deer fence



Sasa palmata with feeding damage



Paddy Field Fish Nursery Project

(Seseraginosato Group, Yasu City, Shiga Prefecture)



Background

Rice paddies in Yasu City, Shiga Prefecture, were connected to Lake Biwa through irrigation canals, providing spawning grounds for endemic fish species of the lake. But public work to improve paddy fields created a difference in water levels between canals and rice paddies. Fish can no longer move freely.

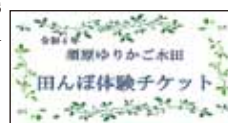
Paddy Field Fish Nursery Project was launched in 2001 by a local farmers' group named Seseraginosato (meaning Village of small streams). They installed stair-like fishways in the canals to enable fish to go upstream over the water level gaps. Drainage ditches of the paddy fields were also improved. The project aims to restore the familiar local landscape while ensuring ecosystem conservation through environment-friendly rice cultivation.



Fishway that allows fish to swim upstream



Signboard introducing the initiative



Ticket for agriculture experience

Activities to be Undertaken

- Developing fishways in canals and at drainage ditches making over 180 ha of rice fields accessible for fish in FY2021
- Rice cultivation using an environment-friendly method (agrochemical-free, chemical fertilizer-free)
- Introducing the rice paddy owner system
- Branding and promotion of products such as high-end rice and Japanese sake (rice wine)



"Rice from Fish Nursery" and "Moonlit Cradle" sake



Background

Maniwa City operates a power generation plant using forest biomass such as unused byproducts and waste. The municipality covers headwater area and uses fertilizer made from oyster shells to produce Maniwa Satoumi (seascape) Rice. These oyster shells are from downstream coastal areas, and since they are otherwise hard to consume in the origin, these initiatives establish a watershed circular economy, making the region self-sustaining.

As part of the initiatives, a visitors' facility named "GREENable HIRUZEN" was opened in 2021 in the National Park area. It helps visitors learn about the sustainability initiatives, tourist's destinations and cultural attractions in Maniwa. The city cooperates with Hankyu Hanshin Department Stores to promote GREENable-branded products and services. Visitors can get a taste of sustainable life while enjoying the "Kazenoha" CLT pavilion along with the museum, shops, and activities.



Kazenoha CLT pavilion



Hiruzen Museum



Grasslands of Hiruzen Highlands

Activities to be Undertaken

- Building a facility that provides tourist information about Hiruzen within a national park
- Developing products under the original sustainability-conscious "GREENable" brand
- Providing activities in nature, including cycling and picnicking, and art at the museum
- Establishing the Nature Restoration Council to develop a mechanism to use and conserve the natural ecosystems of Hiruzen

Rabbit-friendly Citrus production, Coexisting with *Pentalagus furnessi*

(Tokunoshima Town, Kagoshima Prefecture)



Background

Tokunoshima is an island forming part of a World Natural Heritage registered in 2021. It offers natural habitats for an endemic rabbit species called *Pentalagus furnessi*. The animal's population is said to be around 200 on the island. This endangered species is an icon of Tokunoshima.

One of the main industries is agriculture and includes local citrus, called "tankan," production. Feeding damage caused by the rabbits on trunks of the citrus trees has been an issue. Wisely utilizing the situation, local farmers started branding citrus products with the rabbit. This project is not only providing countermeasures against feeding damage but also making the local industry more sustainable.

Activities to be Undertaken

- Night tour and eco-tour for residents of the island (observing *Pentalagus furnessi*, installing fences to reduce feeding damage at farms)
- Adding high value to Citrus tankan harvested at farms that coexist with *Pentalagus furnessi* (storybook, new package)



Countermeasures against feeding damage by *Pentalagus furnessi*



Burrow of *Pentalagus furnessi*



Citrus tankan



Members gathering for a regular activity



Using a rope to control the direction of the tree being cut down



Using a saw for thick-trunked trees

Program Background

In Sagami-hara City, as forestry workers gradually decreased, volunteer activities for forest conservation emerged. In 2002, an NPO called Midorinodam Kitasagami was established. It started a program for youth education involving afforestation and forest management such as thinning, pruning, and weeding. The NPO now collaborates with Tokyo Gakugei University to develop a wider use of timber from forest thinning by using joints fabricated by 3D printers. The program provides learning opportunities for the youth through practical hands-on activities.

Activities Undertaken

- Fostering Forest for Youth: STEAM education program including thinning, pruning, ecosystem surveys using a drone and GIS, use of products from forest thinning
- Forest experience workshops (planned and operated by junior high and high school students for local elementary school students)



Education Program Accelerating New Satoyama Use for Next-Generation

(Nitobe Bunka Gakuen, Hinohara Village, Tokyo)

Seventh Ministry of the Environment Good Life Award (School Category)

Program Background

Nitobe Bunka Gakuen organizes an education program in Hinohara Village, Tokyo. It helps participants understand the history, culture, and ecosystems of Satoyama, and take action to create a sustainable society. Ideas from the participants have come to realize as concrete activities such as: production of a local potato variety and organic cotton using abandoned farm-lands, inter-generational workshops of high school and elementary students with their parents on sustainable forestry, etc.

The program targets two generations: students and their parents, with a long term vision of future Satoyama.

Activities Undertaken

- Cultivation of organic cotton in abandoned farmlands and development of products such as T-shirts from the cotton
- Production of traditional-typed confectionary: buns with sweet filling made from the local potato variety branded as “Hinojaga”
- Planting species that produce edible fruit, shoots or leaves and promotion of the processed food
- Project in which high school students who have learned the value of Satoyama and forestry hold workshops for elementary school students and their parents



Harvesting potatoes



Visiting a pruning site



Workshop

Kamikatsu Kayabuki School

(Kamikatsu Kayabuki School, Yaeji Community, Kamikatsu Town, Tokushima Prefecture)



Regional CES platform project to revitalize local community with environmental approach

Program Background

Kamikatsu Town, Tokushima, is famous for the beautiful Satoyama landscape with traditional houses of thatched roofs. The roofs have been maintained by the residents for many years. Now the population is both shrinking and aging, the knowledge and techniques of thatching need to be passed to the next generation.

In 2019, Kamikatsu Kayabuki School was established for that purpose. A private traditional house with a thatched roof was converted into the school. Various activities are conducted and strengthen the bonds of people within and from outside of the community.



The school, which was formerly the residence of the Hanano family

Activities Undertaken

- Zero-waste tour program conducted where participants experience life in the old days to learn the value of traditions and sustainable life styles
- Maintaining the landscape of terraced rice paddies by visualizing agricultural tasks to be conducted and gathering supporters from outside the community to help



Zero-waste program



Grinding coffee beans with a millstone (sustainable tour)



Terraced rice paddies cultivated by a corporate sponsor (weeding)



Yaeji supporters

Haiko School SATODUKURI BASE

(Environment Animated Yao, Yao City, Osaka Prefecture)



Regional CES platform project to revitalize local community with environmental approach

Program Background

The Satoyama area, namely Takayasu in Yao City, Osaka, is home to endangered freshwater fish species *Rhodeus ocellatus kurumeus* (locally called “kintai”). The area is at the foot of Mt. Takayasu and provides nature-rich living space, which is rare in an urbanized area. Environment Animated Yao, a multi-stakeholder platform, was established to promote people moving into the area by utilizing the natural environment as an attraction.

In 2020, it started a project using a closed school building as a new community space where people could experience the bountiful nature of the area.



Rhodeus ocellatus kurumeus (“kintai”)



Forest maintenance



Activities Undertaken

- Exhibition space in the closed school where visitors can observe familiar living organisms
- Workshops to experience the processing of lumber from forest thinning at Mt. Takayasu
- Café where visitors can experience processing “Kawachi momen” (cotton from Kawachi), which used to be a local industry in Yao City
- Community market to sell local vegetables, gourmet food, and handmade goods

○ Financial support program for biodiversity conservation activities

The program provides financial support for the promotion of biodiversity conservation activities carried out across Japan.

The target includes conservation activities in Satoyama:

1. Measures to control invasive alien species,
2. conservation and restoration of important biodiversity areas,
3. building regional ecosystem networks,
4. promotion of multi-stakeholder cooperation,
5. ex situ conservation of rare wild species in Japan,
6. conservation of endangered species in Japan,
7. formulation of plans for early control of invasive alien species, and
8. support for socio-economic activities utilizing and conserving natural resources in Satoyama.

○ Financial support for socio-economic activities utilizing and conserving natural resources in Satoyama

This program aims to financially support various types of activities that utilize natural resources such as wood or grass while contributing to biodiversity conservation in Satoyama.

Taking into account the changes in people's lifestyles, it supports advanced and effective activities simultaneously addressing socio-economic and biodiversity challenges, such as creating small businesses using Satoyama resources.

The program can cover not only nationally designated areas and species but also locally important ones at the prefectural level.

○ Program to support regional multi-stakeholder platforms to enhance nature-based low-carbon circular economy

This program aims to build sustainable regions embodying a nature-based, low-carbon circular economy. It does so by supporting the development of the comprehensive vision of economically rational and sustainable regions, formulating business plans based on the vision, studying indicators to measure details of progress, and establishing multi-stakeholder platforms at local levels that can be strong entities to move forward in the direction.

○ Act on the Promotion of Nature Restoration

The act is enacted in 2002 to promote restoration ecosystems and natural environments that have been damaged in the past. Based on the act, regional stakeholders may establish councils with the participation of diverse players including related national and municipal government agencies, local residents, NPOs, and experts. The councils may develop a basic plan to be confirmed by the Minister of the Environment. The Ministry of the Environment provides experts' advice to those activities to further enhance them.

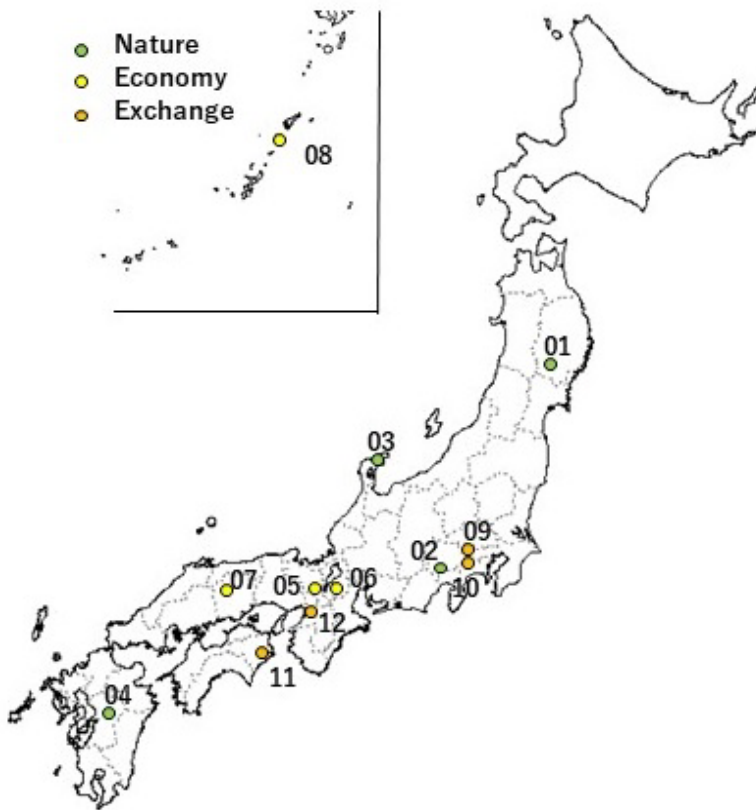
○ Good Life Award

Every year, the Ministry of the Environment invites good examples of activities and initiatives to build an environment-friendly society conducted across Japan. The ministry provides them with publicity and recognition. It also supports information exchange in general.

○ Important Satoyama Areas

The Ministry of the Environment selected 500 sites of Important Satoyama Areas for biodiversity conservation. It has done this in order to publicize Satoyama as rich environments that have been conserved through daily activities undertaken in local communities, conservation activities, and so on. The selection of sites may also help in establishing brands for local agricultural products and as tourism resources.

Location map of examples



List of areas

	Area name	Municipality
01	Kubo River Ihatov Nature Restoration Council	Ichinoseki City, Iwate Prefecture
02	Grassland Species Conservation by Forestry Operation	Northern Mt. Fuji Biodiversity Conservation Council, Narusawa Village and Fujikawaguchiko Town, Yamanashi Prefecture
03	Current Status Survey and System Development for Continuous Conservation of Biodiversity in Satoyama in Suzu City	Suzu City, Ishikawa Prefecture
04	Habitat Restoration of Polemonium kiusianum and other endemic plants in Aso Area	NPO Aso Flower Field Association, Takamori Town, Kumamoto Prefecture
05	Sasa palmata Restoration Project for Local Culture and Small Industry in Northern Kyoto City	Sasa palmata Restoration Committee, Kyoto City, Kyoto Prefecture
06	Paddy Field Fish Nursery Project	Seseraginosato Group, Yasu City, Shiga Prefecture
07	GREENable HIRUZEN	Maniwa City and Hankyu Hanshin Department Stores, Maniwa City, Okayama Prefecture
08	Rabbit-friendly Citrus production, Coexisting with Pentalagus furnessi	Tokunoshima Town, Kagoshima Prefecture
09	Education Program Accelerating New Satoyama Use for Next-Generation	Nitobe Bunka Gakuen, Hinohara Village, Tokyo
10	Fostering Forest for Youth at Lake Sagami	NPO Midorinodam Kitasagami, Sagami-hara City, Kanagawa Prefecture
11	Kamikatsu Kayabuki School	Kamikatsu Kayabuki School, Yaegi Community, Kamikatsu Town, Tokushima Prefecture
12	Haiko School SATODUKURI BASE	Environment Animated Yao, Yao City, Osaka Prefecture

