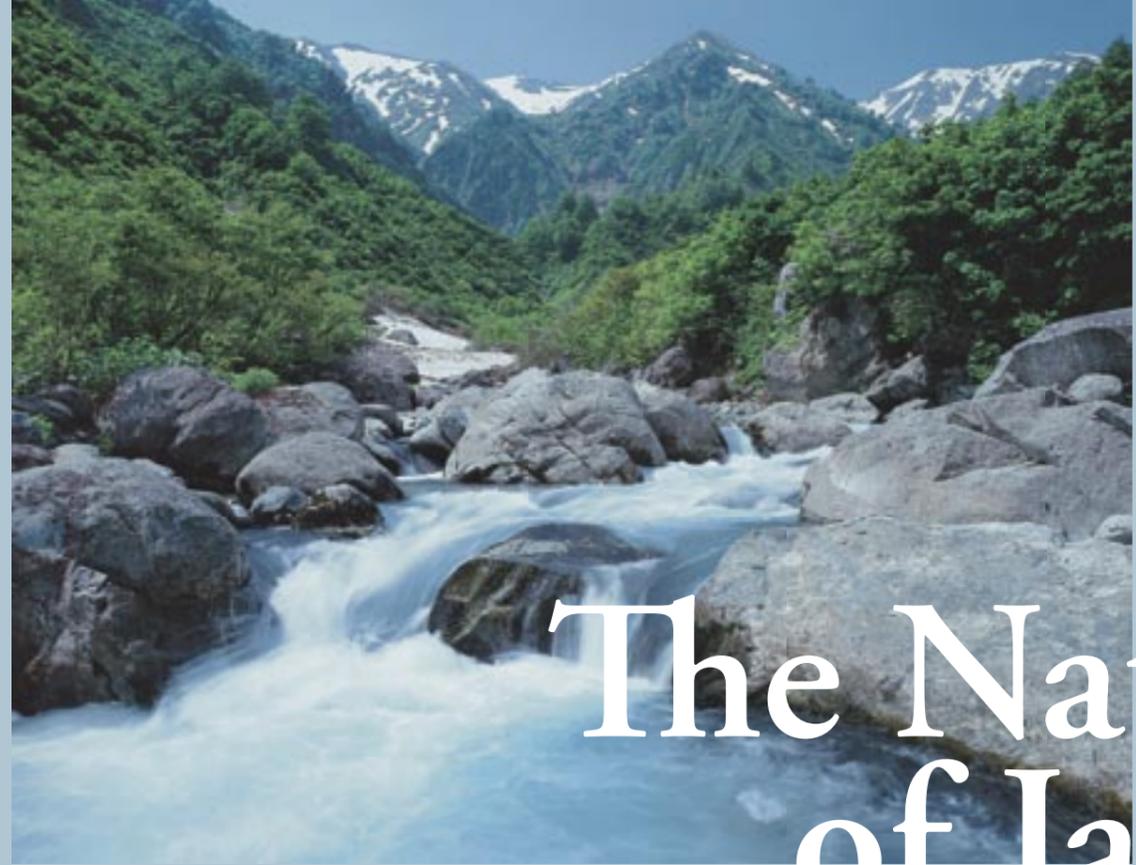


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# The Nature of Japan



Owing to the surrounding ocean and temperate-wet climate, the country is covered by forests over nearly 70% of its total area. While Japan is known as one of the world leading industrial nations, with 120 million people, it has been blessed with abundant natural resources -- the varied landscapes with mountains, rivers and seas and diverse forests and wildlife therein. The Japanese people have closely lived with such natural environment and cultivated sensitivity to and respect for nature. This way of life, living in harmony with nature, is one important explanation for the country's continuous development to date.

Richness and diversity, little known facts of the Japan's natural environment, can be experienced in much of the Japanese archipelago. The country will continue various efforts for the sustainable enjoyment of this natural wealth.

# A Country of Forest and Water, Japan



2 Jingu-rin, an evergreen forest behind Ise Shrine (Photo by Toshitaka Morita)

## Geography and Biota of the Japanese archipelago

Due to the large north-south extension and complex variable landform, the archipelago features a great climatic variation and diverse fauna and flora with large differences among regions.

### Geography



(Photo by Seiichi Ohta)

The archipelago stretches over approximately 3,000 km from N20°25' to N45°33' off the coast of the eastern margin of the Eurasian Continent. It consists of thousands of islands with a total area of about 370,000 km<sup>2</sup>. Divided by mountains and valleys, the country's landscape is dominated by steep terrains with a wide range of elevation, providing a condition for creating diverse wildlife habitat.

### Climate

The archipelago generally enjoys a coastal temperate and humid climate and encompasses a wide range of climate zones from subtropical, temperate, cool-temperate to subarctic, owing to its elongated, north to south orientation. The climate is influenced not only by the latitudinal gradient but also by ocean currents of both warm and cool, which helps you imagine an ecologically diverse landscape of the archipelago. Receiving abundant rainfall in the wet-temperate climate, the Japanese natural landscape features flourishing plant life all over the country.



(Photo by Hiroshi Fujieda)

### Animals

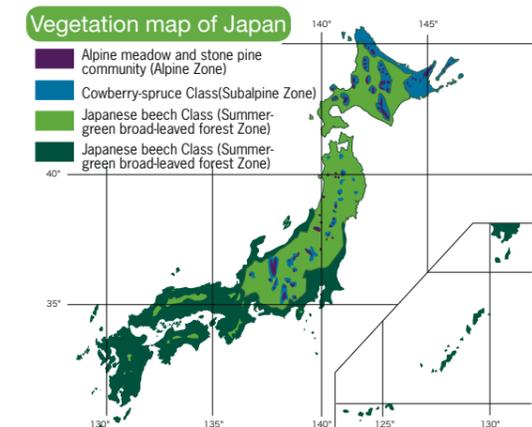
Belonging both to the Palearctic and Oriental regions based on the world zoogeographical region, the fauna is generally similar to that of the Asian Continent. Repeated connection and disconnection with the continent as well as the country's complex landform yet play a role in shaping a distinctive fauna with many endemic species. Within Japan there is a large difference in fauna between three main islands (Honshu, Shikoku and Kyushu) and other regions. The fauna of Hokkaido shares more commonality with the continent, while the Southwest Islands supports many endemic species.

The world zoogeography and the location of Japan

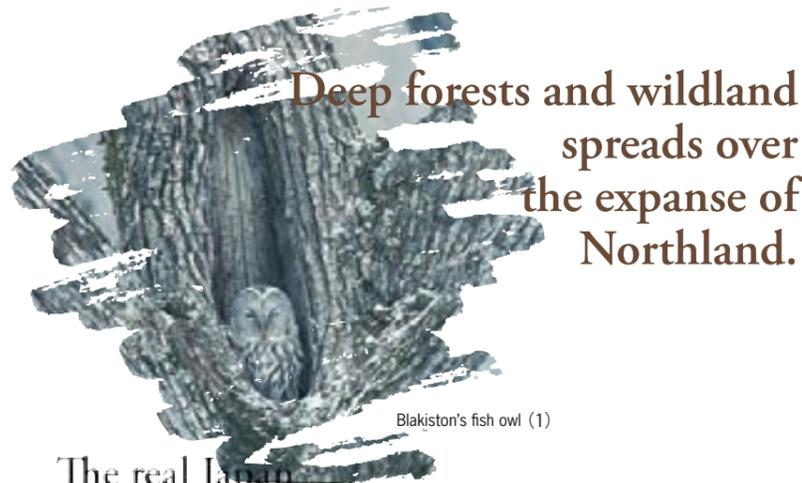


### Plants

Vegetation reflects well a regional climatic variation, because plant growth largely depends on temperature and wetness. The vegetation of Japan is diverse, ranging from subtropical to subarctic types despite its narrow land. Woodland and farmland ecosystems are uniquely developed in the countryside through long human-nature engagement, creating scenic rural landscapes there as well as playing a role in providing home for diverse species.



Miyawaki, A.(1977) Potential natural vegetation map of Japan. In: A. Miyawaki(ed.) Vegetation of Japan. Gakken, Tokyo. The Northern Territories and Ogasawara Islands are excluded.



Deep forests and wildland spreads over the expanse of Northland.

Hokkaido, called the "Northland" in Japan, has a short history of intensive development only for a hundred and dozen years and has retained the most abundant primitive natural resources in Japan. Where volcanic and non-volcanic mountains tower into the sky, crater lakes and inland sea lakes, storytellers of the earth's history, mirror the reflections of clean emerald forests. The deciduous broad-leaved trees such as Japanese beech are mixed in among conifer trees such as Yeddo spruce and fir, forming rolling tree oceans in this subarctic region. A distant horizon lies over a vast expanse of wetlands, and the Okhotsk Sea is covered with drifting ice. All these views are only found here nowhere else in the country. Hokkaido also supports abundant wildlife from brown bears, deer and large eagles to marine mammals in its relatively less human dominated land.

Blakiston's fish owl (1)

The real Japan

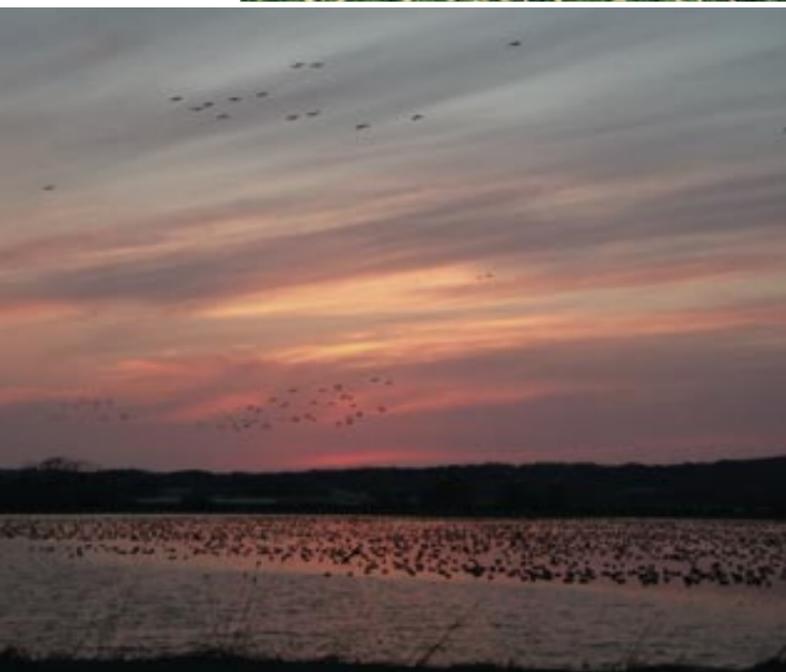
# Nature in Northland



Brown bears - a mother and cub (2)  
Rebun-so (*Oxytrapis* sp.) (3)



Midori-dake peak of Mt. Taisetsu, with blooming Japanese mountain avens (4)  
Migratory birds resting in Miyajima Lake (5)  
Sakhalin spruce trees glazed with ice in a foot of Mt. Taisetsu (6)



(Photo 1 by Shiro Yabe; 3, 6, & 7: Toshitaka Morita; 4: Yoshiharu Fukushi)



A spotted seal on a field of drifted ice (7)

## C O L U M N

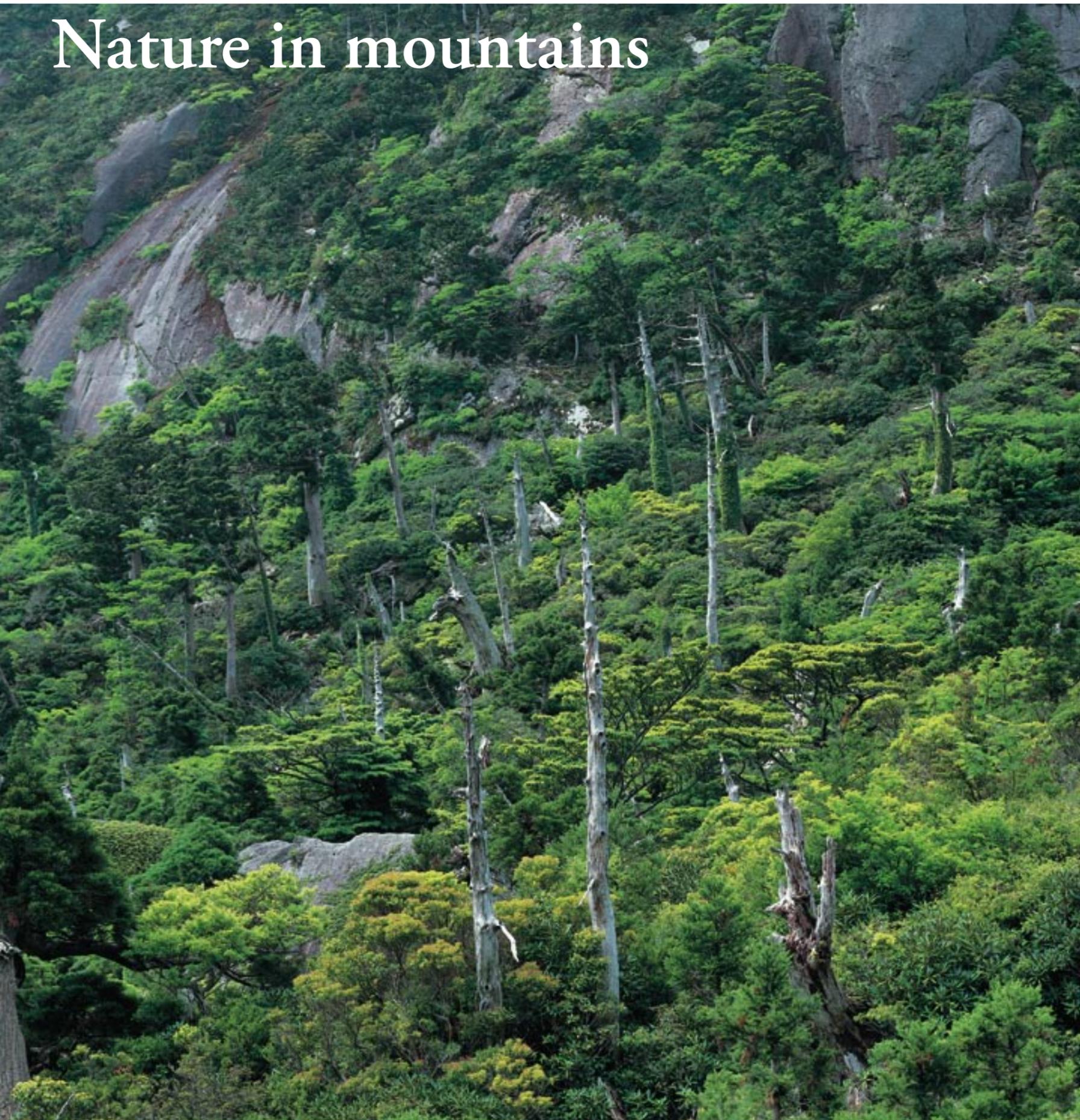


The volcanic vent of Mt. Meakan-dake in autumn (Photo by Masao Sato)

## A Volcano Country, Japan

Located on several plate boundaries, the Japanese archipelago is volcanically active. Two volcanic belts extend each in the northeast and southwest sides of Honshu, with a series of 86 active volcanoes in total. A scenic cone shape mountain, Mt. Fuji, is a relatively new volcano, erupted 300 years ago. Many other volcanic mountains rise in various locations, including Mt. Asama, Miyake-jima Island and Sakura-jima Island. Volcanoes have provided a gift of ample hot springs while they triggered disasters. In Hokkaido, visitors will find landforms showing past eruptions, such as Kussharo Lake, filling water in the caldera, and also spot other active volcanoes such as Mt. Showa-shinzan and Mt. Usu.

# Nature in mountains



A beech forest turned yellow in Sirakami Mountains (2)  
Greater pied kingfisher (3)  
Wild mushroom (*Lepista* sp.) (4)  
Pincushion flower (*Scabiosa* sp.), an alpine plant species (5)

## Forest supports the world of diverse life.

Japan is a country of mountains and forests. The mountains of Ohu, Echigo, Hida and others traverse from north to south in the archipelago, forming a backbone mountain range of the archipelago. Forest cover, mainly distributed in the mountainous areas, occupies nearly 70% of the total land area of Japan, providing home for diverse plant and animal species. The vegetation changes southward in Honshu, from deciduous broad-leaved species, represented by beech, to evergreen broad-leaved species such as evergreen oak and chinquapin. Looking at the vertical distribution in central Honshu, forest limit is around 2500 m, and alpine zones above the line features stone pines and other alpine species. Beech forests, representatives of the Japan's cool-temperate species, are the very best habitat for a number of wildlife, including Asian black bears, Japanese serow, hares, and great black woodpeckers.

### C O L U M N



'Senbon-katsura', a katsura tree with multiple shoots, in Yuri-honjo City (Photo by Toshitaka Morita)

## Giant ancient trees...forest guardians

Giant trees surviving for hundreds or thousands of years are found in many places of Japan. The most famous one is a 7000 years-old cedar, named 'Jomon-sugi' in Yakushima Island. The presence of such old-growth trees indicates that their surrounding forest habitats have left unchanged since ancient times. Traditionally, giant trees have been believed to be home for gods and revered as sacred trees. According to the report of the Ministry of the Environment, Japan, in 2001, over 64,000 trees had a girth of more than 3 m at their 1.3 m height above the ground. A quarter of these trees are currently protected as objects of religious belief.

The real Japan

# Nature in rural village



Flowers of Doogtooth violet blooming on a light-filled forest floor (1)

## Out in the countryside, woods and meadows and people all live together.

Visitors to farm villages will see rice paddies, woodlands, meadows and many other unique ecosystems that have been sustained through resource use by the village communities. Such traditional landscapes wherein nature and people live in balance are popular as 'Satoyama' in Japan. The woodlands are used to be places of producing fuels, foods, clothing, fertilizer, and other living needs. As a result, forest vegetation in Satoyama has been uniquely developed, with dominant trees of oak in eastern Japan and pine and evergreen oak in western Japan. In such Satoyama landscape, insects, frogs and many small creatures survive in rice and upland crop fields, ditches and paddy dikes, all which have been cherished as close animals by local people. Because Satoyama woodlands are no longer used by modern Japanese partly due to change in their lifestyles, their conservation has been an issue.



Autumn in a rural village, with persimmons turning orange (2)

A view interweaving people and the natural environment with lavishly flowing stream (3)



A Satoyama's scenery supporting a variety of living creatures (4)  
Satoyama woodlands that have sustained the life of farm villages (5)  
Siberian meadow bunting, a wild bird species that inhabits human dwelling (6)  
Japanese tree frog (7)



(Photos 1, 3, 4 & 5 by Toshitaka Morita; 2 by Takeshi Takahashi; 6 by Hitoshi Imai; 7 by Mitsuhiro Toda)

### C O L U M N



Little egret

(Photo by Advice Center for Rural Environment Support)

## Rice paddies and living creatures

Rice paddies where grow a Japanese main diet, rice, is a kind of natural systems created by humans. Unique ecosystems have been nurtured there, where diving beetles, killifish, loach and many other aquatic species thrive in, attracting bird species such as storks that feed on them. A number of such wetland species, however, was significantly reduced, owing to chemical use and habitat loss during farmland consolidation. In recent years, there is a move to reconsider rice paddy management allowing wildlife colonization also for the supply of safe agricultural food.

A pond cluster of Uryunuma (1)

# Nature in wetlands



Creek water flowing from a headwater forest in the Mt. Iide region during the season of fresh green leaves. (2)

Damselfly (*Mnais nawai*) (3)  
Hatchoutonbo (*Nannophya pygmaea*) (4)

From lakes, marshes to oceans, water runs through and enriches the archipelago.

Japan is surrounded by the ocean and receives a high amount of rainfall. The rice paddy landscapes spreading over the lowlands reveal a history of people's life endowed with ample water. As a source of life, water nurtures a wide variety of fauna and flora. These biotic communities have adapted to their given aquatic environments in streams, rivers, lakes or wetlands that are found throughout the archipelago.

Japan has highly bended shorelines with a length of 32,800km in total. The shoreline environment varies from rocky beach, cliff, sand beach to tidal flat. Sea-grass beds are developed in shallow waters near the coast, and hermatypic coral communities in warm waters of southwest Japan. Sea grass, algae and benthic animals are abundant there, attracting many fish and bird species.



A colony of common terns in a southern island (7)  
A school of bottle-nosed dolphins near the Mikura-jima Island, Izu Islands (8)



Kottaro Marsh and a breeding pair of the Japanese crane (5)  
The estuary remaining in the Seto-naikai Inland Sea, which nurtures abundant (6)

## C O L U M N



A whale migrating to the sea off Japan  
(Photo by Ogasawara Whale Watching Association)

## Gifts from ocean currents

A southward cool current, Oyashio (Chishima Current), flows through on the north side of the archipelago, and a warm current, Kuroshio (Japanese Current), on the south. Ocean currents can determine the climate and other environmental conditions and also bring various natural and cultural elements. Coastal water where two currents meet is a fertile fishing ground that provides rich marine resources. Currents also help whales, sea turtles and various animals and plants disperse in the ocean. Even culture arrives via currents. The southern coast of Honshu and its nearby islands show a commonality in nature and culture with the islands of Okinawa and Kyushu and southern foreign countries. This particular culture including its natural landscape is called Kuroshio Culture.



Tree nymph butterfly (1)



Munin-tsutsuji, an azalea species endemic to the Ogasawara Islands (2)

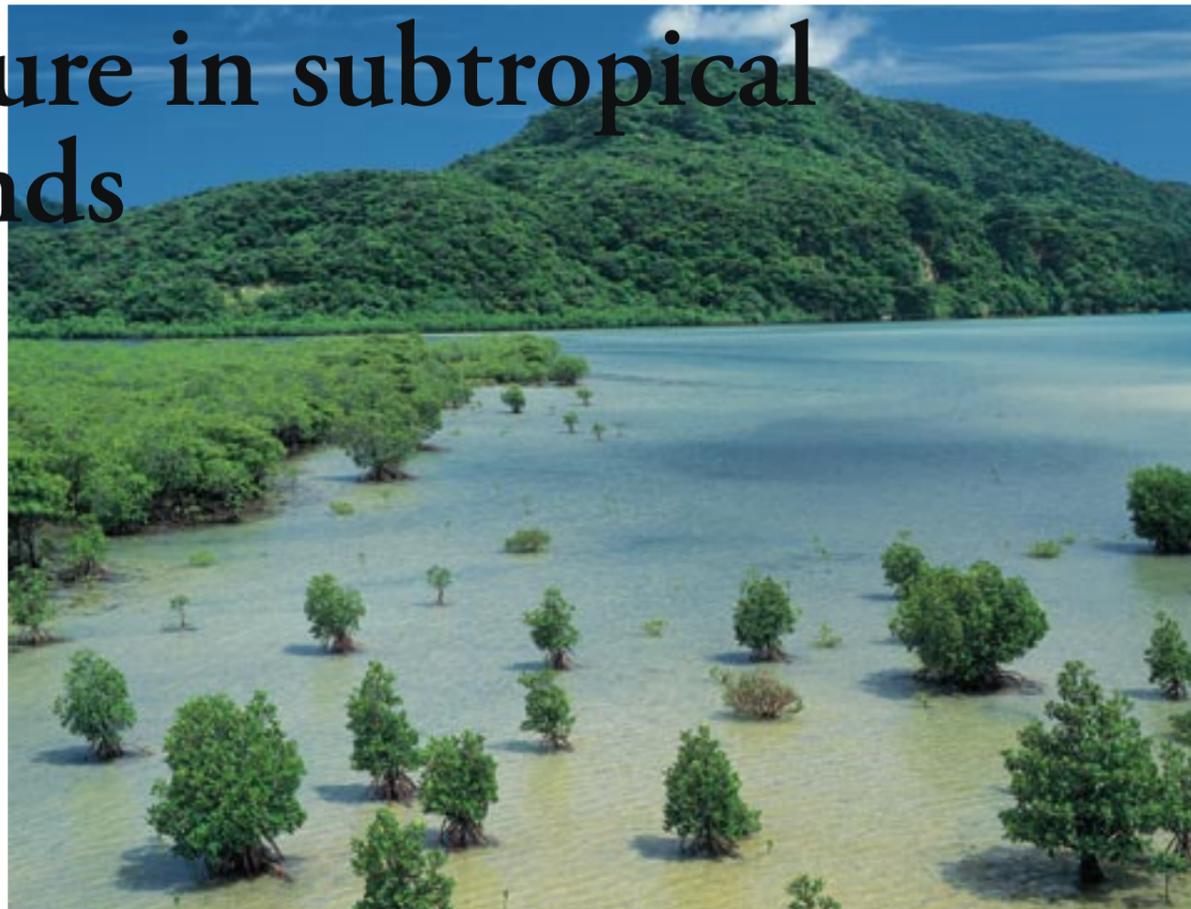
## Southern islands teem with animal and plant life.

In the southern sea, there are many islands that belong to the subtropical zone. Located at the southwest edge of the archipelago, the Southwest Islands, mainly northern Okinawa and Amami-oshima Island, sustain evergreen broad-leaved forests, such as sudajii (Family Fagaceae, Genus Castanopsis), and mangroves and coral reefs along their coasts. The Islands support Okinawa rail and many other endemic species, which have uniquely evolved for a long history of disconnection with the continent.

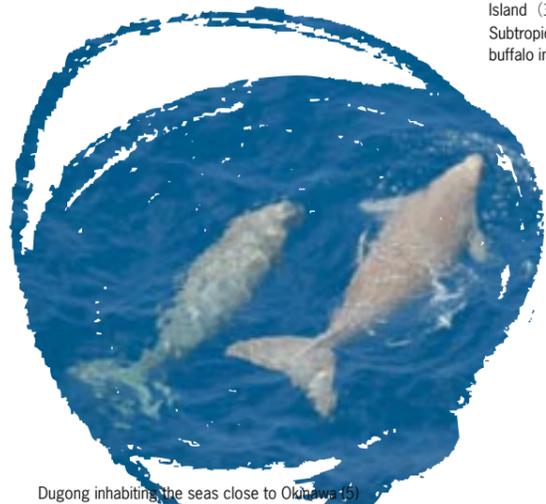
The Ogasawara Islands, at 1,000km south of Tokyo, are oceanic islands that have been isolated since their formation. Their unique biota is threatened by alien species, of which eradication is urgent.

The real Japan

# Nature in subtropical islands



Mangrove forests in Iriomote Island (3)  
Subtropical vegetation and a water buffalo in Iriomote Island (4)



Dugong inhabiting the seas close to Okinawa (5)



Coral reefs in Sekiseishouko (6)

(Photos 1, 3 & 4 by Toshitaka Morita; 2: Sanei Ichikawa; 6: Kazuyuki Shimoike)

### C O L U M N



(Photo by Futoshi Hamada)

## Oshima-tsumugi and mud dying

Many of traditional woven fabrics can be regarded as indigenous natural products. One example is a silk woven fabric, called Oshima-tsumugi, which is made through complex processes of dying and weaving. Silk threads are dyed in liquid made from barks of Sharinbai (an evergreen bush species in the family Rosaceae) for some dozen times, and then dyed in iron-rich mud. The unique natural elements of native Sharinbai trees and microorganisms in mud are combined to generate its distinctive hue. Oshima-tsumugi fabric reflects a power of indigenous natural elements, although technology is necessary.

# Biodiversity and conservation

Characteristics of the Japanese biota are a large number of animal and plant species in such small country and a high proportion of endemic species. Various conservation activities and programs have been undertaken to keep this biodiversity.

(Photo by Akinori Terasaki)



Accounting for 68% of the total land, the area of forest cover in Japan is just as high as North European countries such as Finland (67%), and is extremely high among other developed nations such as England (8%) and Germany (31%). Owing to the climate and other environmental variations, the country supports rich biota despite its narrow land area of about 370,000 km<sup>2</sup>. This high species richness in Japan is better understood when compared to England and Germany with a similar land area. The biotic community also features a high occurrence of endemic species because of isolation from the continent and complex landform.

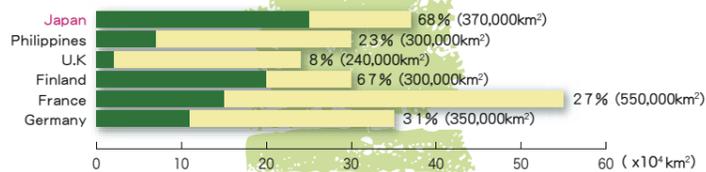
(Photo by Yuji Ikegami)



Conservation efforts in Japan center on the operation of national and other designated natural parks with the purposes of conservation of the outstanding natural scenery and promotion of the use of parks. Five percent of the total land area has been designated as national parks. Other conservation systems include designation of nature conservation areas for reserving designated areas for limited use such as academic research and wildlife refuge for hunting regulation. While capture and handover of endangered species are regulated, various protection and propagation programs are conducted. More comprehensive efforts are now needed to sustain the current status of Japan's biological diversity. The modern society faces various environmental concerns, such as habitat loss or degradation by landuse development, deteriorated Satoyama forest management due to diminished resource use, expanding wildlife damage and impacts of alien species and chemicals. To address these, the government has been implementing a variety of measures, including rehabilitation of altered ecosystems and abandoned Satoyama woodlands, wildlife conservation and management, eradication and regulation of alien species, with the aid of citizen participation. Japan has also been promoting international cooperation under various treaties, such as the Convention on Biological Diversity, Washington Convention, Ramsar Convention, and World Heritage Convention.

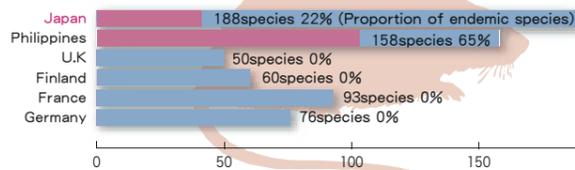
## Land area and forest coverage

The original data is adapted from World Resources 2000-2001 (WRI, 2001)

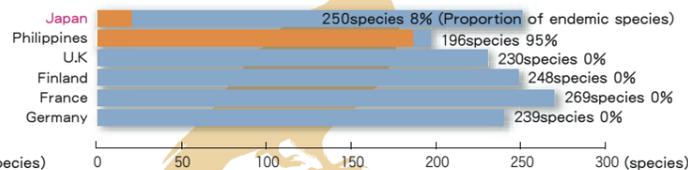


## Total numbers of wildlife species and the proportions of endemic species

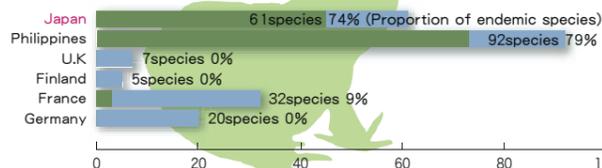
### Mammals



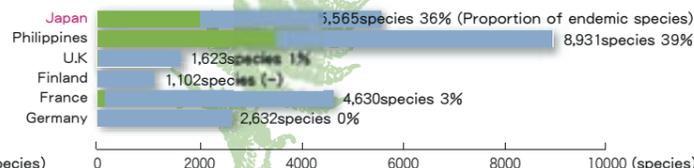
### Birds



### Amphibians



### Higher plants



## World Natural Heritage



(Photo by Takahito Sato)

The World Heritage list inscribes universally valuable natural and cultural properties as a common legacy of human beings. There are three types of World Heritage sites: Natural Heritage, Cultural Heritage and Mixed Heritage. World Natural Heritage sites are selected on the basis of

several criteria, such as significance of ecosystem and wildlife communities, outstanding ecological phenomena and natural beauty, and important habitats for conservation of biodiversity. After inscription, the countries are required to protect their listed sites in perpetuity.

In Japan, three sites are currently inscribed as the World Natural Heritage.

### 1 Shiretoko

Shiretoko was selected for its location at the southern limit of drifting sea ice in the Northern Hemisphere and fertile ecosystems formed by the interplays between marine and terrestrial environments. Inscribed in 2005.



### 2 Shirakamisanchi

Shirakami-sanchi contains the beech forests representing those newly developed after the glacial period in East Asia. The forests were valued for their primeval state with universally distinctive flora and fauna and their diversity. Inscribed in 1993



### 3 Yakushima

Located at a transitional zone of the two zoogeographic regions, the Yakushima Island retains a high quality of ecosystem with rich fauna and flora and a prominent vertical distribution of vegetation. The Island also harbors giant cedars (Yaku-sugi) and rare forms of animal and plant life. Inscribed in 1993.



(Photo 1 by Shari Town; 2 & 3: Toshitaka Morita)