

# Ogasawara Islands

Outstanding Universal Value / Valeur universelle exceptionnelle

## (ix) Ecosystem / Ecosystème

Remarkably high rate of endemic species and ongoing evolutionary process on the oceanic islands\*

\*Oceanic islands: Islands that have never been connected to a continent

Taux remarquablement élevé d'espèces endémiques, et processus d'évolution en cours sur ces îles océaniques\*

\*Îles océaniques : îles qui n'ont jamais été reliées au continent

## A Treasure Trove of Endemic Species

The Ogasawara Islands are located about 1,000 km away from Tokyo to the south. They consist of islands that are surrounded by vertical cliffs and ocean whose beautiful color is referred to as "Bonin Blue".

Since the islands have never bordered a continent in their history, the wildlife species found in Ogasawara are the descendents of animals and plants that arrived there by chance. Some were carried by birds or the wind, while others were washed up by ocean currents or clung to driftwood. Those species have survived by adapting themselves to the environment of the islands. They then became established on the islands and evolved in their own unique ways in a long period of time within an environment far separated from the mainland. As a result, this led to the occurrence of many endemic species which are not to be seen anywhere else, such as *Melastoma tetramerum* and *Hemicordulia ogasawarensis*. Roughly 40% of the vascular plants, about 25% of the insects, and more than 90% of the land snails (roughly 100 species) are endemic to Ogasawara.

## Ongoing Evolutionary Process

The evolutionary process on the Ogasawara Islands is presently ongoing. The land snails and plants in particular have repeatedly undergone speciation by changing their morphology in accordance with their environment. This type of evolutionary process is called "adaptive radiation."

What is more, important examples that suggest mechanisms whereby species adapting from the ocean to the land can also be observed. As an example, *Stenomelania boninensis* is thought to have expanded their habitats in coastal to brackish water and then on to purely freshwater environments.



Sclerophyllous scrub



Diverse land snails

## Protection and Management of the Ogasawara Islands Protection du Patrimoine Naturel Mondial de Îles d'Ogasawara

### Protected Areas in the Property

<b>Ogasawara National Park</b>	
Special Protection Zone :	4,934 ha
Special Zone :	996 ha
<b>Minami-iwoto Wilderness Area :</b>	<b>355 ha</b>

(Under jurisdiction of MOE)

The Ecosystem Conservation Action Plan, which denotes a specific plan of action for resolving ecosystem-related challenges on the Ogasawara Islands, was prepared by the national government, the Tokyo Metropolitan Government, and Ogasawara Village. On the basis of this plan, protection and management efforts are being promoted.

The large number of endemic species on the Ogasawara Islands is highly evaluated internationally. Yet many of those do not know how to protect themselves from the species artificially introduced to Ogasawara later on. The endemic species are being preyed upon by the alien species and deprived of the areas where they live, so their numbers are plunging precipitously. In order to preserve the Outstanding Universal Value of the Ogasawara Islands, it is extremely important that countermeasures be taken against alien species and that the protection of endemic species and other rare species be promoted. In line with the advice of the Scientific Committee, adaptive management is carried out that evaluates the current situation by considering the interaction of wildlife and accordingly adjusting countermeasures.

## Examples of Efforts / Exemples d'actions



Green anole (alien species)

### Measures for the Restoration of Endemic Insect Species

#### Mesures pour la restauration des espèces endémiques d'insectes

The green anole was artificially brought to Chichijima Island in the 1970s and to Hahajima Island in the 1980s, respectively, where they spread over the entire areas of both islands. They prey on and reduce the numbers of rare insect species like the endemic lycaenid butterfly. In order to prevent the green anole from spreading to other islands, they are exterminated in a concentrated manner in the harbor area of Chichijima, which is the entranceway to Ogasawara, and their population in the vicinity around the port is kept to a low density. This controls the risk of green anoles slipping onto ships and spreading to other islands.

Enclosures to prevent incursions by green anoles have been set up at Shin-yuhigaoka on Hahajima on a trial basis, in which green anoles are captured in a concentrated manner and food plants of the lycaenid butterfly are planted. As a result, the butterfly and grassland insects have been on the rise within these enclosures.



Lycaenid butterfly

### Countermeasures against Alien Species for the Restoration of Native Vegetation

Mesures contre les espèces exotiques pour la restauration de la végétation indigène

#### Countermeasures against Bishop wood

Bishop wood was brought to Ogasawara at the beginning of the 20th century in order to serve as raw materials for firewood and charcoal. Bishop wood grows quickly, and once the trees come to dominate a forest they inhibit the growth of the native plants within the darkened forest interior. Bishop wood has an incredibly tenacious ability to survive, and cannot be eradicated just by being cut down. For this reason, herbicide injection is employed to eradicate Bishop wood.



Bishop wood (alien species)

#### Countermeasures against Feral Goats

The feral goats on the Ogasawara Islands were artificially brought there as food sources around the 19th century, and reverted to a wild state after being released on many of the islands. Feral goats have had an enormous impact on ecosystems by trampling and foraging on plants, including endemic species. The eradication of feral goats has been achieved on the uninhabited islands, so they currently only live on Chichijima Island. The elimination of feral goats is being promoted on Chichijima Island as well. Particularly on Higashidaira, which is home to many rare endemic plant species, a fence to prevent the incursion of feral goats has been established and goats are intensively captured within the fence in order to eliminate them.



Fence to prevent feral goats



New Guinea flatworm (alien species)

### Measures to Conserve Endemic Land Snails

#### Mesures pour la protection des espèces endémiques d'escargots terrestres

On the Ogasawara Islands, planarian species such as the non-native New Guinea flatworm that have invaded the islands prey upon land snails. The New Guinea flatworm must not be allowed to invade Hahajima and the uninhabited islands, which they have not yet invaded. Since planarians spread by slipping into dirt that clings to the shoe soles and materials, appeals are being made for visitors and residents to clean shoe soles and kill them with vinegar. On the ports at Chichijima Island and Hahajima Island in particular mud washing installations soaked through with sea water have been set up at the boarding entrances, and mud washing mats and vinegar sprays have also been set up at the entrances to walking paths to thoroughly prevent the spread of these planarians.

In addition, on Chichijima Island, which has already been invaded by planarians, endangered land snails are reared in captivity (ex-situ conservation) in order to protect them.