



# What You Should Know to Conserve the World Natural Heritage

## Issues and measures facing the Ogasawara Islands

Due to the influence of alien species brought in from elsewhere by people coming to the islands, the number of endemic organisms on Ogasawara has been decreasing rapidly. In order to restore the original ecosystems, related organizations and local residents are now working together on eradication of alien species.



Feral goats eat endemic plants



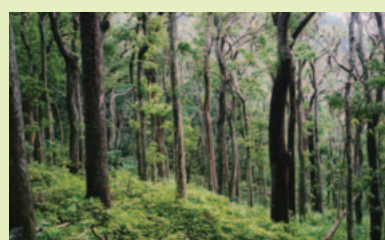
Capturing feral goats by driving them together



This predatory flatworm eats land snails



Cleaning the visitors' shoe soles to prevent alien species from spreading (OKI Port, Hahajima Island)



*Bischofia javanica* forest has displaced the native forest



Killing alien plants with drug infusion

## Let's conserve the natural environment of Ogasawara

### To prevent the invasion of alien species

Do not bring in plants, animals, soil, or seedlings with soil that could spread to Ogasawara from the main islands of Japan.



Weeds in soil

### To prevent alien species from spreading

If you visit the mountains or other islands, check the soles of your shoes, and your clothes and baggage, to make sure that no organisms, such as seeds and small insects, are stuck to you.



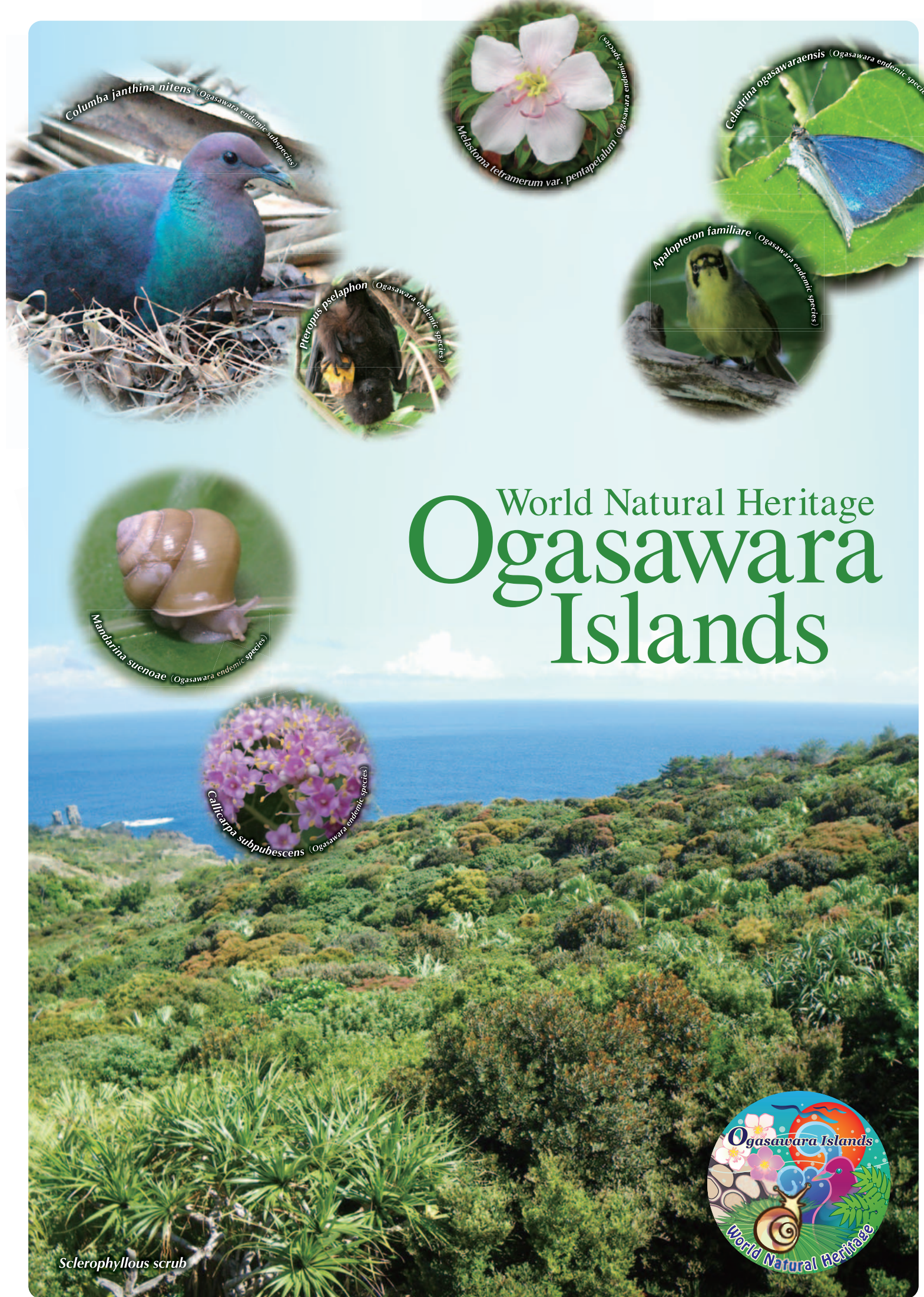
Removal of alien species at the gate of walking path

### To protect the habitat of endemic species

Follow the utilization rules of walking trails and pathways, and follow the set route.



Ecotourism (Minamijima Island)



Sclerophyllous scrub



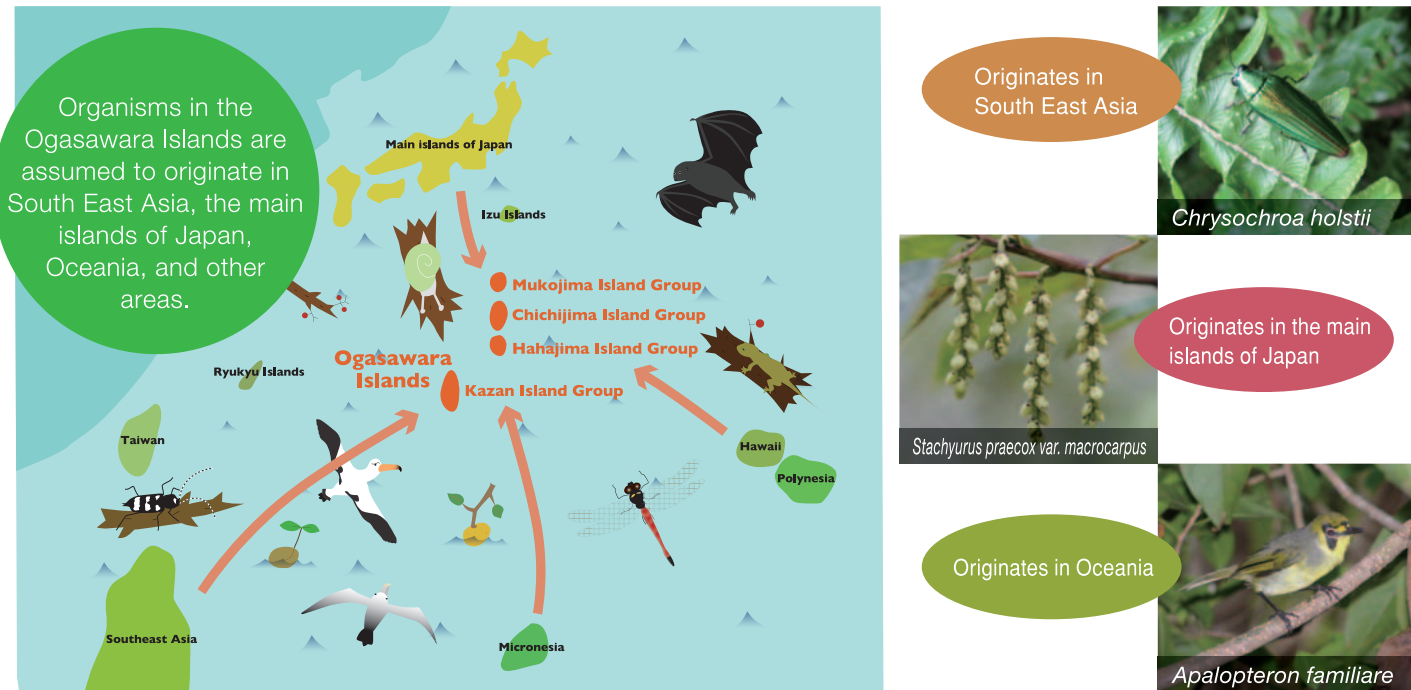




# World Natural Heritage “Ogasawara Islands”

## How the nature in the Ogasawara Islands has developed

The Ogasawara Islands are oceanic islands that have never been connected to the land with any continent since their birth. Therefore, limited organisms that managed to reach the islands across the ocean have spread in the islands with little competition.



The Ogasawara Islands were inscribed as a World Natural Heritage site in June 2011, valued for the unique ecosystems that can only be seen in the islands. The World Heritage Committee highly appreciates the fact that the small islands have the high ratio of species endemic to Ogasawara, especially land snails and plants which leave valuable traces of their evolutionary processes. The Ogasawara Islands are the fourth World Natural Heritage site in Japan, after Yakushima, Shirakami-Sanchi, and Shiretoko.

## Various evolutionary processes found in Ogasawara

### Variety of land snails — Evolution that adapted to the habitats —

As the land snails which reached Ogasawara had few natural enemies and competitors, they have spread in various areas of the islands, and evolved to adapt to each habitat. As a result, among 120 species of native land snails found in Ogasawara, 114 species (95%) are endemic (as of July 2011).

**Variety of genus *Mandarina***

Relatives of *Mandarina* have differentiated into many species, evolving themselves according to different habitats such as leaves, trunks, and the ground. Characteristically, arboreal species have a tall and small shell with leaf-like color, semi-arboreal species have a flat shell, and ground dwelling species have a tall shell with ground-like color.

**Uniquely-shaped land snails**

Besides *Mandarina*, Ogasawara has unique land snails which have gone through various evolutionary processes.

*Hirasea operculina*: Has evolved to be more adhesive to the back of fallen leaves.

*Boninosuccinea ogasawarae*: Has a degenerate shell adapting to a humid environment.

Photography: Satoshi Chiba

## Natural environment of the Ogasawara Islands and organisms that adapted to the habitats

Chichijima Island and Anijima Island have "sclerophyllous scrub" consisting of many endemic plants that evolved to adapt to a dry climate. On the other hand, a "subtropical rainforest" that adapted to a humid climate with cloud and fog can be found in Hahajima Island. Also, a number of endemic species that evolved to adapt to their environments grow in each forest. In Ogasawara, 36% of plants and 95% of land snails are endemic species that can be found nowhere else.

Sclerophyllous scrub (Anijima Island)

Subtropical rainforest (Hahajima Island)

Endemic plant with small and thick leaves that adapted to a dry climate  
*Distylium lepidotum*

Endemic insect feeding on *Distylium lepidotum*  
*Boninoxya anijimensis*

Large endemic pteridophyte preferring a humid climate  
*Cyathea mertensiana*

Endemic insect inhabiting decaying logs in a subtropical rainforest  
*Figulus boninensis*

### Sexual differentiation — Plants that differentiated into male and female —

A flower with both staminate and pistillate parts is called "hermaphrodite flower." In Ogasawara, some plants that originally had hermaphrodite flowers evolved uniquely into dioecious plants, where male and female flowers are borne on separate plants. This evolution is considered to be a device for producing various offspring safely.



### From herb to wood — Plants that evolved from herbaceous to woody —

In a special environment such as oceanic islands, some herbaceous plants evolve into woody plants. In the Ogasawara Islands, a relative of bellflowers *Lobelia boninensis*, relatives of chrysanthemums *Dendrocacalia crepidifolia*, *Crepidiastrum linguifolium*, and *Crepidiastrum ameristophyllum* evolved from herbaceous to woody.

