

The Ogasawara Islands: Native Species and Environmental Protection

Nanyan Guo

Japan's Ogasawara (or Bonin) Islands 小笠原諸島, dubbed the "Galapagos of the East," are a group of oceanic islands situated in the middle of the Pacific Ocean. Many of their numerous indigenous fauna and flora are at the brink of extinction, mainly caused by human settlement and construction during the last half century. However, during the last decade, a movement to get Ogasawara registered on the World Heritage List is being carried out. This paper looks at the history of Ogasawara's development, which destroyed its natural surrounding, and discusses recent efforts to protect the environment.

Discovery of the Islands

The Ogasawara Islands, at longitude 136°04'–153°59' E. and latitude 20°25'–27°44' N., are located about 1,000 km due south of Tokyo and about 1,400 km due east of Okinawa. They are part of the administrative district of Tokyo, but are accessible only on a once a week, 25 hour long journey on a diesel-powered ship.

The islands were formed by eruptions of submarine volcanoes about 50 million years ago. They are the only place on the earth where the origin and growth of island arcs caused by plate subduction can be observed.¹ Having no connection with any continent, geologically they are "oceanic islands." They took biological shape over millions of years as flora and fauna gradually crossed the 1,000 km of ocean from Polynesia, Southeast Asia or south west Japan, thanks to the wind, or the birds, or logs floating on the ocean waves.² Settled on the islands, the various species evolved uniquely according to their environment, becoming distinctive, and remaining mostly undisturbed until human settlement began in 1826.³

By comparison with the better known oceanic islands such as Galapagos, Hawai'i and Easter Island, the Ogasawara Islands are tiny in scale, with a total area of a mere sixty-one square kilometres, which amounts to just one fortieth of Okinawa, one hundredth of the Galapagos and two hundredths of Hawai'i. The largest island, Chichijima (Father Island), is twentyfour square kilometres. In Okinawa, in an area of twenty by twenty metres it is possible to find at least fifty species of trees, but in Ogasawara, no more than twenty species are found even in the most densely forested area.⁴

¹ Tokyo Metropolitan Government, *The Nature of the Ogasawara Islands*, August 2007, p. 4.

² Shimizu Yoshikazu, *Ogasawara shizen nendaiki* [A Historical Record of Ogasawara's Nature], Tokyo: Iwanami Shoten, 1998, pp. 22–23.

³ Ono Mikio, *Kotō no seibutsu tachi: Garapagosu to Ogasawara* [The Animals and Plants of the Isolated Islands: Galapagos and Ogasawara], 2nd ed., Tokyo: Iwanami Shoten, 1997, p. 65.

⁴ Shimizu, *Ogasawara*, pp. 15–17.

Ogasawara is a perfect place to observe the development of a species. Some species, which might not have survived the processes of competition and natural selection on a continent, could survive in these oceanic islands because of the lack of natural predators.⁵ Birds living in Ogasawara tend to combine functions usually shared by different birds on continents. A typical example is the *meguro* (warbler, *Apalopteron Familiare Habasima*), which like the silver-eye eats flowers and fruits at the top of trees, like the titmouse runs up and down the branches of trees to catch insects, and like the thrush also hops along the ground to search for food. With few rivals, the *meguro* was able to develop an ability to search for different sorts of food.⁶ However, island species were extremely vulnerable to change because the small area offers them no place of refuge. The new environmental conditions brought by human settlement and imported animals and plants proved fatal to many indigenous species.

The islands were long thought to have been discovered in 1593 by Ogasawara Sadayori, an historical figure known to have been in the service of the warlords, Toyotomi Hideyoshi (1537–98) and Tokugawa Ieyasu (1542–1616). However, the evidence for such a claim is tenuous. The claim was made—or perhaps reiterated—in 1675 by Ogasawara’s son, in 1702 by his grandson and in 1727 by his great-grandson, all seeking official permission to travel to the islands. Although these claims were subsequently found to be dubious, the islands nevertheless came to be known as “Ogasawara Islands,” and were also given names that suggested a large, extended family.⁷

The first confirmed record of the discovery of the islands concerns a Japanese ship blown off course and wrecked there in 1670 on its way to transport mandarin oranges from Kishū (today’s Wakayama Prefecture) to Edo (today’s Tokyo).⁸ Five years later, in 1675, the Edo government sent an exploration ship led by Shimaya Ichizaemon to investigate the islands. This expedition called the islands Bunin shima (Uninhabited Islands), and built a shrine to commemorate their landing.

The 1820s mark a period in the islands’ history of increasing contact with humankind. In 1823, the British whaling ship, *Transit*, arrived and its American captain wrote of the abundance of turtles and rufous turtledoves, the absence of four-legged animals, snakes and ants, the thick forest coverage that extended over the island, and the absence of any human habitation.⁹ In 1826, another British whaler, the *William*, was wrecked on the shore, where the crew took refuge. Most were later rescued, but two of the sailors decided to remain on the island and began cultivation and raising pigs. In the following year, 1827, H.M.S. *Blossom* arrived, its captain describing the islands as a paradise of green turtles, “so numerous that they quite hide the colour of the shore” and so inactive that they could be easily upturned. Already, he observed, the pigs introduced by the *William* had become wild and, he predicted, would in a

⁵ Ono, *Kotō*, p. 76.

⁶ Shimizu, *Ogasawara*, pp. 30–33.

⁷ According to *Tatsumi buninshima sojō oyobi kōjō tomegaki* [Petition for the Uninhabited Islands in the South-East and Record of a Conversation] in *Zokuzoku gunsho ruijū* (Collection of books), vol. 9, Tokyo: Kokusho Kankōkai, 1906–1909; Tabata Michio, *Ogasawara-jima yukari no hitobito* [People in Ogasawara’s History], Tokyo: Bunken Shuppan, 1993, pp. 8–10; Tanaka Hiroyuki, *Bakumatsu no Ogasawara* [Ogasawara at the end of the Edo Period], Tokyo: Chūō Kōron Sha, 1997, pp. 9–15.

⁸ Tanaka, *Bakumatsu*, pp. 2–6.

⁹ Tabata, *Ogasawara*, pp. 43–44.

short time destroy all the tree roots on the island.¹⁰ One year later, in 1828, the Russian exploration ship, *Seniavin*, arrived with zoologists, botanists and ornithologists who documented and took specimens of native birds that were soon to become extinct. The Russian captain observed that profits gained from the pigs were cancelled out by the damage they caused, since the pigs consumed a huge amount of turtle eggs.¹¹ In 1830, a group of two Americans, one Dane, one Italian, one Briton and fifteen islanders from Hawai'i arrived. Cultivating corn, pumpkin, potato, bean, melon, banana, sugarcane and pineapple, and raising pigs, chickens, turkeys, ducks, goats and deer, they became suppliers of provisions to the crews of various whaling ships. Their lifestyle was documented by Commodore Matthew Perry's American naval squadron, which passed by the islands en route to "open" Japan in 1853.¹²

As a multi-racial, multi-lingual society began to take shape, the Japanese government in 1861 sent the ship *Kanrin maru* to explore and formally name the island group.¹³ The name Ogasawara was officially adopted for the whole complex of islands. The central cluster, Chichijima Rettō (Father Island Archipelago), consisted of Magojima, Otōtojima, Anijima and Chichijima (Grandchild, Younger Brother, Elder Brother and Father Islands); the southern cluster of Hahajima Rettō (Mother Island Archipelago) included Hahajima, Anejima, Imōtojima and Meijima (Mother, Elder Sister, Younger Sister and Niece Islands); and the most northerly Mukojima Rettō (Bridegroom Archipelago) comprised Mukojima, Nakōdojima and Yomejima (Bridegroom, Go-between and Bride Islands). The scattered islands were united in the idealized form of an extended family.

In 1876, a Japanese government office was built on Chichijima to govern the then motley group of sixty nine inhabitants.¹⁴ Teaching of the Japanese language was started and settlement systematically encouraged. In 1882, the early settlers all took Japanese citizenship. Six decades later, just before the advent of the Pacific War 7,711 people lived on ten of the islands, but in 1944 virtually the entire population was evacuated. When the war ended, only those islanders of American and European origin were permitted to return, and the islands remained under United States military occupation, and became known as the Bonin Volcano Islands until 1968. After the US government handed sovereignty of the islands to Japan, the evacuated Japanese also returned. At present, only Chichijima and Hahajima are inhabited, and the total population on 1 March 2011 was 2,487.¹⁵ In this multi-racial society, one in ten of the islanders is descended from Europeans, Americans and Pacific Islanders. In the late twentieth

¹⁰ F. W. Beechey, *Narrative of a Voyage to the Pacific and Beering's Strait*, 2 volumes, London: H. Colburn and R. Bentley, 1831, pp. 230, 232.

¹¹ Tanaka, *Bakumatsu*, p. 33.

¹² Francis L. Hawks (compiler), *Narrative of the Expedition of an American Squadron to the China Seas and Japan, Performed in the Years 1852, 1853, and 1854, under the Command of Commodore M. C. Perry*, Washington: A.O.P. Nicholson, 1856, pp. 196–214.

¹³ The origins of the residents are Ogasawara, Britain, Italy, Denmark, France, Germany, Portugal, Azores, Cape Verde, Bermuda, America, Hawai'i, Tahiti, North Marquesas, Kiribati, Ponape, Bougainville, the Philippines, China, Madagascar, etc. Daniel Long, ed., *Ogasawara-gaku kotohajime*, Kagoshima: Nanpō Shisha, 2002, pp. 274–276.

¹⁴ Russell Robertson, "The Bonin Island," *Transaction of the Asiatic Society of Japan*, 4 (1875–1876), p. 141.

¹⁵ *Ogasawara sonmin dayori* [Ogasawara Villagers' Newsletter], no. 580 (March 2011).

century and early twenty first century, people have moved to the islands to escape the stresses of city life. For humans and botanical and zoological species alike, Ogasawara is often regarded as a kind of fantasy land, as its name suggests an ideal family frozen for eternity, and a remote island paradise beyond the reach of modern civilization.

Destruction of Nature

However, what today excites visitors as untouched nature is actually an environment transformed beyond recognition. In almost two centuries of human settlement, the islands have been subject to two different waves of development, the first lasting from 1826 to 1945, and the second beginning in 1968 and continuing recently. The former approximated to the classic description of “future eating,” and resource depletion.¹⁶ After the arrival of the Japanese settlers in 1876, about two to three thousand turtles were removed from the islands to be consumed.¹⁷ Similarly, albatross soon disappeared after massive slaughter in the quest for their feathers and eggs.¹⁸

This was accompanied by a timber and sugar boom in 1880s. In only a decade, half of the islands’ forests disappeared. On Hahajima, huge and ancient trees were felled, some over two thousand years old. The forest was either burned to produce dead trees for growing *kikurage* (fungus), or cleared to make way for farms and sugar cane plantations and to provide fuel to fire the sugar kilns. Only trees that did not seem to be profitable or were located in inaccessible places survived this onslaught.¹⁹ During World War Two, Chichijima, Hahajima and Iōtō (commonly known as Iwojima) were so heavily bombed that their very topography was transformed.²⁰ Not only was the human toll immense, but also the plant and animal world suffered dramatically.

After 1968, following their reversion to Japanese control, the Ogasawara islands were subject to development plans. Funded by lavish central government subsidies, importance was placed on the development of infrastructure and public works. During the twenty-six years to 1995, the government poured more than 83 billion yen into the islands. Construction replaced primary industry as the major sector of the economy and accounted for 43.3% of its total income.²¹ Had the construction works been occasioned by need, one would expect the role of public works to have been high in the early years after reversion to Japanese rule, but, as that need was being met, it began to decline. The fact that this did not occur points to the inherently pathological quality of the process. Public works-led development

¹⁶ Tim F. Flannery, *The Future Eaters: An Ecological History of the Australasian Lands and People*, Port Melbourne, Vic.: Reed Books, 1995.

¹⁷ Charlotte M. Salwey, *The Island Dependencies of Japan*, London: Eugene L. Morice, 1913, pp. 84–85.

¹⁸ Kurata Yōji, *Shashinchō: Ogasawara hakken kara shizen made* [Photo album: Ogasawara, from Discovery to Nature], revised second print, Kamakura: Abokku Sha, 1993, pp.196–198; Shimizu, *Ogasawara*, p. 89.

¹⁹ Tanaka, *Bakumatsu*, pp. 255–258; Shimizu, *Ogasawara*, pp. 88–92.

²⁰ Ogasawara Shizen Kankyō Kenkyūkai, ed., *Ogasawara no shizen: Tōyō no Garapagosu* [Ogasawara’s Nature: the Galapagos of the East], third ed., Tokyo: Kokon Shoin, 1998, p. 43.

²¹ Tada Minoru, “Kūkō wa dare no tame?” [For whom is the airport plan?], *Shūkan kinyōbi* (31 January 1997), p. 35.

did not satisfy social need, but tended to breed more and more public works.²² Roads, harbours, bridges and coastal and river works proliferated. The environmental effects of this construction “boom” were widespread. As the bulldozers used in construction felled native trees, and roads were widened and paved, the ferns in surrounding areas dried up and died, and it became easier for imported plants to supplant native ones.²³

On the islands, the human impact on nature has been extensive. Among 109 kinds of birds sighted in Ogasawara today, fifteen are known to breed there, yet only one native species, *meguro*, and five native subspecies have survived. The latter are *Ogasawara nosuri* (buzzard, *Buteo buteo toyoshimai*), *Akagashira karasubato* (red-headed-pigeon, *Columba janthina nitens*), *Ogasawara kawarabiwa* (brambling, *Carduelis sinica kittlitzii*), *Ogasawara hashinaga uguisu* (long-beaked-bush warbler, *Cettia diphone diphone*) and *Ogasawara hiyodori* (brown bulbul, *Hypsipetes amaurotis squamiceps*). *Meguro*’s closely related species, *Mukojima meguro*, have disappeared, following the extinction of four native birds, *Ogasawara mashiko* (brambling, *Chaunoproctus ferreorostris*), *Ogasawara gabichō* (fly-catcher, *Cichlopasser terrestris*), *Ogasawara karasubato* (Bonin fruit-pigeon, *Columba versicolor*) and *Hashibutogoi* (thick-beaked-heron, *Nycticorax nycticorax*).

As for sea birds, the short tailed albatross (*ahōdori*, *Diomedea albatrus*) disappeared a long time ago probably during the Meiji Period (1868–1912), although small colonies of laysan albatross (*koahōdori*, *Diomedea immutabilis*) and black footed albatross (*kuroashi ahōdori*, *Diomedea nigripes*) still survive in remote outcrops.²⁴ Ogasawara accounts for five of the thirteen species of birds that have been lost in Japan as a whole.²⁵ It is estimated that only forty of the highly endangered pigeon *karasubato* are now living in Ogasawara.²⁶ From April 2001, the Ueno zoo in Tokyo started an artificial breeding project, and managed successfully to breed twenty two chicks by May 2008.²⁷ But this success is still very limited, and the problem of returning them to Ogasawara and protecting them from cats remains formidable.

Nor is the destruction limited to birdlife. Ogasawara has various native butterflies, moths and dragonflies and, as was recently discovered, some rare kinds of snails. Two of twenty three kinds of butterflies, five of twelve kinds of dragonflies, twelve of 247 kinds of moths, 30% of about 300 kinds of beetles and 90% of about 100 kinds of snails are native. However, many of the snails are now extinct because of environmental changes: desiccation caused by forest destruction, illegal gathering and the use of agricultural chemicals.²⁸

²² Gavan McCormack, *The Emptiness of Japanese Affluence*, New York: M.E. Sharpe, 1996, ch.1.

²³ Yasui Takaya, “Ogasawara no shokubutsu ni shinobiyoru kiki” [The crisis of Ogasawara’s plants], *Puranta*, 63 (May 1999), p. 28.

²⁴ Shimizu, *Ogasawara*, 12, pp. 104–106.

²⁵ Maki Hirozō, *Yachō* [Wild Birds], Tokyo, 1998, p. 79.

²⁶ *Ogasawara sonmin dayori*, No. 569 (June 2010).

²⁷ Tōkyōto, “Tōkyōto akagashira karasubato hogo zōshoku jigyo keikaku” [Tokyo Metropolitan Government Plan of Protecting and Increasing Red-Headed Pigeons], homepage of the Tokyo Metropolitan Government, <http://www2.kankyo.metro.tokyo.jp/sizen/akagashira/index.htm>, accessed 24 March 2009.

²⁸ Shimizu, *Ogasawara*, pp.113–117, 128.

Among trees, many of the common species to be seen today, such as the Ryukyuan pine, the camphor tree, the Indian rubber tree (*mokumaō*) as well as banana and pineapple, are imports. The introduced trees *akagi* and *ginnemu* proliferate and threaten native plants.²⁹ Giant trees, such as *momotamana* (*Terminalia catappa*), *Ogasawara-guwa* (mulberry, *Morus boninensis*), *udonoki* (*Pisonia umbellifera*), *akatetsu* (*Pouteria obovata*), and local varieties of palm that were sighted by seventeenth century visitors and featured in nineteenth century paintings and engravings, are now rare. At present, 42% of 121 native flora species are being harmed by goats. Among 73 endangered species, 55% have been severely damaged.³⁰ The rat, *kuma nezumi*, is another major pest, introduced and responsible for destroying native plants.

Currently, 40% of about 400 flora species are indigenous. Many smaller native botanical species, including distinctive varieties of fern, fungi, chrysanthemum, orchid and azalea, may still be found in the more inaccessible mountains and valleys or on the uninhabited islands. In 1985, the “Emergency Investigation for Ogasawara Native Plants Protection” project discovered that eighty species, about half of the native ones, were on the brink of extinction, twenty of them unable to grow and propagate in the natural environment.³¹ One decade later, the “1997 New Red List of Plants,” published by Japan’s Integrated Biodiversity Information System managed by the Ministry of Environment, listed 134 species of Ogasawara as endangered. Elsewhere in Japan, only Okinawa has a comparable density of endangered species.³²

The wild peony, *Munin nobotan* (*Melastoma tetramerum*), and the azalea, *Munin tsutsuji* (*Rhododendron boninense*), are especially rare because only a few plants survive in the wild. Scientists have succeeded in planting about two hundred cuttings from the surviving wild peony, but these cloned “children” have the same genes as the mother tree, and have difficulty adapting to the changing environment.³³ Since the early 1980s after countless failures, the experts from the Botanic Gardens of the University of Tokyo have succeeded in multiplying several endangered species and then transplanting them back to Ogasawara, including the wild peony and the azalea, the native shrub *kobanotobera* (*Pittosporum parvifolium*), native orchids *asahiebine* (*Calanthe hattorii*) and *hoshitsuru ran* (*Calanthe hoshii*). In 1998, the wild peony even germinated by itself and blossomed.³⁴

The Airport Plans

From 1968, the Village Office began to press the Tokyo Metropolitan Government to construct an airport in Ogasawara. With the Japanese bubble economy of the late 1980s, the resort development

²⁹ Ibid., pp. 106–111.

³⁰ *Ogasawara sonmin dayori*, no. 517 (October 2006).

³¹ Wakatsuki Kunio and Shimozono Fumio, *Horobiyuku shokubutsu wo sukuu kagaku* [The Science which Saves Endangered Plants], Tokyo: Kenseisha, 1989, p. 30.

³² Shimizu, *Ogasawara*, p. 128.

³³ Wakatsuki and Shimozono, *Horobiyuku*, pp. 81–82.

³⁴ Shimozono, Fumio, “Zetsumetu kigushu no fukugen no mondaiten” [The Problems in Reviving Endangered Species], *Puranta*, 63 (May, 1999), pp. 31–35. The white flowers were sighted in August 2000 by the author with a local guide, Mr. Harada Ryūjirō.

“boom” seemed irrepressible, and in June 1988 Tokyo governor Suzuki Shun’ichi announced that an airport would be built on Anijima (Elder Brother Island). In 1991, an Ogasawara airport plan was incorporated in the “National Airport Development Plan,” which was enthusiastically endorsed by local construction companies.³⁵ However, the proposal was rather implausible. A modern airport with an 1,800 m long runway was to be built on the uninhabited island, and then linked to the population centre on Chichijima by a 500 m ropeway across a windswept ocean.

Pleas of opposition to the plan were entered by Ogasawara residents and conservation groups inside and outside Japan. Local people, led by botanist and high school teacher Yasui Takaya, argued that a large scale commercial airport was unnecessary, and urged that proper attention be paid to possible alternatives such as a turboprop plane requiring just a 1,200 m runway; other types of plane requiring even shorter runway; an airship; a flying boat; re-use of a war-time airport in the Suzaki region of Chichijima with an 800 m long runway; a vertical take-off and landing aircraft; an amphibian; a flight that connects Ogasawara and the Izu Islands via Iōtō; a high-speed ferry; and a floating airport.³⁶

In 1991, researchers conducted a five day investigation along the planned runway. New discoveries were made one by one, including more than ten species of snails, already lost in Chichijima and Hahajima.³⁷ It was, in the end, the fact that Anijima was home to the biggest area of salt tolerant shrubs (*xeric sclerophyll*) and the most concentrated population of terrestrial snails in Japan that proved decisive. In January 1996, the Environment Agency (today’s Ministry of Environment) called on the Tokyo Metropolitan Government to reconsider its plan, and to give due weight to preservation of biodiversity. The decision by the Japanese government to give priority to environment over development was at that time unprecedented.

When the airport plan was also referred for environmental assessment, nine potential sites—five on Chichijima, two on Hahajima, two on other smaller islands—were considered, and in April 1998 the best solution, according to the advice received, was held to be Shigureyama of Mt. Tsutsuji, slightly to the south of the centre of Chichijima.³⁸ It would involve extensive works over the years 2001 to 2008 to level a 1,720m strip of land across the island, at a height of 230m above sea level. The airport would completely transform the island’s topography.

This location, however, was a nesting site for the native buzzard (as mentioned above), and home to the wild peony and the azalea. The sole surviving wild clump of the azalea happened to grow just below the summit of Mt. Tsutsuji because it is the only place moist enough to allow the azalea to survive. Its favoured topographical and climatic conditions simply could not be reproduced elsewhere. Besides, the

³⁵ Tada, “Kūkō wa dare no tame?,” p. 36.

³⁶ Ogasawara Shizen Kankyō Kenkyūkai, ed., *Ogasawara kūkōmondai 13 nenkan no kiseki* [The Record of 13 Years of the Ogasawara Airport Controversy], 2002, pp. 31, 17–18, 44, 86–88, 170–175, 219, 269–270, 279, 381, 407, 439–440.

³⁷ Shimizu, *Ogasawara*, p. 143.

³⁸ Ogasawara Kūkō Kensetsu tō Senmon Iinkai, *Ogasawara kūkō kensetsu tō ni kansuru teigen* [Suggestions for the Ogasawara Airport Construction], 1998; Purekku, Kabushiki Kaisha Purekku Kenkyūjō, *Heisei 9 nendo Ogasawara kūkō kankyō chōsa hōkokusho* [Report on the Investigation of Ogasawara Airport Environment in 1997], Tokyo, 1997.

forest around the location forms part of the catchment area for drinking water.³⁹ A survey conducted by Yasui Takaya found that 88 of the 217 plant species on the Shigureyama site were native, including twenty seven which were classified as “endangered,” and another five as “at some risk” according to the “Red List of Plants.”⁴⁰ Under pressure from local opposition, the airport plan was officially withdrawn by the Tokyo Metropolitan Government in November 2001.

Meanwhile, in January 2001, the Ministry of National Land and Communication considered introducing the newly developed TSL (technosuper liner) by which an express ferry of 15,000 tons could shorten the voyage time between Tokyo and Chichijima from 25 to 16 hours.⁴¹ That project, which would have cost an estimated 11.5 billion yen, was abandoned on the eve of its launch in October 2005 because the fuel cost could not be subsidised by the government and might incur at least a 2 billion yen deficit annually.⁴²

The withdrawal of the two airport plans and the TSL project left many residents with mixed feelings. Some could not understand why native species had to be prioritized over their want of an airport, which they believed would overcome the long distance between the mainland and Ogasawara and provide better medical treatment and economic opportunities. Based on my experience of taking the 25 hour ferry six times, constantly tossed about by rough seas, I sympathize with the residents who long for a faster means of transportation, especially for emergency medical treatments. A plane requiring only a small scale airport, and causing minimal impact on the native species can be justified.

Instead of pouring more concrete on to the islands, many people there have realized the possible benefits of eco-tourism, fully utilizing the value of Ogasawara’s nature. An effort to promote Ogasawara by the Ministry of Environment and register it as a World Heritage Site began in 2003.⁴³ Based on the information from the monthly “Ogasawara Villagers Newsletter” 村民だより, published by the Village Office from May 2002 to March 2011, the publications from NPO, and my own observations, residents’ attitudes to nature are changing, and an appreciation is growing of the need to maintain the sensitive balance between native species and human life if both are to have a future.⁴⁴

Protection of Environment

The uniqueness of the islands can be seen from the research pioneered by local resident, Abe Tetsuto. Over the last thirty years, he and colleagues have been investigating the newly formed oceanic

³⁹ Shimizu, *Ogasawara*, p. 146.

⁴⁰ Yasui Takaya, “Chichijima no Ogasawara kūkō kōhochinai oyobi sono shūhen no ikansoku shokubutsu risuto” [List of Plants in the Area of the Planned Ogasawara Airport on Chichijima], *Ogasawara kenkyū*, 24 (1998), pp. 17–23.

⁴¹ *Yomiuri shinbun*, “Jisedai kōsokusen no hatsushūkō Tōkyō Ogasawara kan de kentō” [Discussion about a new generation High Speed Ferry between Tokyo and Ogasawara], 27 January 2001 (on-line).

⁴² *Asahi shinbun*, “Kokusaku no chōkōsoku TSL, To ga Ogasawara kōro dannen wo seishiki happyō” [Tokyo Metropolitan Government officially gives up the Route to Ogasawara by the Super-Speed TSL], 18 October 2005 (on-line).

⁴³ *Ogasawara sonmin dayori*, no. 468 (April 2003), p. 10.

⁴⁴ In 1999, 2000 and 2002, I visited Chichijima and had various opportunities to meet and talk with local residents.

island, Nishinoshima (Western Island), located 130 km west of Chichijima, which formed when a volcano erupted in 1973. This research is the first of its kind to detail the process of how an oceanic island, isolated from any continent by more than 1,000 km, becomes colonized by plants and animals. Nowhere else on the planet is there so remote a new-born oceanic island.⁴⁵ In other words, it is thought that this tiny island may display the process of evolution the Ogasawara Islands went through during the last million years.

Thanks in part to the activities of botanist Yasui Takaya and his colleagues, as well as the efforts of various local organizations, more and more residents have become conscious of the fragility of their natural surroundings, and an environmental culture is developing in Ogasawara. “Protection of Biodiversity” has recently become a buzzword in the islands at various levels, from ordinary people to the Ogasawara branch of Tokyo Metropolitan Government and the Ogasawara General Office of the Japanese government. Activities by volunteers to eradicate introduced plants and goats, and to help plant native plants are becoming commonplace. For instance, the introduced grass, *kurinoiga*, has been cleared from Minamijima (South Island) because the island’s karst landscape was considered to be “the most precious ecosystem in the world.”⁴⁶ And the karst landscape was designated “Japan’s natural monument” 日本天然記念物 in May 2008.⁴⁷ The native trees, *Shima horuto no ki* (*Elaeocarpus photiniifolius*), have been planted on parts of Hahajima after the invasive tree *akagi* was removed.⁴⁸ The local government’s Construction Section participated in the movement to clear the introduced Taiwan tree, *mokugenji*.⁴⁹

From 1997 to 1999, about 400 goats were removed by local hunters from Nakōdojima (Go-between Island) at a cost of 100 million yen. In 2002, Mukojima (Bridegroom Island) was declared free of goats. By 2005, the northern Mukojima Archipelago was made goat free, and newly planted native plants are growing surprisingly well and enjoying a paradise without natural predators.⁵⁰ Currently, goats have been eradicated on Higashijima, Nishijima and Anijima. Extermination is being carried out on Chichijima and Otōtojima.⁵¹

In Ogasawara, cats remain a serious threat to endangered native birds. The red-headed pigeon *karasubato* sometimes comes to visit villagers and eat papaya without noticing the waiting cats.⁵² Research has shown that between 1998 and 1999 a single cat could kill five of the native warbler *meguro* and at least one brambling *kawarahiwa*. About one hundred cats are still wandering in the forest of Hahajima,

⁴⁵ Abe Tetsuto, “Shinseikaiyōtō, Nishinoshima no seibutsusō kara no kōsatsu” [An Observation of the Plants on the New-Born Oceanic Island, Nishinoshima], *Ogasawara Yasei Seibutsu Kenkyūkai kaihō*, no. 24 (29 November 2004).

⁴⁶ *Ogasawara sonmin dayori*, no. 455 (June 2002).

⁴⁷ *Ibid.*, no. 539 (June 2008).

⁴⁸ *Ibid.*, no. 472 (July 2003), p. 6; No. 481 (March 2004).

⁴⁹ *Ibid.*, no. 478 (December 2003).

⁵⁰ Yasui Takaya, “Nakōdojima so no go” [Nakōdojima and its development], *Ogasawara Yasei Seibutsu Kenkyūkai kaihō*, 26 (1 April 2005).

⁵¹ Ministry of the Environment, Japan, “For Protection of Ogasawara’s Natural Environment,” March 2010, p. 3.

⁵² Yumura Fumiko, “Karasubato ga minka ni!?” [A Pigeon Enters a Village Home?!], *Ogasawara Wildlife Research Society News Letter*, 16 (July 2002), n.p.

driving the number of brambling down to 200.⁵³ Between 1996 and 2006, more than 370 wild cats were caught and sterilized. In January 2006, during the breeding season of the native pigeon, it was deemed necessary to send the cats to the mainland to be adopted. Now the Islands aim to make Ogasawara free of feral cats.⁵⁴

Other native species are also being protected. A re-discovery made in 2005 of one of the two native butterflies, *Ogasawara Shijimi* (*Celastrina ogasawarenis*), thought to have disappeared after 2002, aroused interest in a project designed to rescue them from the introduced iguana, *green anole* (*Anolis carolinensis*), their primary predator. An “Association of Ogasawara Shijimi” to protect the butterfly was even started.⁵⁵ 30% of the insects on the Islands are native. But their populations are decreased by the *green anole*, and it is very time-consuming and costly to eradicate it.⁵⁶

The most representative conservation organization in the islands is the Ogasawara Wildlife Research Society (OWRS), headed by Yasui Takaya. Since its establishment in 1997, OWRS has energetically conducted research on native flora and fauna, issuing newsletters to disseminate research results, raising seedlings, planting trees, cleaning beaches, culling goats, and organizing public lectures and observation trips. Yasui and his members successfully planted the native trees *takonoki* (*Pandanus boninensis*), *Ogasawara biro* (*Livistona chinensis* var. *boninensis*), *momotamana*, *hasunohagiri* (*Hernandia sonora*) and *kusatobera* (*Scaevola ssericea*) on Yomejima (Bride Island) after the goats were cleared in the year 2000. They keep going back to see how the trees are enjoying their newly rival-free environment. In May 2006, OWRS was awarded the “Prize of the Ministry of Environment” for its nine year activities and achievements. In 2007, another NPO organization which has been actively engaged in the protection of the birds and plants, the Institute of Boninology 小笠原自然文化研究所⁵⁷ received a similar award.

Education and entertainment groups have also put much weight on promoting a closer connection between humans and the land and sea. The Ocean Center, Ogasawara Whale Watching Association (OWA), the OWRS and the Ogasawara Nature and Culture Research Institute, have organized various exhibitions and lectures on Ogasawara’s nature. The monthly newsletter by the Village Office has reported the efforts of school pupils to protect turtle eggs, and the joy of the students on seeing baby turtles hatching. The OWRS encouraged children to plant seedlings of the native orchid *asahi ebine*, successfully raised by students outside Ogasawara, on Mt. Asahiyama. Education for the younger generation is an effective way of deepening the connection between nature and humans.

Profits from Eco-tourism

The Village Office has decided to make eco-tourism the main industry of the islands, along with

⁵³ Kazuto Kawakami and Hiroyoshi Higuchi, “Bird predation by domestic cats on Hahajima Island, Bonin Islands, Japan,” *Ornithological Science*, 1 (2002), pp. 143–144.

⁵⁴ Ministry of the Environment, Japan, “For Protection of Ogasawara’s Natural Environment,” March 2010, p.4.

⁵⁵ *Ogasawara sonmin dayori*, no. 516 (September 2006).

⁵⁶ *Asahi shinbun*, “Establishing a Sanctuary for Endangered Insects: Efforts by Ministry of Environment in Ogasawara,” 24 January 2009 (on-line).

⁵⁷ *Ogasawara sonmin dayori*, no. 542 (September 2008).

a promotion of recreation, leisure and historical sites, as well as further development of agriculture and fishery in order to make Ogasawara a sustainable society. Encouragement to consume locally produced vegetables and fruits and save energy in transporting goods has been made recently.

In Japan, Ogasawara is the only place where dolphins and whales can be seen almost all year round. The OWA is a pioneer in eco-tourism. In 1988, for the first time in Japan, it organized a whale watching tour near Hahajima, and produced a guideline for whale watching, which is Japan's first for protecting tourism resources. The OWA started dolphin tours in 1992, during which 250 people swam among dolphins. According to OWA's estimation, one whale and one Ogasawara flying fox can bring 550,000 yen and 63,000 yen respectively each year.⁵⁸ By July 2004, the profit gained from whale watching and dolphin tours amounted to 436 million yen. Ogasawara's native plants have also been an attraction to tourists. During Japan's long depression from the early 1990s when there was a downturn in tourism, diving, tramping and whale watching remained profitable.⁵⁹

In June 2002, the "Committee for Promoting Eco-tourism in Ogasawara" was established, and has been actively engaging in activities such as conferences and observation tours. For instance, it endeavoured to become familiar with Australia's system of certifying eco-tourism, and to study the experiences of the Barbados Island of the Caribbean Sea, Norfolk Island of Australia, the Galapagos Islands, and the Oze region in Japan.⁶⁰ In Okinawa, members were taught that it was important to conduct eco-tourism by local guides so that profits could be returned to the local community. Also, they understood that it is essential to establish a research institute to supply high quality information and guides, and to avoid harming the ecosystem by eco-tourism.⁶¹

In July 2002, the Village Office signed with the Tokyo Metropolitan Government an "Agreement on Proper Use of Natural Environment Protection and Promotion Areas in the Ogasawara Islands." Visits to Minamijima's karst landscape are restricted by a ban, which prohibits landing during the November–February period. Outside that period, only 100 people per day are allowed to the island for no more than two hours, and each guide may have no more than fifteen tourists in a group. Hahajima's Sekimon area can be viewed only with guides who have been educated by the "Forest Guide System," and can be visited by no more than 50 people per day. Visitors must also be in a five person group accompanied by one guide. More and more local people want to become guides.⁶²

From August 2004, the Tokyo Metropolitan Government established a policy to respect the uniqueness of the Islands while still maintaining public works.⁶³ This is an impressive shift, since the Government had long ignored the fragility of Ogasawara's ecosystem and applied only the rules for metropolitan cities. The Village Office also started a series of workshops from February 2002 on using renewable energy as part of eco-tourism industry. A new school complex in Hahajima utilizing solar

⁵⁸ Ibid., no. 469 (May 2003).

⁵⁹ Ibid., no. 487 (August 2004).

⁶⁰ Ibid., no. 480 (February 2004).

⁶¹ Ibid., no. 457 (July 2002).

⁶² Ibid., no. 458 (August 2002).

⁶³ Ibid., no. 487 (August 2004).

power generation (50 kw/ hour) and rain water collection was completed in February 2005.⁶⁴

In April 2008, in order to celebrate the 40th anniversary of the return of the Ogasawara Islands from the US to Japan, a one day cruise tour was organized by OWA to watch two kinds of albatross, which have been living on Mukojima Archipelago, the laysan (*koahōdori*, *Diomedea immutabilis*), the black-footed- (*kuroashi ahōdori*, *Diomedea nigripes*), as well as one other albatross which was transported by helicopter to Mukojima in February 2008 by the Ministry of Environment and the Yamashina Institute for Ornithology from Itō Islands and Torishima⁶⁵ where volcanic activity posed a threat to the birds. Among the ten birds which grew up on Mukojima and left the nest in May 2008, one returned to the island for breeding in February 2011.⁶⁶ This means that the bird remembered Mukojima, instead of Torishima, as its birthplace, and those who left the nest at the same time may return, too. Eventually, Mukojima will have an established colony of short-tailed albatrosses, which disappeared from the island about one century ago. In the Northern Hemisphere, Mukojima Archipelago is the only place where the three kinds of albatrosses can all be observed.⁶⁷

A movement for getting Ogasawara registered as a UNESCO World Heritage Site began in 2002, but failed because of a lack of sufficient systems to protect the environment. The Village Office eventually realized that only when the local people understand the value of the ecosystem and are determined to pass the islands to future generations, will the islands be successfully recommended. The Tokyo Metropolitan Government decided to concentrate on promoting Ogasawara from 2004. Fortunately, in 2004, the Ministry of Environment also decided to choose Ogasawara as one of thirteen model regions for its programme, “Promotion of Eco-tourism in National Parks.” With the support of the Ministry, Ogasawara could do more to investigate natural resources, develop tourism organizations, create different tours, train staff and establish rules.⁶⁸

In January 2006, the Ministry of Environment eventually decided to recommend about 60% of the Ogasawara islands for UNESCO registration. To help lift the image of Ogasawara’s ecosystem to the level required for successful registration, about 61% of Chichijima and 59% of Hahajima were designated as Japan’s “Protected Forest Ecosystem Areas” 森林生態系保護地域 in August 2006.⁶⁹

However, several problems slow the process of registration. Firstly, Ogasawara’s capacity to supply itself with livelihood essentials is extremely low: only 32%. Of local commodity requirements of about 15.5 billion yen, local industries only provide 5 billion yen worth, and the rest is supplied from the

⁶⁴ Ibid., no. 495 (March 2005).

⁶⁵ *Asahi shinbun*, “Albatrosses Safely Arrived at Mukojima,” 5 February 2009 (on-line).

⁶⁶ *Yomiuri shinbun*, “Albatross Returned to Mukojima after Three Years, Taking the Island as Its Birth Place,” 14 February 2011 (on-line).

⁶⁷ *Ogasawara sonmin dayori*, nos. 535 (February 2008), 536 (March 2008).

⁶⁸ Ibid, no. 486 (July 2004).

⁶⁹ Ibid., no. 514 (July 2006), 10; *Asahi shinbun*, “Ogasawara shotō wo hogochiiki settei, sekai isan tōroku wo mezasu” [Designation of the Protection Area in the Ogasawara Islands to aim for World Heritage Registration], 29 August 2006 (on-line).

mainland. By contrast, Okinawa's self-dependence is 72%. The cost of transport of mainland products to Ogasawara is high, and two thirds of the profits occurring from eco-tourism will mainly go back to the main island. Secondly, there are very few connections among local industries. For instance, the agriculture and fishery products from the islands are mainly sent to the mainland, and therefore the proportion consumed by local restaurants or hotels is low, which in turn depresses the development of local industries. Thirdly, tourist accommodations are not fully used because the weekly ferry only stays in Chichijima for three nights after each journey, and tourism activities other than whale and dolphin watching are limited.⁷⁰ Fourthly, the limited infrastructure of water supply and sewerage discharge on Chichijima and Hahajima will be quickly under pressure with a larger number of tourists, and the fragile forest environment can be easily destroyed by the footprints of sightseers. Therefore, if one day Ogasawara is registered as a World Natural Heritage site, the number of tourists must be strictly controlled in order to protect the islands' nature.

In January 2007, Ogasawara was put in a Tentative List submitted to UNESCO's World Heritage Centre as the first step towards the inscription of the Ogasawara Islands on the World Heritage List. In September 2009, "Draft Nomination of the Ogasawara Islands for Inscription on the World Heritage List" was submitted to UNESCO. In July 2010, two members of the International Union for Conservation of Nature conducted an investigation on the Ogasawara Islands.⁷¹ They reported to UNESCO on how the problems of foreign invasive plants and animals, especially wild cats, goats, pigs, green anole, ants and rats, had been dealt with. In June 2011, UNESCO made a decision to inscribe the Ogasawara Islands on its World Heritage List.

Conclusion

In December 2009, the Tokyo Metropolitan Government stated in its "Ogasawara Islands Development Plan" 小笠原諸島振興開発計画 (2009–2013) that an airport plan will be discussed with special attention to the environment.⁷² According to the local government's survey, by April 2008, 70.65% of the population wants to have an airplane connection, and the rest either seem not to want it, or have no particular opinion.⁷³ The lack of such a means of transportation has caused an apparent resistance to the preservation of native species in the islands. This is one of the major obstacles in saving the ecosystem of Ogasawara, along with indifference to eradicating introduced species, the persisting thirst for construction works, and a lack of knowledge of the natural surroundings.

Nevertheless, as discussed above, many local residents have decided to live with nature as humbly as possible. They acknowledge that Ogasawara is a place where nature has to be prioritized over construction works, and where civilization will not have a future unless the ecosystem is protected. In other words,

⁷⁰ *Ogasawara sonmin dayori*, no. 533 (December 2007).

⁷¹ *Ibid.*, no. 580 (March 2011).

⁷² Tokyo Metropolitan Government, "Ogasawara Islands Development Plan" (2009–2013), September 2009, p. 3.

⁷³ *Ogasawara sonmin dayori*, no. 537 (April 2008). Out of the 1,397 people who participated in the survey, 48.39% want the airport, 22.6% want it conditionally, 19.97% do not want it, and 9.02% do not have particular opinion.

they believe the natural environment of Ogasawara should not be sacrificed for commercial reasons or daily convenience.

Note:

This paper is an updated version of the article “Environmental Culture and World Heritage in Pacific Japan: Saving the Ogasawara Islands,” *The Asia-Pacific Journal*, vol. 17-3-09, April 26, 2009 (e-journal).