

**ASIA / PACIFIC**

# **OGASAWARA ISLANDS**

**JAPAN**



# WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

## OGASAWARA ISLANDS (JAPAN) – ID No. 1362

### IUCN RECOMMENDATION TO 35<sup>th</sup> SESSION: To inscribe the property under natural criteria

#### Key paragraphs of Operational Guidelines:

77 Property meets one or more natural criteria.

78 Property meets conditions of integrity and has an adequate protection and management system.

114 Property meets management requirements for serial properties.

### 1. DOCUMENTATION

**a) Date nomination received by IUCN:** 15 March 2010.

**b) Additional information officially requested from and provided by the State Party:** Following the technical evaluation mission the State Party was requested to provide supplementary information on 14 September 2010. The information was received on 12 November 2010.

**c) Additional Literature Consulted:** Chaloupka, M., Bjordal, K., Balazs, G. H., Bolten, A. B., Ehrhart, L. M., Limpus, C. J., Suganuma, H., Troeng, S. and Yamaguchi, M. (2007): **Encouraging outlook for recovery of a once severely exploited marine mega-herbivore.** *Global Ecol. Biogeogr.* Dingwall, P., Weighell, T. and Badman, T. (2005). **Geological World Heritage: A Global Framework Strategy.** Gland, Switzerland. IUCN (2009). **IUCN Red List of Threatened Species.** Compiled by Hilton-Taylor, C. Gland, Switzerland. Ministry of Environment *et al.* (2010). **Ogasawara Islands World Heritage Area Plan.** Molloy, L. (2006). **Ogasawara Islands National Park. A report to the Japanese Ministry of the Environment and the Japan Wildlife Research Centre on the likelihood of World Heritage values in the Ogasawara Islands National Park.** Shimizu, Y. (2003). **The nature of Ogasawara and its conservation.** *Global Environmental Research.* Tatsumi, Y. and Maruyama, S. (1989). **Boninites and high-Mg andesites: tectonics and petrogenesis.** In: Crawford, A.J., ed, **Boninites and Related Rocks.** Unwin Hyman, London. Udvardy, M.D.F. (1975). **A Classification of the Biogeographical Provinces of the World.** UNEP-WCMC (1987). **Ogasawara (Bonin Islands) National Park UNEP-WCMC Data Sheet.** Cambridge, U.K. UNESCO (2008). **World Heritage and Biodiversity No. 49.** Éditions UNESCO. Wood, C. (2009). **World Heritage Volcanoes: A Thematic Study.** IUCN Programme on Protected Areas. Gland, Switzerland.

**d) Consultations:** Ten external reviewers were consulted. The mission included extensive consultations with officials from the various managing agencies with responsibility for the property both in Tokyo and on the

Ogasawara Islands: Ministry of Environment, Nature Conservation Bureau (MoE); Forestry Agency; Cultural Heritage Agency; Tokyo Metropolitan Government (TMG); and Ogasawara Village, and the Scientific Council. Numerous discussions were held with members of local NGOs and two special sessions were organised to meet with community representatives on Chichijima and Hahajima Islands.

**e) Field Visit:** Peter Shadie and Naomi Doak, July 2010.

**f) Date of IUCN approval of this report:** 29 April 2011.

### 2. SUMMARY OF NATURAL VALUES

The Ogasawara Islands are located in the western Pacific Ocean, to the north of the Tropic of Cancer and roughly 1,000 km south of the main Japanese Archipelago. The serial nomination is comprised of five components within an extension of about 400 km from north to south and includes more than 30 islands, clustered within three island groups of the Ogasawara Archipelago: Mukojima, Chichijima and Hahajima, plus an additional three individual islands: Kita-iwoto and Minami-iwoto of the Kazan group and the isolated Nishinoshima Island. The nominated property originally totalled 7,408 ha comprising a terrestrial area of 6,358 ha and a marine area of 1,050 ha. Following discussions during the IUCN evaluation mission, the State Party proposed to increase the marine areas to a total of 1,581 ha and has provided supplementary information to confirm a revised boundary. The overall surface after amendment is therefore 7,939 ha.

The islands rest along the Ogasawara Ridge, which forms the fore-arc of the Izu-Ogasawara Arc-Trench System that was formed along the eastern edge of the oceanic Philippine Sea Plate as a result of the subduction of the Pacific Plate around 48 million years ago. A series of volcanic activities and magma compositions record the evolutionary process from juvenile oceanic arc to what the Ogasawara Islands are today. The archipelago preserves an excellent series of terrestrial exposures and differentiated lava flows illustrating the evolution of an island arc over millions of years. This evolution provides a detailed picture of the

ongoing formation of continents. In addition, the origin of the continental crust (the middle crust) formed under the arc demonstrates the ongoing evolutionary process from an oceanic island arc to a continent.

The landscape varies between the island groups and individual islands. The islands in the Chichijima Group are all plateau-like in shape with gently rolling plains bounded by sea cliffs whereas the Mukojima Group islands are flat and surrounded by sea cliffs. The Hahajima Islands Group in turn is characterised by precipitous ridges and tall sea cliffs. The two islands from the Kazan Group are mountainous with both islands formed from the summits of giant submarine stratovolcanos. Nishinoshima Island is flat and triangular and located on the peak of a large submarine volcano which rises 3,000 metres from the sea floor.

The islands have a maritime, subtropical climate characterised by small annual and diurnal temperature ranges and high levels of relative humidity. The area is slightly affected by typhoons and has a mean annual precipitation of 1,276.7 mm. There is wide range of microclimates across and within the islands.

The archipelago is a mixed island biome dominated by subtropical forest types and sclerophyllous shrublands. On steep cliffs and windswept headlands the vegetation is reduced to grasses and herbs. The coast is also home to a tall forest of pantropical species. There are 441 documented taxa of native plants including 161 taxa of endemic vascular plants and 88 taxa of endemic woody plants. Due to the location of the islands the plant species reflect a mixture of origins with many species from subtropical Southeast Asia, as well as species reflecting a northern origin from the mainland of Japan. The climatic conditions on a number of the islands and the frequent presence of fog within the cloud belt also provides suitable conditions for many species of bryophytes, epiphytes and tree ferns.

The faunal composition of the islands is characteristic of isolated oceanic island systems. The numbers of native taxa are unusually skewed with some being underrepresented or absent altogether while others are disproportionately large in number.

The only terrestrial native mammal species is the endemic, critically endangered Bonin Flying Fox. Fourteen of the 195 recorded bird species are on the IUCN Red List. Two species of terrestrial reptiles have been recorded on the islands: the endemic Ogasawara Snake-Eyed Skink and the Micronesian Gecko. There are 1380 insect species, 379 of which are endemic. The Ogasawara Islands further host 40 recorded species of freshwater fish.

One of the most distinctive examples of adaptive radiation of the fauna is found within the land snails. There are 134 species of land snails of which 100 are endemic.

In the ocean around the islands 795 species of fish, 23 species of cetaceans and 226 hermatypic coral species have been documented. The ocean surrounding the archipelago is known to provide excellent habitat for migratory cetaceans and turtles.

### 3. COMPARISONS WITH OTHER AREAS

Several islands or portions of islands are on the World Heritage List. The nomination document provides a comparative analysis with a focus on geological values, in particular a comparison among oceanic island arcs, and ecological/biological values in relation to other island groups. Further comparative research according to the criteria selected for nomination ((viii), (ix) and (x)) was undertaken to complement the State Party's comparative analysis.

The basis of nomination under criterion (viii) is the preservation of exposures on land of the evolutionary processes involved in the formation of an island arc over millions of years. An examination of the Pacific 'Rim of Fire' shows that there are many volcanic sites coincident with subduction zones. High magnesium andesites, including boninite, are found in many other places around the world in association with subduction zones, although most are either disturbed by other geological processes or are submerged. The closest comparative sites in terms of volcanic setting are the Kermadec Islands (New Zealand), Macquarie Island (Australia) and the Volcanoes of Kamchatka (Russian Federation), all displaying island arc volcanic sites, although there are many other island arc volcanic systems globally. The Kermadec Islands have similar volcanic origins and exist in a similar tectonic setting aligned to the subduction of the Pacific Plate under the Indian-Australian Plate. The Kamchatka Peninsula, whilst not an island, displays similar island characteristics. The Kamchatka Peninsula encompasses an impressive 700km volcanic belt associated with the subduction of the Pacific Plate under the Eurasian Plate with a series of volcanoes, a number of which are active. Macquarie Island has similar pillow lavas, lava flows, and basaltic dykes to the Ogasawara Islands; however, it lacks the exposed rock sequences which are found in the Ogasawara Islands. Similarly, the Kermadecs lack the exposures and clarity of evidence of the Ogasawara Islands. Whilst the particular geology of the islands is of significant international technical interest, alone it is not of sufficient basis for World Heritage recognition. As noted in the IUCN thematic study on volcanoes, the potential in this regard would be in relation to extending representation via a transnational extension of Kamchatka, however this is not the proposal as put forward in the nomination.

The Ogasawara Islands are also nominated under criterion (ix) as an outstanding example of the ongoing evolutionary processes in oceanic island ecosystems, as evidenced by the high levels of endemism; speciation through adaptive radiation; evolution of marine species



into terrestrial species; and for their importance for the scientific study of such processes.

The high degree of endemism is striking and is best illustrated in relation to vascular plants and land snails. According to the nomination, 76 (93%) of the 82 remaining native land snail species are endemic to the island group. Thus, the Ogasawaras have a higher level of land snail endemism than the Madeira Archipelago (Portugal, 88%) and the Canary Islands (Spain, 81%); however, their level of endemism does not reach that of the Hawaiian Islands (United States of America, 97%), Galapagos Islands (Ecuador, 96%) and Socotra Archipelago (Yemen, 95%).

Several World Heritage properties are recognized for the demonstration of evolutionary processes such as adaptive radiation and speciation, in particular the Galapagos Islands (Ecuador), East Rennell (Solomon Islands) and Aldabra Atoll (Seychelles). The Kermadec Islands, on New Zealand's Tentative List, are also known for comparable values. Each one of these sites differs from Ogasawara in individual ways, including the range of taxa showing adaptive radiation. Although not as well known as the Galapagos Islands or the Hawaiian Islands, the Ogasawara Islands provide evidence for the different stages of the evolution of endemic species on oceanic islands: long-distance migration, establishment, enlargement and adaptive radiation and diversification. However, only seven plant genera show adaptive radiation. Perhaps the most direct comparison in this regard is to be made with Galapagos Islands given its iconic standing in the development of evolutionary theory. Whilst the degree of speciation and differentiation in the plants and animals of the Galapagos is not matched in the Ogasawara Islands, the nominated property illustrates a higher concentration of endemism and examples of adaptive radiation in a significantly smaller area.

In this sense, the Ogasawara Islands complement the observable evolutionary processes in the Galapagos with many examples at a different spatial scale and showing much earlier stages of evolutionary processes. For example, the degree of adaptive radiation shown by the land snail genera *Hirasea* and *Mandarina* is very striking, resulting in distinct morphological variation in four ecotypes: arboreal; semi-arboreal; ground (sheltered); and ground (exposed). Further *Mandarina* species display extraordinary variation between islands and even fine scale such as in the Minamizaki area of Hahajima Island.

The archipelago also offers significant examples showing the evolution of species such as the isopod genus *Ligia* from marine to brackish to freshwater and then terrestrial species.

In relation to criterion (x), the Ogasawara Islands have relatively low overall levels of species diversity across all taxa, as is common on oceanic islands and island groups. The nomination lists 441 native vascular plant

taxa, of which a notable 37% are endemic. As these figures include subspecies and varieties, the actual number of vascular plant species on the Ogasawaras is lower. The nominated property is also recognized as a Centre of Plant Diversity.

The nominated property is an Endemic Bird Area (EBA) and five of Japan's 167 Important Bird Areas (IBAs) are located in the archipelago. The large number of bird species does not stand out when compared to other similarly sized islands and island groups such as Lord Howe Island Group, Macquarie Island (both Australia) or Gough and Inaccessible Islands (U.K.). Apart from birds, the Ogasawaras have a species-poor vertebrate fauna. Invertebrates display high levels of species richness and degree of endemism, in particular land snails. There are 1,380 recorded insect species with an endemic ratio of slightly under 30 %.

The nominated property is located within the Japan biodiversity hotspot, a global conservation priority well covered by existing World Heritage properties. These are Yakushima ((vii), (ix)), Shirakami-Sanchi (ix) and Shiretoko ((ix), (x)), all of which have a higher plant and vertebrate diversity than the Ogasawaras, except for the number of recorded bird species. In terms of total species numbers, the small Ogasawaras have a far poorer invertebrate fauna than many larger island groups such as the Hawaiian Islands (U.S.A.), Galapagos Islands (Ecuador), Canary Islands (Spain) and the Madeira Archipelago (Portugal). Several island systems boast considerably higher numbers of endemic species and higher ratios of endemic to native species, e.g. Galapagos, Lord Howe and Hawaii Islands in the Pacific and Socotra Island (Yemen) in the Indian Ocean.

The terrestrial biodiversity of the Ogasawara Islands is remarkable and clearly of national and even regional significance, especially considering the small surface area.

The surrounding marine areas, including but not limited to the formally protected areas and the small areas included in the nomination, deserve to be noted.

## 4. INTEGRITY, PROTECTION AND MANAGEMENT

### 4.1. Protection

Most of the nominated property is state owned and under the authority of various governmental agencies, including the Forestry Agency, the Ministry of Finance, the Ministry of the Environment (MoE) and the Tokyo Metropolitan Government (TMG). The Forestry Agency is in charge of the National Forests, roughly 80% of the terrestrial surface of the nominated area. In addition, some land is owned by Ogasawara Village with the remaining areas privately owned.

The nominated property contains five legally designated categories of protected area managed by three national

Government agencies: 1. Wilderness Area; 2. National Park; 3. National Wildlife Protection Areas (all MoE); 4. Forest Ecosystem Reserves (Forestry Agency); and 5. Natural Monuments (Cultural Agency). Various management functions are delegated to the TMG and Ogasawara Village Administration.

The Ogasawara archipelago is protected through seven pieces of national legislation which overlap in jurisdiction and objectives. These include the: 1. Nature Conservation Law (1972, MoE) proclaiming Wilderness Areas; 2. National Parks Law (1957, MoE) governing National Parks; 3. Law on the Administration and Management of National Forests and Forest Reserve System based on National Forest Administration and Management Bylaw (1951 and 1999, Forestry Agency) governing national forests; 4. Wildlife Protection and Appropriate Hunting Law (2002, MoE) protecting significant wildlife; 5. Law for the Protection of Cultural Properties (1950, Cultural Agency) proclaiming National Natural Monuments; 6. Law for the Conservation of Endangered Species of Wild Fauna and Flora (MoE); and 7. Invasive Alien Species Act (MoE).

The application of a suite of legislation to formalize protection is common in Japan. Despite the complex matrix of laws defining and affecting the property, they together provide for a complementary and generally harmonized suite of protection. The laws strictly control development and are consistent in their objectives to protect the key values of the property. Any jurisdictional conflicts are resolved through an interagency Regional Liaison Committee structure. This coordination structure is modelled on the collaborative approach applied in Shiretoko World Heritage property.

IUCN considers the protection status of the nominated property meets the requirements set out in the Operational Guidelines.

#### 4.2 Boundaries

The nominated property is zoned under the legislation noted above. The principle management zones are identified under the National Park Act and the Law and Bylaw on the Administration and Management of National Forests. Six zones are defined under the National Parks Law and two under the Forestry laws. Recent amendments to the zoning system have strengthened protection increasing the Special Protection Zone to cover 74% of the property and the Special Zones to 26% of the property.

The integrity, protection and management of the Ogasawara Islands cannot be separated from the surrounding ocean. Following discussions during the technical evaluation, the existing Marine Park Zones were included in the nominated area, a welcome addition expected to contribute to the integrity of the site and to facilitate management.

While not specified in the original nomination, the State Party confirmed in supplementary information officially submitted following the IUCN evaluation mission, that the much larger Ogasawara National Park serves as a functional buffer zone in line with the Operational Guidelines.

IUCN considers that the boundaries of the nominated property meet the requirements set out in the Operational Guidelines.

#### 4.3 Management

The 2010 multi-agency Ogasawara Islands Management Plan and companion Ogasawara Islands Ecosystem Conservation Action Plan cover a wide area of 129,360 ha and include controls beyond the nominated property such as ship navigation routes. The plans deal with critical issues such as access to the islands and control of alien invasive species. Management activities are detailed for the different island groups within the property with clear coordination mechanisms and monitoring plans prescribed. The plan is based on scientific knowledge and includes timetabled and prioritized actions. The plans are terrestrially focused and would benefit from more attention to marine management issues.

Interagency cooperation, driven through a Regional Liaison Committee which meets regularly, is effective and should be further developed over time to foster more empowered stakeholder engagement in management. The nominated property benefits from strong links and dialogue between researchers, managers and community, including through a Scientific Council.

A considerable increase in staffing and resources has taken place over the last five years with currently USD 11.6 m spent annually on conservation interventions. Of special note are the efforts and significant investment in alien invasive species control programmes. Staff numbers, currently 47 located both in the archipelago and Tokyo, have increased by 36% and funding has almost doubled since 2005. In addition to rangers TMG have appointed a World Heritage Officer for the property.

Business planning to diversify and secure future financing is not yet being undertaken on the Ogasawara Islands due to the significant levels of Government funding for current management. There is scope to undertake business planning on community-based activities such as guided tours. At present, visitors are charged a fee which covers the guides' salary and operating costs as a break-even operation. The actual willingness to pay might be considerably higher suggesting room for a more entrepreneurial approach. Such an approach would constitute a source for both local income and conservation funding. Similarly, an impact fee or conservation contribution could be charged and opportunities could be developed to market local niche products.

Breaches of law may incur prosecution under the multiple laws outlined above. There is adequate legal protection and scope for enforcement. The at present few severe violations of the law are handled by the police.

The multi-agency management presence on the Ogasawara Islands results in somewhat complex procedures. Currently rangers from one particular agency aware of infringements are required to report these to the relevant authority and then these incidents, if serious enough to warrant further action, are reported to the police.

This situation calls for the introduction of reciprocal enforcement powers such that rangers have the authority to report and hand over law enforcement matters to the appropriate jurisdiction. There are currently three types of uniformed rangers on the islands: TMG, MoE and Forestry Agency. Ideally, law enforcement should be communicated as a unified and common effort. This should be reflected in uniforms or at least a common logo.

Human occupation of the islands is relatively recent with a small group of Westerners and Pacific Islanders settling on Chichijima in 1830. The islands were virtually abandoned during World War II and reoccupied only after 1968. Today only two of the islands within the nominated property are inhabited (Chichijima and Hahajima) with a combined residential population of 2,462. Residential areas and surrounding small scale agricultural lands are excluded from the area of the nominated property.

A high level of local involvement is evident in the nominated property, most notably on Chichijima and Hahajima Islands. Local NGOs such as the Institute of Boninology are conducting quality research work in cooperation with other academic institutions and the Government agencies. They are also active in involving local community groups and members in their work. Over 200 accredited tour guides are providing visitor services in the islands.

Consultation meetings during the technical evaluation indicated an adequate level of consultation in the World Heritage nomination process. The nomination has also been accompanied by major awareness-raising efforts both locally and with Tokyo Metropolitan residents. No local opposition to the nomination was detected. The communities are motivated by their pride and passion for the islands and expressed a desire to maintain their current lifestyles, including the continued conservation and management of the property. Communities are also involved through both paid and volunteer programmes.

Some instances of misdirected community action occur. For example, artificial watering points in the Sekimon Forest area of Hahajima are serviced by the community to provide water for birds. The motivation for this appears to be a mixture of concern for the birds during

dry conditions and a way of attracting them for visiting tourists on guided walks. It is recommended that this practice be reviewed and either stopped or perhaps limited to short term watering to attract the birds for viewing.

IUCN considers the management of the nominated property meets the requirements set out in the Operational Guidelines.

#### 4.4 Threats

It is noteworthy that the islands were once covered by dense subtropical evergreen broadleaved forests. Most of the forest was cleared or seriously degraded over the last hundred years. The Ogasawara Islands have been and continue to be severely threatened by the human presence. The main causes for this are conversion of habitats and invasive alien species. Further concerns include possible future air access, increased tourism and development, and the expected consequences of climate change.

##### **Invasive alien species**

Without doubt alien invasive species present the most significant immediate and future threat. The main pest animals among the 22 recorded alien species are goats, cats, black rats, green anoles, pigs, the predatory flatworm, bullfrogs and cane toads with the predominant invasive plants among more than 300 recorded species being *Bischofia*, *Casuarina*, and *Leucacena*.

There has been noteworthy progress made in the management of alien invasive species. The corresponding strategy outlined in the Ogasawara Islands Management Plan adopts approaches ranging from control to mitigation to eradication. A good understanding of ecosystem dynamics and interspecies dependency is driving decisions about control sequencing with a significant input from the Scientific Council.

Managing agencies have also assessed international literature and sourced best practices from Australia and New Zealand. Control techniques have been modified to suit local conditions and further innovated in many cases.

Many satellite islands are free of vertebrate pests, a critical factor in re-establishing seabird habitat and breeding. There is an excellent programme of collaborative management oriented research helping to take an adaptive approach to management and control of alien invasive species. Academic institutions, Government agencies, at both national and local levels, NGOs and communities are working together to address these issues.

There is a need to strengthen access and quarantining protocols along the lines of the strict regulations in countries such as Australia and New Zealand. A variety of strengthened quarantining measures should be

introduced including mandatory completion of the currently voluntary declaration forms available to passengers to the islands; stronger controls on garden plant introductions both being bought to the islands by residents and being used in street plantings; and a more rigorous protocol of shoe cleaning and bag checking.

The same protocols should be applied to controls between islands, e.g. between Chichijima Island and Anijima where boaters are allowed to come ashore in intertidal zones only. To ensure continued local community buy-in, it is preferable to manage this movement between islands rather than prohibit it completely. The introduction of rigorous protocols would help to ensure no further introductions occur, particularly on to islands where eradication efforts have already been successful or are currently underway. Tour operators are voluntarily complying with these controls. However, these efforts should be strengthened and included as conditions within licensing and certification systems to ensure compliance beyond voluntary commitments.

It is recommended that beyond continued efforts to control feral cats, stronger measures to control domestic cats are also introduced. In addition, regulations on the sterilizing of pets are recommended. Continued community awareness-raising is recommended to a point where residents may voluntarily agree to a complete ban on cats.

#### **Future air access, increased tourism and development**

The establishment of air services to the islands through an airstrip on Chichijima Island is under discussion. Most residents seem strongly supportive but appear to favor a small scale solution for residential and emergency use. IUCN is critical of the consequences of any air access development on grounds of potential change in numbers and type of visitor to the islands. The legitimate concerns regarding emergency access might be addressed by considering midsize seaplanes as an alternative. Such an alternative could also serve to carry low numbers of willing-to-pay visitors.

Currently, around 17,000 tourists p.a. visit the Ogasawara Islands. The property is very well protected through a strict access control regime with many sensitive areas off-limits to visitors or only accessible through guided tours. The islands have an Ecotourism Master Plan prepared in 2005 and revised in 2010. It is prepared and overseen by the Ogasawara Ecotourism Council, a Government, NGO and community body. This approach is commendable but could be significantly strengthened by the Scientific Council becoming a member of the Ogasawara Ecotourism Council.

An increase in visitation could follow World Heritage inscription, especially if access to the islands is changed. Therefore, the approach to tourism should be adapted in anticipation of increased visitation with a focus on managing numbers, impacts and community benefits.

The Ogasawara Village administration should continue to use bed numbers to control overall levels of visitation. Careful regulation and incentivizing of commercial operators should be used to manage visitor impacts. Mandatory requirements and branding incentives can be applied through licensing thereby certifying responsible operators. Licensing should be diversified beyond whale watching association members to cover other operators such as diving, fishing and sea kayaking.

Overall growth in the residential population on the Ogasawara Islands is modest. Residential development should be closely monitored to ensure population size does not exceed the limits of infrastructure and island ecosystems. Any development should be small scale and in keeping with the islands' values.

#### **Climate change**

The Ogasawara Islands may not be subject to the same level of impacts of predicted sea level rise as other low lying island systems and atolls. Nonetheless, there are likely impacts of climate change, such as on species compositions, ranges, seasonal cycles and habitat preferences. In addition, a higher frequency and intensity of natural disasters such as landslides, typhoons and droughts could impact the islands in future. The impact of climate change on ecosystem dynamics and alien invasive species should also be considered in corresponding control strategies. In the absence of clarity, IUCN recommends that research begin to also consider the potential impacts of climate change. Capacity should be developed within management staff to understand and plan for climate change impacts. Community awareness programmes should also be developed on climate change and responses.

In summary, IUCN considers the nominated property meets the conditions of integrity as outlined in the Operational Guidelines.

## **5. ADDITIONAL COMMENTS**

### **5.1 Justification for Serial Approach**

When IUCN evaluates the nomination of a serial property it asks the following questions:

#### **a) What is the justification for the serial approach?**

A serial approach is justified as components of the property display different aspects of the values within these islands. The suite of endemic flora and fauna is spread across various islands and components of the property. The variation within these species, and how this demonstrates adaptive evolutionary radiation can only be understood if seen across the various components of the serial nomination.

#### **b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?**

The component parts of the property jointly represent the natural values of the archipelago. IUCN finds that all of the components of the property required to express Outstanding Universal Value have been included within the nomination.

**c) Is there an effective overall management framework for all the component parts of the nominated property?**

While under differing but complementary legal and jurisdictional regimes, the management of the nominated property is appropriately linked under the umbrella of the Ogasawara Islands Management Plan and by the fact that it commits the five managing agencies to joint action and coordination. The establishment of an active Regional Liaison Committee provides a forum for concerted action and to resolve any jurisdictional issues. Similarly, the Scientific Council provides a vehicle for ensuring that the property is managed in a holistic manner and considering issues outside of the property boundaries.

The Management Plan commits all the managing interests to a common plan of action and is detailed enough to ensure harmonized management, research and policy. The Management Plan is up to date and comprehensive in scope.

## 5.2 Nomination process

IUCN would like to commend the exemplary nomination process. A feasibility study delivered through a member of IUCN's World Commission on Protected Areas upon State Party request had identified various integrity and management issues which were addressed through work over several years prior to the formal submission of the nomination document.

## 6. APPLICATION OF CRITERIA

Ogasawara Islands has been nominated under natural criteria (viii), (ix) and (x).

**Criterion (viii): Earth's history and geological features**

The basis of nomination under this criterion is the preservation of exposures on land of the evolutionary processes involved in the formation of an island arc over millions of years. An examination of the Pacific 'Rim of Fire' shows that there are many volcanic sites coincident with subduction zones. The particular geology of the islands is of significant international technical interest; however alone it is not of sufficient basis for World Heritage recognition. As noted in the IUCN thematic study on volcanoes, the potential in this regard would be in relation to extending representation via a transnational extension of Kamchatka. However this is not the proposal as put forward in the nomination.

IUCN considers that the nominated property does not meet this criterion.

**Criterion (ix): Ecological processes**

The property's ecosystems reflect a range of evolutionary processes illustrated through its rich assemblage of plant species from both a Southeast Asian and a Northwest Asian origin. There is also a very high percentage of endemic species in selected taxonomic groups, resulting from these evolutionary processes. Within the flora it is an important centre for active, ongoing speciation.

The Ogasawara Islands provide valuable evidence of evolutionary processes through their significant on-going ecological processes of adaptive radiation in the evolution of the land snail fauna as well as in their endemic plant species. The examples of fine-scale adaptive radiation between and sometimes within the different islands of the archipelago are central to the study and understanding of speciation and ecological diversification. This is further enhanced by the relatively low extinction rates in taxa such as the land snails.

It is the combination of both the concentration of endemism and extent of adaptive radiation evident in the Ogasawara Islands which sets the nominated property apart from other places illustrating evolutionary processes. When taking into account their small area, the Ogasawara Islands show exceptionally high levels of endemism in land snails and vascular plants.

IUCN considers that the nominated property meets this criterion.

**Criterion (x): Biodiversity and threatened species**

The Ogasawara Islands have a number of biodiversity values that are displayed in similar or more remarkable forms in other Pacific locations. The nominated property has a rich flora and fauna, including a number of rare and threatened species, with a relatively high percentage of endemic species. However, Ogasawara has generally low levels of biodiversity with many underrepresented taxa. While efforts to conserve and reintroduce threatened seabirds are laudable, the islands are not considered to be critical remaining habitat for any particular species.

Whilst the Ogasawara Islands are recognised as a Centre of Plant Diversity, many archipelagos have a higher concentration of plant species per area. The same holds true for insects. Several comparable oceanic island sites have higher numbers and percentages of endemic species. The mixed Island system biome is represented on the World Heritage list by more outstanding places from the perspective of criterion (x).

IUCN considers that the nominated property does not meet this criterion.

## 7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:



The World Heritage Committee,

1. Having examined Documents WHC-11/35.COM/8B and WHC-11/35.COM/INF.8B2,

2. Inscribes the **Ogasawara Islands (Japan)** on the World Heritage List under natural criterion (ix);

3. Adopts the following statement of **Outstanding Universal Value**:

#### **Brief synthesis**

The Ogasawara Islands are located in the western Pacific Ocean roughly 1,000 km south of the main Japanese Archipelago. The serial property is comprised of five components within an extension of about 400 km from north to south and includes more than 30 islands, clustered within three island groups of the Ogasawara Archipelago: Mukojima, Chichijima and Hahajima, plus an additional three individual islands: Kita-iwoto and Minami-iwoto of the Kazan group and the isolated Nishinoshima Island. The nominated property totals 7,939 ha comprising a terrestrial area of 6,358 ha and a marine area of 1,581 ha. Today only two of the islands within the property are inhabited, Chichijima and Hahajima.

The landscape is dominated by subtropical forest types and sclerophyllous shrublands. On steep cliffs and windswept headlands the vegetation is reduced to grasses and herbs.

#### **Criteria**

##### **Criterion (ix)**

The property's ecosystems reflect a range of evolutionary processes illustrated through its rich assemblage of plant species from both a Southeast Asian and a Northwest Asian origin. There is also a very high percentage of endemic species in selected taxonomic groups, resulting from these evolutionary processes. Within the flora it is an important centre for active, ongoing speciation.

The Ogasawara Islands provide valuable evidence of evolutionary processes through their significant on-going ecological processes of adaptive radiation in the evolution of the land snail fauna as well as in their endemic plant species. The examples of fine-scale adaptive radiation between and sometimes within the different islands of the archipelago are central to the study and understanding of speciation and ecological diversification. This is further enhanced by the relatively low extinction rates in taxa such as the land snails.

It is the combination of both the concentration of endemism and extent of adaptive radiation evident in the Ogasawara Islands which sets the nominated property apart from other places illustrating evolutionary processes. When taking into account their small area, the Ogasawara Islands show exceptionally high levels of endemism in land snails and vascular plants.

#### **Integrity**

The boundaries of the serial property cover the key values of the property and are well designed. The zonation and the legal set-up provide an appropriate framework, while the boundaries of Ogasawara National Park serve as a functional overall buffer. Marine protected areas are partly included contributing to more effective management of the terrestrial-marine interface and thus integrity. Integrity issues are mostly related to external threats, most importantly invasive alien species. The effects of invasive alien species and historic logging have already altered many of the archipelago's habitats. Future invasions have the potential to compromise the very values the Ogasawara Islands have been recognized for and therefore need careful and continuous attention. Possible future air access, as well as increased visitation and corresponding development potentially have strong and even irreversible effects in a fragile island environment. Control of access to the islands and of alien invasive species, two in part overlapping issues, are of critical importance for the conservation of the archipelago.

#### **Management and protection requirements**

The majority of the property is state owned and under the authority of various agencies. Some land is owned by Ogasawara Village with some other areas privately owned. The nominated property contains five legally designated categories of protected area managed by three national Government agencies and is surrounded by the much larger Ogasawara National Park serving as a functional buffer zone. The property is protected through seven pieces of national legislation which overlap in jurisdiction and objectives specifying the mandate of the Ministry of the Environment, the Forestry Agency and the Cultural Agency. Any jurisdictional conflicts are resolved through an interagency Regional Liaison Committee structure.

The 2010 multi-agency Ogasawara Islands Management Plan and companion Ogasawara Islands Ecosystem Conservation Action Plan cover a wide area of 129,360 ha and include controls beyond the nominated property such as ship navigation routes. The plans deal with critical issues such as access to the islands and control of alien invasive species. Management activities are detailed for the different island groups within the property with clear coordination mechanisms and monitoring plans prescribed. The plan is based on scientific knowledge and includes timetabled and prioritized actions.

The property benefits from strong links and dialogue between researchers, managers and community. Particularly commendable is the role of the Scientific Council and the approach to research which is adaptive and management-oriented. Local involvement and the maintenance of community benefits are crucial elements in the management of this remote archipelago.

4. Commends the State Party on the major and increasing conservation investments evident in the

nomination, a high level of community participation, the multi-agency approach taken and the decision to increase the marine area of the property during the nomination process;

5. Requests the State Party to:

- a) continue its efforts to address invasive alien species;
- b) ensure all significant infrastructure development, including for tourism and access to the islands is subject to rigorous prior environmental impact assessment;

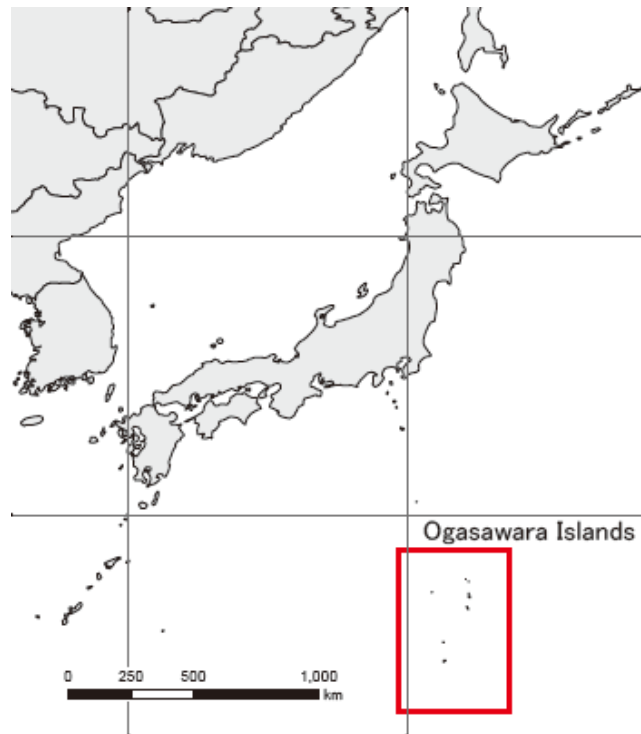
6. Strongly encourages the State Party to:

- a) consider further expansion of the property's Marine Park Zones to facilitate more effective

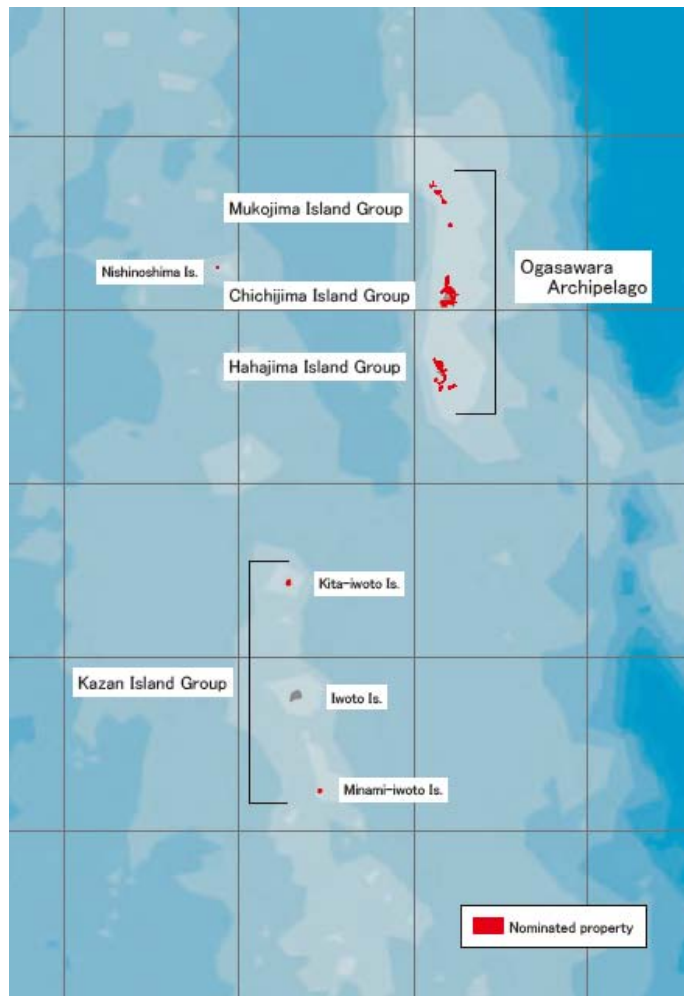
management and thereby enhance the integrity of the marine-terrestrial ecosystem dynamic;

- b) develop and implement a research and monitoring programme to assess and adapt to the impacts of climate change on the property;
- c) ensure careful tourism management in anticipation of increased future visitation and, in particular, to strengthen the Ogasawara Ecotourism Council integrating the Scientific Council as a member of the Ogasawara Ecotourism Council and advising on appropriate tourism policies that protect the island's values;
- d) ensure careful regulation and incentivization of commercial operators to manage visitor impacts, including through mandatory requirements and certification incentives for tourism operators.

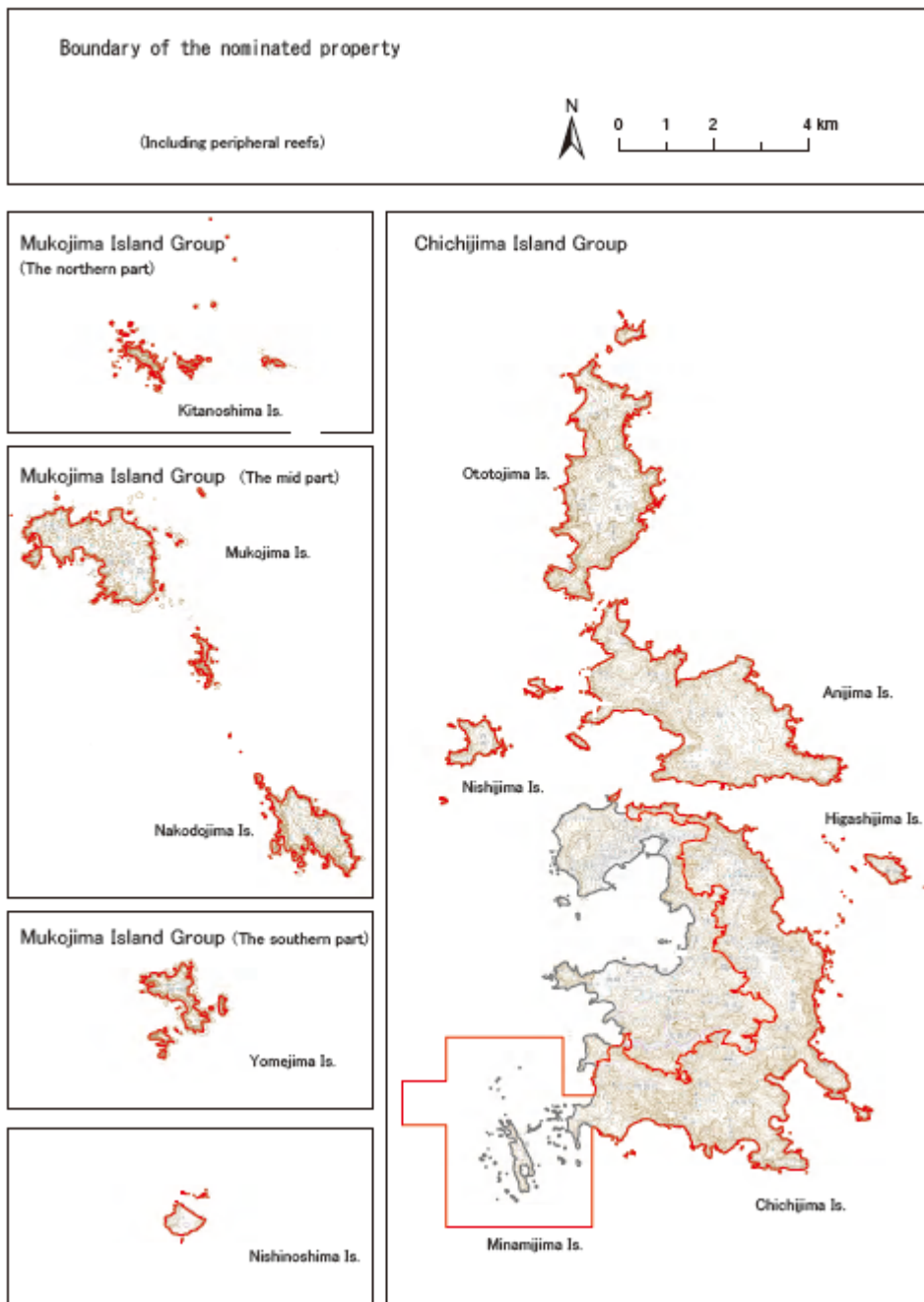
**Map 1:** Nominated property location in the Pacific Ocean



**Map 2:** Nominated property location



**Map 3:** Boundary of the Mukojima and Chichijima Island Groups





**Map 4:** Boundary of the Hahajima and Kazan Groups

