

# JAPANESE FORESTS

THREE threatened bird species breed in the forests on the main southern islands of Japan: Japanese Night-heron and Fairy Pitta are mainly confined to lowland forests in southern Honshu, Shikoku and Kyushu, and Yellow Bunting nests only in mid-altitude forests in the mountains of Honshu. Another eight threatened species breed on small islands in the three Japanese Endemic Bird Areas: the Izu islands, Ogasawara islands and Nansei Shoto. These include the highly threatened Okinawa Rail and Okinawa Woodpecker, which are endemic to the forests of Okinawa, and Amami Thrush, which is found only on Amami and nearby small islands.

- **Key habitats** Subtropical and temperate forest.
- **Altitude** Lowlands to 1,500 m.
- **Countries and territories** Japan (Honshu, Izu islands, Ogasawara islands, Shikoku, Kyushu, Nansei Shoto).

	Threatened species			Total
	CR	EN	VU	
☉ <sup>1</sup>	2	2	6	10
☾ <sup>2</sup>	—	—	1	1
Total	2	2	7	11

Key: ☉ = breeds only in this forest region.

<sup>1</sup> Three species which nest only in this forest region migrate to other regions outside the breeding season, Japanese Night-heron, Izu Leaf-warbler and Yellow Bunting.

☾ = also breeds in other region(s).

<sup>2</sup> Fairy Pitta nests in this forest region and the South-east Chinese forests (F03), and migrates to another region outside the breeding season.

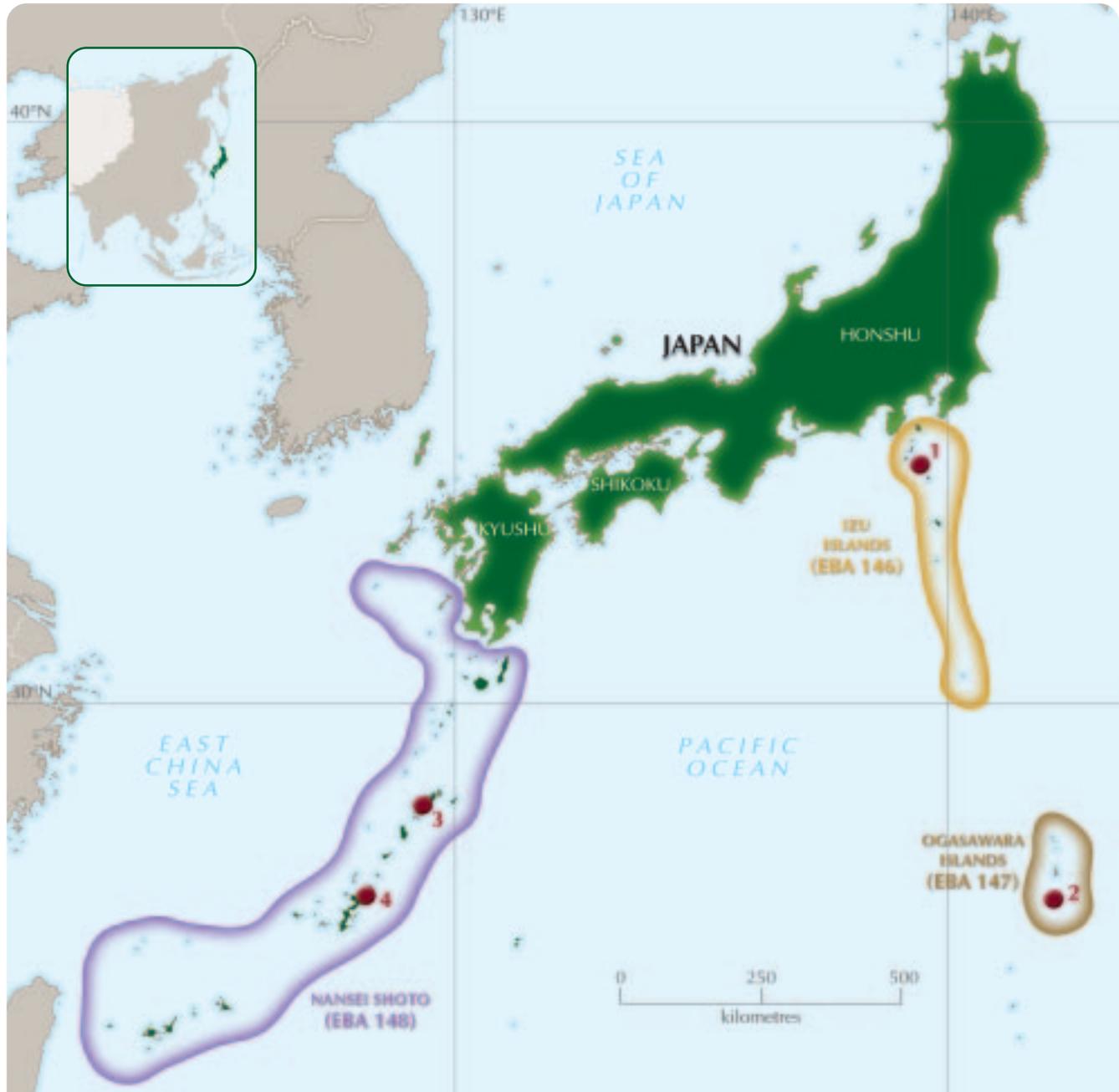
*The Yambaru forests in northern Okinawa support many unique animals and plants, including two endemic bird species.* PHOTO: MARTIN HALE



**OUTSTANDING IBAs FOR THREATENED BIRDS** (see Table 1)

Four IBAs have been selected in the Japanese forests, which together support populations of most threatened forest birds of this region. However, the three mainland Japanese species, Japanese Night-heron, Fairy Pitta and Yellow Bunting, are all relatively widespread with low population densities, and no key sites have been selected for them. The

two key sites in the Nansei Shoto islands are both globally outstanding, Yambaru in Northern Okinawa because it holds the entire world populations of Okinawa Rail and Okinawa Woodpecker, and Central Amami because it supports the most important populations of Amami Thrush, Amami Jay and Ryukyu Woodcock. Several of the Izu islands support important populations of the endemic Izu Thrush and Izu Leaf-warbler, and Miyake-jima has been selected as the outstanding site to represent these islands.



**Table 1. Outstanding Important Bird Areas in the Japanese forests.**

IBA name	Status	Territory	Threatened species and habitats
1 Miyake-jima	(PA)	Izu islands	Important populations of Izu Thrush and Izu Leaf-warbler
2 Haha-jima	PA	Ogasawara islands	Supports the largest population of Bonin White-eye
3 Central Amami forests	(PA)	Nansei Shoto	Important populations of Amami Thrush, Amami Jay and Ryukyu Woodcock
4 Yambaru, northern Okinawa	(PA)	Nansei Shoto	Supports the entire global populations of Okinawa Rail and Okinawa Woodpecker, also Ryukyu Woodcock

Note that more IBAs in this region will be included in the *Important Bird Areas in Asia*, due to be published in early 2004.

**Key** Status: PA = IBA is a protected area; (PA) = IBA partially protected; — = unprotected.

**CURRENT STATUS OF HABITATS AND THREATENED SPECIES**

The habitat available to many threatened forest birds has been greatly reduced in the densely populated and highly developed lowlands of Japan, but deforestation has now almost ceased in the lowlands and extensive forest cover remains in the hills and mountains. Recent declines in the numbers of Japanese Night-heron, Izu Leaf-warbler and

other migratory species cannot be accounted for by habitat loss in their breeding ranges in Japan, prompting speculation that the cause may lie with deforestation in their winter quarters. On Honshu, Shikoku and Kyushu the lower-altitude forests favoured by Japanese Night-heron and Fairy Pitta have been affected in the past by urban and industrial development, logging and firewood collection, but in recent decades forest cover has gradually increased and many of the remaining forests are now in protected areas. The higher-altitude forests where Yellow Bunting breeds on Honshu are not seriously affected by development, and it is unclear if changes to these habitats could account for its decline.

On the Izu islands, much natural forest has been lost to timber plantations and urban and infrastructural development, and powerful volcanic eruptions in 2000 caused serious damage to forests on Miyake-jima; however, sufficient habitat remains to support substantial populations of the threatened birds on several islands. Virtually all original subtropical forest has already been cleared from the Ogasawara islands, and this presumably caused the extinction of three endemic species in the nineteenth century (Bonin Wood-pigeon *Columba versicolor*, Bonin Thrush *Zoothera terrestris* and Bonin Grosbeak *Chaunoproctus ferreorostris*), as well as the extinction of Bonin White-eye on several islands; however, the white-eye survives in secondary and man-modified habitats on the Haha-jima island group, and an active conservation programme is underway.

In the Nansei Shoto, forest on Amami and Okinawa has been greatly reduced in recent decades, with only small areas of forest officially protected. On Amami, large areas of mature forest have been replaced by young secondary growth, although this logging is only economically feasible through government subsidy; mature forest now only covers 10–15 km<sup>2</sup>, less than 5% of the island. Okinawa has suffered substantial deforestation, particularly since 1945, through wide-scale clear-cutting (often followed by afforestation with conifers that are unsuitable to Okinawa Woodpecker), dam construction and associated road-

Eight threatened bird species are endemic to small islands in southern Japan, including Okinawa Rail.



PHOTO: TAKUKI HANASHIRO

Table 2. Threatened birds of the Japanese forests.

Species		Distribution and habitat
<b>JAPANESE MAINLAND (HONSHU, SHIKOKU AND KYUSHU)</b>		
Japanese Night-heron <i>Gorsachius goisagi</i>	☉ <sup>m</sup> EN	Watercourses and damp areas on forested hills and lower mountain slopes, on Honshu, Shikoku, Kyushu and the Izu islands
Fairy Pitta <i>Pitta nympha</i>	☉ <sup>m</sup> VU	Broadleaf evergreen forest, mainly near the coast, in southern Honshu, Shikoku and Kyushu
Yellow Bunting <i>Emberiza sulphurata</i>	☉ <sup>m</sup> VU	Deciduous and mixed forest at c.600–1,500 m in central Honshu, on the forest edge and in park-like areas
<b>IZU ISLANDS (EBA 146)</b>		
Izu Thrush <i>Turdus celaenops</i> <sup>1</sup>	☉ VU	Subtropical forests on the islands between O-shima and Aoga-shima
Izu Leaf-warbler <i>Phylloscopus ijimae</i> <sup>1</sup>	☉ <sup>m</sup> VU	Subtropical forests on the islands between O-shima and Aoga-shima
<b>OGASAWARA ISLANDS (EBA 147)</b>		
Bonin White-eye <i>Apalopteron familiare</i>	☉ VU	Secondary subtropical evergreen forest, and man-modified habitats
<b>NANSEI SHOTO (EBA 148)</b>		
Okinawa Rail <i>Gallirallus okinawae</i>	☉ EN	Subtropical evergreen forest in northern Okinawa
Ryukyu Woodcock <i>Scolopax mira</i>	☉ VU	Subtropical evergreen forest on several islands in the central Nansei Shoto islands
Okinawa Woodpecker <i>Sapheopipo noguchii</i>	☉ CR	Mature subtropical evergreen forest in northern Okinawa
Amami Thrush <i>Zoothera major</i>	☉ CR	Mature subtropical evergreen forest on Amami and adjacent small islands
Amami Jay <i>Garrulus lidthi</i>	☉ VU	Subtropical evergreen forest and woodland on Amami and adjacent small islands

☉ = breeds only in this forest region; ☉ = also breeds in other region(s); m = migrates to other region(s)  
 1 = both Izu Thrush and Izu Leaf-warbler also breed very locally in the northern Nansei Shoto islands

building, agricultural development and golf course construction. Introduced predators and competitors are known or expected to be causing rapid declines in the populations of several threatened species (and even local extinctions) on the Izu islands, Ogasawara islands and Nansei Shoto; effective control of these introduced species is probably the highest and most immediate priority for conservation in the region.

### CONSERVATION ISSUES AND STRATEGIC SOLUTIONS (summarised in Table 3)

#### Habitat loss and degradation

■ **DEVELOPMENT (URBAN, INDUSTRIAL, ETC.)**

Clearance and disturbance of forest for urban, industrial and infrastructural developments still affects some of the threatened forest birds of Japan. On Honshu, Shikoku and Kyushu, the habitat of Yellow Bunting appears secure, and forest suitable for nesting Fairy Pitta is believed to be increasing, but many Japanese Night-heron breeding sites are unprotected and vulnerable. Road construction and/or tourist developments are damaging natural habitats on some of the Izu islands. For example, in southern Mikura-jima there is a long-term plan to relocate villagers, and on Miyake-jima the Tokyo prefecture government was planning (at least before the recent volcanic eruption) to construct either a camp ground or a marine park at Toga Point. On the Ogasawara islands, although the Bonin White-eye occurs in a variety of man-modified habitats, it is at risk from economic development (including for tourism) and a consequent reduction of forest cover. In the Nansei Shoto, clearance of forest is a major threat to the threatened endemic birds. In northern Okinawa, small-scale development projects are gradually reducing the forest area, and a potentially serious new threat is a plan jointly agreed by the government of Japan and the US Army to move the latter's existing base from the south to an area near Nago adjacent to Yambaru, with a further intention to build several helicopter pads in the centre of Yambaru. One effect of the helicopter pads will be the fragmentation and

opening up of forest by their access roads. These roads will facilitate access by introduced predators (see below), and increase roadkills in Okinawa RAILS.

These threats need to be addressed through improved site protection (see below) and management. All new development projects in habitats of threatened birds need to be carefully assessed, particularly those that could affect the critical sites, and if necessary plans should be modified or even abandoned. For example, the proposal to construct helicopter pads in northern Okinawa should be reviewed and revised. On the Ogasawara islands, further efforts are needed to restore the habitats of Bonin White-eye. Given the potential conflicts between development and the needs of the threatened species, public awareness should be raised of the conservation importance of these birds and their habitats.

■ **FORESTRY**

Logging has reduced the habitat of the threatened species on Amami and Okinawa in the Nansei Shoto. The cutting of mature forest should cease (and subsidies that support such activities withdrawn), with areas of medium-aged forest allowed to develop. On Amami, logging should be restricted to a regime allowing a permanent mosaic of cut-over and mature stands, and forest road construction should be halted; government subsidies previously used in creating employment through logging and farming should be redirected into work that assists the conservation of native forest and wildlife. Nest-boxes should be provided for Amami Jay and Okinawa Woodpecker, to enable these species to nest in relatively young secondary and logged forest where the trees are not yet mature enough to provide suitable nest holes.

#### Protected areas coverage and management

■ **GAPS IN PROTECTED AREAS SYSTEM**

Japanese Night-heron, Fairy Pitta and Yellow Bunting occur in many protected areas on Honshu, Shikoku and Kyushu, but some important sites are unprotected, notably of Japanese Night-heron. The protection of the most important breeding localities of Japanese Night-heron is

Table 3. Conservation issues and strategic solutions for birds of the Japanese forests.

Conservation issues	Strategic solutions
<b>Habitat loss and degradation</b>	
<ul style="list-style-type: none"> <li>■ <b>DEVELOPMENT (URBAN, INDUSTRIAL, ETC.)</b></li> <li>■ <b>FORESTRY</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ Assess the environmental impact of development projects, particularly at critical sites</li> <li>➤ Review and revise plans for the construction of military facilities in northern Okinawa</li> <li>➤ Restore natural habitats on the Ogasawara islands</li> <li>➤ Cease logging of mature forest on Amami and Okinawa</li> <li>➤ Provide nest-boxes for Amami Jay and Okinawa Woodpecker in logged forest</li> </ul>
<b>Protected areas coverage and management</b>	
<ul style="list-style-type: none"> <li>■ <b>GAPS IN PROTECTED AREAS SYSTEM</b></li> <li>■ <b>WEAKNESSES IN RESERVE MANAGEMENT</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ Protect important Japanese Night-heron breeding grounds</li> <li>➤ Create new protected areas embracing all remaining natural forest in northern Okinawa and on Amami</li> <li>➤ Strengthen the infrastructure and manpower of the national park in the Izu islands</li> </ul>
<b>Gaps in knowledge</b>	
<ul style="list-style-type: none"> <li>■ <b>INADEQUATE DATA ON THREATENED BIRDS</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ Conduct national surveys of Japanese Night-heron and Yellow Bunting</li> <li>➤ Continue monitoring threatened birds population on the Izu islands, Ogasawara islands, Okinawa and Amami</li> <li>➤ Search for Bonin White-eye on the smaller Ogasawara islands, and survey Kakeroma-jima for Amami Thrush and Amami Jay</li> </ul>
<b>Other conservation issues</b>	
<ul style="list-style-type: none"> <li>■ <b>INTRODUCED PREDATORS</b></li> <li>■ <b>SMALL RANGE AND POPULATION</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ Control introduced predators (and garbage dumping) on the Izu islands and the Nansei Shoto, and establish predator-free safe havens</li> <li>➤ Consider the reintroduction of Bonin White-eye to some of the smaller Ogasawara islands</li> <li>➤ Establish a captive population of Okinawa Rail</li> </ul>

Yellow Bunting nests only in mid-altitude forests in the mountains of Honshu, where surveys are required to determine whether it is still declining.

PHOTO: PETE MORRIS/BIRDQUEST



crucial but must be based on surveys (see *Inadequate data on threatened birds* below). In the Nansei Shoto, there are several small protected areas in northern Okinawa and on Amami, but most forests are not officially protected. In 1996, the Environment Agency of Japan decided to designate a national park in northern Okinawa, but this has yet to be established and efforts should be continued until a major protected area is created embracing all the area's remaining natural forest. A large new reserve should also be established to protect the remaining natural forests on Amami.

#### ■ WEAKNESSES IN RESERVE MANAGEMENT

Although the Izu archipelago is a national park, with several sites designated as 'special protected areas', there are few rangers and loss of habitat continues on many islands. Infrastructure and manpower of the park need to be strengthened.

### Gaps in knowledge

#### ■ INADEQUATE DATA ON THREATENED BIRDS

The distribution and population size of Japanese Night-heron are not fully understood, and a coordinated survey is required at known sites and in other areas of apparently suitable forest, recording habitat condition as well as the birds. A national survey is also required for Yellow Bunting, including a comparison with historical data to help determine the extent and persistence of its decline. On the Izu islands, the populations of Izu Thrush and Izu Leaf-warbler should be monitored, particularly to determine the impact of introduced predators on thrush numbers on Miyake-jima. The health of the largest population of Bonin White-eye on Haha-jima island should continue to be monitored. This species's current status on many of the smaller Ogasawara islands is poorly understood, and

surveys are needed to determine the existence, size and conservation needs of any populations. Information should also be gathered on the islands where it is extinct, to try to determine the causes of its disappearance. In the Nansei Shoto, the status of the population of Okinawa Rail should continue to be closely monitored, and ecological studies continued, particularly to determine the impact of introduced predators. A ringing and radio-tracking programme would yield a great deal of information about survival and movements, and help to define territory sizes, breeding densities and therefore total population size. Populations of Ryukyu Woodcock on Amami and Okinawa should be monitored in a carefully planned, replicable manner, particularly to determine the impact of introduced predators on its numbers, and surveys could also be conducted on the other islands where it occurs. Populations of Amami Thrush and Amami Jay should continue to be monitored on Amami in a replicable manner, and surveys conducted for both species on Kakeroma-jima to develop appropriate conservation measures there.

### Other conservation issues

#### ■ INTRODUCED PREDATORS

Several threatened species are known or expected to be negatively affected by the introduction of predators (primarily for snake control) to small islands in Japan. On the Izu islands, the introduction of the Siberian weasel *Mustela sibirica* to Miyake-jima in the 1970s and 1980s appears to have caused significant declines of Japanese Night-herons and Izu Thrushes. The weasels tend to concentrate near human developments where food is available, and the increased availability of raw garbage on the Izu islands has also led to a large increase in Large-billed Crows *Corvus macrorhynchos*, which predate many Izu Thrush nests. On the Ogasawara islands, introduced cats and rats presumably played a part in the extinction of several endemic bird species in the nineteenth century, and these predators may affect Bonin White-eye, particularly on some smaller islands. On Okinawa, feral dogs and cats and the introduced Javan mongoose *Herpestes javanicus* and weasel *Mustela itatsi* are possible predators of Okinawa Rail, Ryukyu Woodcock and Okinawa Woodpecker, and feral pigs damage potential ground-foraging sites for Okinawa Woodpecker (and presumably the other two species). The brown tree snake *Boiga irregularis*, which is responsible for the almost complete elimination of the native terrestrial avifauna of Guam, has also been observed on Okinawa. On Amami, the Javan mongoose *Herpestes javanicus* (or *H. edwardsi*) has become very numerous, and Ryukyu Woodcock has declined steeply in areas where the mongoose is common (but where the forest is still in good condition), suggesting that the mongoose is causing a high level of predation; however, feral dogs and cats were encountered during the survey, which are also potential predators of the woodcock. The mongoose may prey on young Amami Jays, and on Amami Thrush. The eggs or chicks of Amami Jays are also predated by Large-billed Crow, which has recently increased on Amami, probably because of increased garbage on the island.

On the Izu islands, control of both Siberian weasel and Large-billed Crow is needed, and the spread of weasels to new islands must be prevented. New controls on the dumping of garbage should be introduced throughout the islands to reduce the numbers of crows and perhaps of weasels (if they feed on rodents which typically concentrate

The population of Ryukyu Woodcock has declined on several islands, apparently because of predation by mammals introduced to control snakes.



PHOTO: YASUYUKI MAKINO

at refuse). On the Ogasawara islands, the factors affecting Bonin White-eye numbers need study, and any predators that are found to be limiting its numbers on the smaller islands should be removed. On Okinawa, control of some or all introduced species is essential for the survival of the near-flightless Okinawa Rail, and important for Ryukyu Woodcock and Okinawa Woodpecker. As a precautionary measure, predator exclusion zones should be established and maintained in core areas of Yambaru, to provide a safe haven for the rail and woodcock. On Amami, control of introduced predators is essential to ensure the survival of Ryukyu Woodcock and of several other threatened endemic species, including the Amami rabbit *Pentalagus furnessi*, and may also be beneficial to Amami Thrush and Amami Jay. The feasibility and cost of eradicating the mongoose from Amami (or at least the key forests on the island) needs assessment, with similar work to determine how to control feral cats and dogs. No new introduction of alien predators for biological control purposes should be allowed on the Nansei Shoto and Izu islands, and in particular no weasels and no mongooses (the pressure to introduce the latter to control the highly poisonous snakes in the Nansei Shoto

must be resisted at all costs) should be permitted to be released on any other islands.

#### ■ SMALL RANGE AND POPULATION

Bonin White-eye has a tiny range, with most of its known population confined to the island of Haha-jima, and Okinawa Rail and Okinawa Woodpecker are both confined to a small area of northern Okinawa, meaning that they are potentially vulnerable to chance events, including disease and natural disasters. On the Ogasawara islands, the reintroduction of Bonin White-eye on selected islands is an important precautionary measure; however, before this is done suitable habitat may need to be restored and introduced predators removed. It may also prove necessary to remove the introduced Japanese White-eye *Zosterops japonicus* from these islands, as competition between the two has possibly been a factor in the extinction of Bonin White-eye on some smaller islands in its former range. Captive breeding might be appropriate for Okinawa Rail, to establish a secure and healthy reserve population, and any such enterprise could be tied in closely with awareness campaigns which stress the immense biological value of Yambaru.