

OKINAWA WOODPECKER

Sapheopipo noguchii

Critical ■ C2b

Endangered □ B1+2a,b,c,e; D1

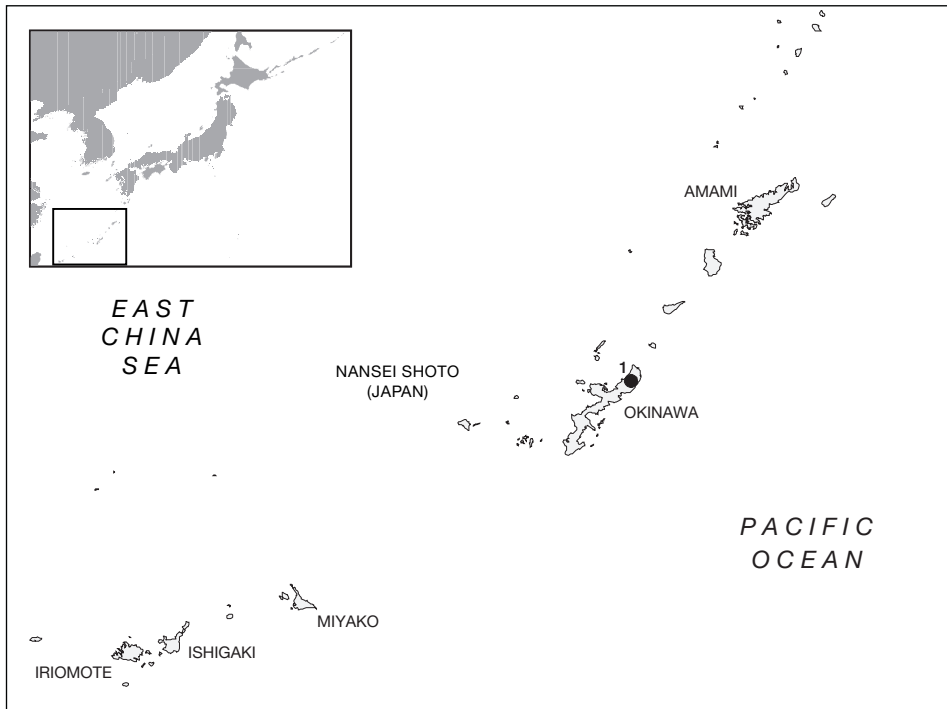
Vulnerable □ A2c; C1; D2



This woodpecker has a single tiny, declining population which is threatened by continuing loss of mature forest to logging, dam construction, agriculture and golf course developments, plus a major proposed helipad area. These factors qualify it as Critical.

DISTRIBUTION The Okinawa, Pryer's or Noguchi's Woodpecker (see Remarks 1) is endemic to the island of Okinawa in the Nansei Shoto (Ryukyu) islands in southern Japan, where it is confined to the northern part of the island to the north of Tano-dake (Brazil 1991), with records as follows:

■ **JAPAN** Okinawa island **Kunigami-gun** (locally called Yambaru or Yanbaru), northern Okinawa, in Kunigami-son, Ohgimi-son, Higashi-son and Nago-shi (McWhirter *et al.* 1996), where its main nesting areas are the mountain ridges between Mt Nishime-take and Mt Iyutake, although it also nests in well-forested coastal areas such as Aba, and it has been seen in the eastern part of Nago-shi during the breeding season (Research Center, WBSJ 1993; also e.g. Seebohm 1890, Hachisuka and Udagawa 1953, Kuroda 1971, Short 1973, Bruce 1975a,



The distribution of Okinawa Woodpecker *Sapheopipo noguchii*: (1) Kunigami-gun.

● Recent (1980–present)

Ikehara 1975, Ogasawara and Ikehara 1977, Brazil 1985b, 1991, McWhirter 1985, Ikehara *et al.* 1991, Azama *et al.* 1992).

POPULATION The Okinawa Woodpecker was considered to be very rare and in danger of extinction by Kobayashi (1930) following an expedition to Okinawa in 1928. Several estimates were made of its population between 1950 and about 1990, ranging from 40 to 200 birds (Brazil 1991), but these were often based on very limited opportunities to assess the situation; for example, Short's (1973) estimate of 20–60 pairs was made on the basis of six days' fieldwork (see Remarks 2). Ikehara *et al.* (1991) recorded a total of 70 birds in part of this species's range late in the breeding season, and estimated a breeding population of c.75 birds and a total population of between 146 and 584 birds (see Remarks 3). Azama *et al.* (1992) recorded 39 birds at 32 sites in the US Forces Northern Training Area (NTA) in north-eastern Okinawa, and estimated a density of 12.1 bird per km² there, while Azama (1995) recorded 153 birds at 109 locations in 1992, apparently leading to a population estimate of 400–500 birds for that year (Azama 1996 in Ito *et al.* 2000; again see Remarks 3).

ECOLOGY *Habitat* This species is confined to mature subtropical moist evergreen broadleaf forest, much of which is now confined to hilltops (Brazil 1991), with tall trees of more than 20 cm in diameter (Research Center, WBSJ 1993). It is found in forests that are at least 30 years old (Ikehara 1988), and during surveys in 1991–1992 most records (61.5%) were in forest at least 50 years old, 22.3% of sightings were in c.40 years old forest, and the rest (16.2%) were all in forest at least 30 years old (Azama 1995). Its heavy use of rotting stubs as food sources suggests a dependence on old-growth forest with large, often moribund trees, accumulated fallen trees and debris, and undergrowth; it shuns conifers (Short 1973). Sightings just south of Tanodake were in an area of entirely secondary forest that was too young for nest building, but these may have involved birds displaced by the clearance of mature forest (Brazil 1991). It mainly nests in the tree *Castanopsis cuspidata* (see Remarks 4) but nesting has also been recorded in other tree species including *Distylium racemosum*, *Cinnamomum japonicum*, *Quercus salicina*, *Styrax japonica*, *Machilus thunbergii*, etc. (Research Center, WBSJ 1993).

Food The species forages by excavating, tapping, probing and flicking aside rotten wood, and probing in moss clumps and patches of detritus (Short 1973, 1982). It forages on (mainly rotten) branches and trunks of trees, often at lower levels e.g. on rotten stumps, also in shrubs, on fallen trees or on the ground (Short 1973, 1982, Bruce 1975a, WBSJ 1993, Brazil 1991). It feeds on large arthropods, notably beetle larvae (e.g. cerambycids), spiders, moths and centipedes, plus fruits, berries, seeds (*Rhus*, *Rubus*) and acorns and other nuts such as *Pasania* and *Machilus* (Kiyosu 1965, Winkler *et al.* 1995). When foraging for vegetable matter, most notably tree fruits, it moves into the leafy parts of the canopy amongst the finer branches (Brazil 1985b). Nestlings were fed with insects and their larvae, spiders, millipedes and the fruits of *Machilus thunbergii* and *Myrica rubra* (Azama and Shimabukuro 1984, Kinjo 1992); also in one case a gecko (Winkler *et al.* 1995).

Breeding The species excavates its own nesting holes in the trunks and stubs of trees (Short 1973, Brazil 1985b). Nesting starts at any time between late February and May, usually in March or April (Brazil 1991). The nest trees have to be at least 20 cm in diameter (Kinjo 1992) and nest holes are usually 3–9 m up, often on the underside of a large sloping branch (Winkler *et al.* 1995). The preferred nesting tree is (often dead or dying) *Castanopsis* (Ikehara 1988; see Remarks 4), probably because mature trees of this species tend to be hollow but with hard wood, so that it is relatively easy to construct a safe nest hole (Kiyosu 1965). Most nests (55 out of 71) located by Azama *et al.* (1990) were in *Castanopsis* trees. Local people have reported that birds often re-used the same nest holes (Kobayashi 1930). The number of young fledged usually ranges from one to three (Kinjo 1992; also Azama and Shimabukuro 1984).

THREATS The Okinawa Woodpecker is one of five threatened members of the suite of seven bird species that are entirely restricted to the “Nansei Shoto Endemic Bird Area”, threats and conservation measures in which are profiled by Stattersfield *et al.* (1998).

Habitat loss The range and population of this species have contracted markedly this century because of the clearance of its habitat, and there is substantial (particularly since 1945) and continuing deforestation and much local wood-gathering, often followed by afforestation with conifers (unacceptable to the woodpecker) in its very small range (Short 1973, 1982, Brazil 1991, Ito *et al.* 2000; see Remarks 5). In the early 1980s “many areas once occupied by woodpeckers” disappeared (Brazil 1985b). A more detailed review of the loss of habitat experienced and faced by this species is in the equivalent section under Okinawa Rail *Gallirallus okinawae*; however, it is almost certainly true that the proposed helipad construction currently threatening Yambaru is a greater threat to the woodpecker than it is to the rail, since the former has so much more of a restricted range than the latter.

Small range and population The tiny range and small population of this species make it vulnerable to disease and natural disasters such as typhoons, which could cause sufficient mortality to push the species to extinction (Research Center, WBSJ 1993). However, typhoons, at least, seem only likely to represent a serious danger if the habitat is already under pressure (as it is) from other quarters.

MEASURES TAKEN Legislation The Okinawa Woodpecker is designated as an endangered species (Research Center, WBSJ), and it was declared a national monument by the regional government in 1955 (Short 1973) and as a Natural Monument in 1972 and a Special Natural Monument in 1977 (Kato *et al.* 1995). It was designated as “Special Bird” in 1972 (Environment Agency of Japan 1976), has been protected as a National Endangered Species since 1993 and it is on the national Red List of Japan; this means that its conservation importance is recognised and it can be used as a reference species in environmental impact assessments for development projects (Environment Agency of Japan *in litt.* 1999).

Intervention In 1970–1971, at a time when Okinawa was under US administration, the US Army selected Yambaru as a target for live-ammunition shelling practice, and requests for letters of intervention were sent from WBSJ and YIO to the ICBP headquarters and to various ICBP section chairmen, who (most notably S. Dillon Ripley as Secretary of the Smithsonian Institution) duly expressed their concern and caused the shelling practice to be abandoned (correspondence on file at the BirdLife International Secretariat).

Protected areas Short (1973) made a strong plea for the preservation and restoration of the species’s habitat, particularly with respect to the then impending return of Okinawa to Japanese control.

Around 1975, after cooperative efforts stimulated by Dr Kuroda of YIO and involving the owner Y. Gakiya and both WBSJ and WWF-Japan, Mt Yonaha-dake (0.23 km²) was designated as a prefectural protection area for this species (Brazil 1985b, 1991), and small parts of Mt Ibu and Mt Nishime are also designated as protected areas by the government (Ichida 1997). The eastern part of Yambaru was designated as a US Army base, where entry was not allowed and rich forests remained, but the US government has recently agreed to return this area to Japan (Ichida 1997). WBSJ has been working for the promotion of the conservation of Yambaru since 1970, and has bought some sites on Mt Yonaha together with other conservation NGOs (using donations from members) to establish private wildlife reserves (Ichida 1997). In 1996, the Environment Agency of Japan decided to designate Yambaru as a national park, and WBSJ has been working to encourage this development (Ichida 1997). After many years of lobbying by WBSJ, the Environment Agency of Japan has established a conservation centre at Yambaru, and this is regarded as a milestone on the route to full protection of the area (SC).

Research Several surveys and ecological studies of this species have been completed (e.g. Short 1973, Ikehara 1975, Ogasawara and Ikehara 1977, Azama and Shimabukuro 1984, Ikehara 1988, Ishida 1989, Ikehara *et al.* 1991, Azama *et al.* 1990, 1992, Kinjo 1992, Research Center, WBSJ 1993, Azama 1995).

MEASURES PROPOSED *Habitat protection* The ultimate aim of lobbying activities is to create a major protected area embracing all remaining natural forest in Yambaru (see Measures Taken). Moreover, a resolution (CGR2.CNV005) of the World Conservation Congress, October 2000, mentioned the possibility of designating the forests of Yambaru a “Forest Ecosystems Protection Area and National Park” but noted that the recently proposed helicopter pads “will cause large-scale destruction of habitats in the most important remaining natural forest area”, and thus called on the government of Japan to “prepare a conservation plan for the area and consider nomination of the site... as a World Heritage Site” and on the government of the USA to “review and revise the plans for construction of military facilities and training plans to ensure conservation of the species in the area”. Initiatives for such high levels of protection may supersede all previous recommendations, which follow.

There is a total of only c.40 km² of forest that is 40 years old or more on the central ridge of northern Okinawa island, and this forest should be designated as a special protected area for this species (Azama 1995). The area of the existing nature reserve there should be expanded to include all forests more than 25 years old, and fragmented forests should be connected (Ikehara 1988). Without improved forest protection and forestry practices in Yambaru this species could become extinct in the not too distant future (Brazil 1991). Developments that reduce the area of mature forest available to this species should be avoided, and plans for forest utilisation should be revised to prevent clearance in known nesting areas (Miyagi undated). Removal of undergrowth under the “Natural Forest Improvement Project” (see Threats) certainly reduces the abundance of appropriate insect food, as well as cover, and either must be discontinued (Azuma *et al.* 1997) or, if it has been, must not be allowed to recommence. The provision of nest-boxes (which are used by some other woodpecker species) should be considered, as this may enable this species to nest in relatively young secondary forest where suitable nesting trees are not yet available (Miyagi undated).

Control of introduced animals Control of predators and habitat-destroying mammals (pigs) may prove to be important for this species (and for several other threatened endemics). Brazil (1985b) hinted that hunting organisations in the Nansei Shoto might be persuaded to assume responsibility for some of necessary control work.

Research The status of the population of this species should continue to be closely monitored, and ongoing ecological studies continued. Efforts are needed to determine population densities in various types of habitat, taking into account such factors as age and extent of *Castanopsis* cover, its aspect and elevation, along with evidence of breeding success, so that a clearer picture of the overall population can be built up (see Remarks 3 for some speculations that indicate the need for better data) and the significance of particular areas (e.g. in terms of productivity) more fully determined.

Local awareness The need for an education campaign on Okinawa in support of Yambaru is outlined under Okinawa Rail.

REMARKS (1) This is a highly distinctive species in its own genus with no obvious close relatives; Short (1973) considered that it might represent “a specialized, relict offshoot of a picid line that gave rise to modern species of *Picus* and the related *Gecinulus*–*Blythipicus* line”. (2) Short (1973) wrote: “It is conceivable that fewer than 20 pairs actually exist; it is inconceivable that more than 60 pairs exist”. (3) The upper figure estimated by Ikehara *et al.* (1991) perhaps appears extremely high and improbable, but may have been an attempt to gauge the total numbers of birds alive in June, immediately after the young have fledged. It

is difficult to know how much this figure might have influenced the figure of 400–500 in Azama (1996 in Ito *et al.* 2000), but if the statistic of 12 birds per km² was used in the computation, it implies that 33–41 km² of suitable habitat remains. On the other hand, the area of *Castanopsis* forest that is over 30 years old was, in 1994, very approximately 100 km² (Y. Ito *in litt.* 2001); if this is taken to hold 12 birds per km², then an even more surprising population of 1,200 birds is arrived at, but if the figures of 400–500 birds are accurate, then this equates to an average of 4–5 birds per km². It seems likely that there is an important distinction between *primary* and *regenerating* (even if over 30 years old) *Castanopsis* forest, and that the densities of the woodpecker are much lower in the latter (Brazil [1985b] referred to an area regenerating sufficiently well to be “attractive once more to woodpeckers” but still lacking nesting habitat, “since the trees are not mature enough”); there are no figures for the amount of “true virgin” (i.e. never logged) forest (as it was called in Ito *et al.* 2000), but it appears to be very small (see Remarks 5). (4) Short (1982), repeating earlier information, called the species in question *Castanopsis sieboldii* (as do Ito *et al.* 2000), but many other sources refer to it as *C. cuspidata* and a few as *C. ryukyuensis*. (5) Brazil (1991) cited a 1977 reference to the effect that undisturbed forests only covered c.4.47 km² within the species’s range, but this seems so low a figure that perhaps some misunderstanding was involved.