

This raptor occupies primary patches of lowland Atlantic Forest in eastern Brazil, and must be considered threatened owing to its low density and to the highly fragmented and restricted nature of the remaining habitat.

DISTRIBUTION The White-necked Hawk (see Remarks 1) is endemic to the Atlantic Forest region of Brazil, with records from Alagoas and southern Bahia south through eastern Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo and Paraná to Santa Catarina. In the following account, records are given within states from north to south with coordinates from Paynter and Traylor (1991) unless otherwise stated.

Alagoas An adult female was collected at Usina Sinimbu, 9°55'S 36°08'W, February 1957 (Pinto and de Camargo 1961), and the species was recently observed in the Pedra Talhada forest near Quebrangulo (A. Studer verbally 1992).

Bahia In 1816 the species was recorded on the rio Peruípe, 17°43'S 39°16'W, and specifically at Viçosa, now evidently Nova Viçosa (Wied 1831-1833, Hellmayr and Conover 1949). Four birds were collected at Ilhéus in March, May and September 1944 (specimens in MZUSP). A pair was displaying in June 1990 in Monte Pascoal National Park (Gardner and Gardner 1990b).

Minas Gerais Records are from: the rio Jequitinhonha valley in the far north-east, recently (M. A. Andrade *in litt.* 1988); Serra do Cipó National Park, 1980 (A. Brandt *in litt.* 1987); rio Piracicaba, close to its confluence with the rio Doce, September 1940 (Pinto 1952, Pinto and de Camargo 1961; specimen in MZUSP); rio Doce, September 1906 (Pinto 1938); Rio Doce State Park, recently (M. A. Andrade *in litt.* 1988); Matas do Tororo, 25 km north of Raul Soares, September 1957 (specimen in LACM); and rio Cágado, 22°02'S 43°09'W (in OG 1963b), an affluent of the upper rio da Pomba (Burmeister 1856; see Remarks 2). An untraced locality is Piedade de Ponte Nova, where two birds were seen in 1979 (A. Brandt *in litt.* 1987).

Espírito Santo The species was probably seen at Fazenda São Joaquim (formerly Klabin), now the Córrego Grande Biological Reserve, October 1986 (Gonzaga *et al.* 1987). Certain records are from: Sooretama Biological Reserve, in recent years (Scott and Brooke 1985, J. F. Pacheco *in litt.* 1986, B. M. Whitney *in litt.* 1991, TAP) and adjacent CVRD Linhares Reserve, also in recent years (Scott 1985, B. M. Whitney *in litt.* 1987, 1991, D. F. Stotz *in litt.* 1988); Lagoa Juparanã, November 1929 (specimen in AMNH); Pau Gigante (now Ibirapu), undated (von Ihering and von Ihering 1907) and October 1940 (specimen in MZUSP); Santa Teresa, January 1941 (specimen in MNRJ); Augusto Ruschi (Nova Lombardia) Biological Reserve, since 1986, ranging up to 900 m (Gonzaga *et al.* 1987, C. E. Carvalho *in litt.* 1987, B. M. Whitney *in litt.* 1991); Chaves, near Santa Leopoldina, September 1942 (specimen in MZUSP); and the rio Jucu estuary, December 1815 (Wied 1831-1833).

Rio de Janeiro Records are from: Fazenda União, near Rocha Leão, August 1989, July, September and November 1990 (J. F. Pacheco *in litt.* 1992); foothills of the Serra de Madureira, Gericinó massif, 1980 (J. F. Pacheco *in litt.* 1986); Desengano State Park and adjacent areas (rio Mocotó, near Campos; Agulha, near Santa Maria Madalena; Morumbeca do Imbé), recently (C. E. Carvalho *in litt.* 1987, J. F. Pacheco *in litt.* 1987); Cantagalo, last century (von Ihering 1900a); Poço das Antas Biological Reserve, late 1981 (Scott and Brooke 1985); Serra dos Órgãos National Park and foothills in the area, recently (J. F. Pacheco *in litt.* 1986, C. E. Carvalho *in litt.* 1987); Santo Aleixo, undated (Gonzaga 1986); Xerém, several times recently (J. F. Pacheco *in litt.* 1986, C. E. Carvalho *in litt.* 1987); sporadic ones in or around Rio de Janeiro city, i.e. Serra do Tinguá near Nova Iguaçu, 1981 (J. F. Pacheco *in litt.* 1986), Jacarepaguá, August 1956 (specimen in LACM), Parque da Cidade, undated (Mitchell 1957), Estrada das Paineiras, September 1959 (Sick and Pabst 1968), Horta Florestal next to Tijuca National Park, recently (J. F. Pacheco *in litt.* 1986, C. E. Carvalho *in litt.* 1987) and Gávea, August 1967 (Aguirre and Aldrichi 1983); Saí ("Registro do Saí"), 22°56'S 44°00'W, April 1818 (von Pelzeln 1868-1871); Fazenda Patrimônio, Mangaratiba, 1986 (J. F. Pacheco *in litt.* 1986); Angra dos Reis (at Fazenda Japuhya), October 1945 (specimen in MNRJ); and Parati, 100 m, October 1990 (B. M. Whitney *in litt.* 1991).

São Paulo Records (see Remarks 3) are from: Ubatuba, 50 m, October 1991 (J. L. Rowlett and B. M. Whitney *in litt.* 1991); Boracéia Biological Station, 23°39'S 45°54'W, 800 m, recently (D. F. Stotz *in litt.* 1988); suburbs and outskirts of São Paulo, in the Serra da Cantareira, Horto Florestal, July 1952 (specimen in MZUSP), at Ipiranga, March 1935 (Pinto 1938) and at Vila Ema, March 1947 (specimen in MZUSP); Icapara, 24°41'S 47°25'W, July 1970 (two specimens in MNHN); Iguape, April 1900 (von Ihering and von Ihering 1907, Pinto 1938); rio Ribeira estuary, July 1964 (specimen in MZUSP); Ilha do

Cardoso State Park, recently (D. F. Stotz *in litt.* 1988, P. Martuscelli *in litt.* 1991).

Paraná The only records appear to be from: Santa Cruz Forest Reserve, 25°35'S 48°35'W, July 1946; and Represa de Guaricana, 25°43'S 48°50'W, March 1985 (Straube 1991, whence coordinates; Bornschein and Straube 1991).

Santa Catarina There are specimen and sight records from around Joinville: Hellmayr and Conover (1949) mentioned two skins, a bird was seen at Salto do Pirai, 8 km north-north-west of Vila Nova, near Joinville, July 1991 (M. Pearman *in litt.* 1991: see Measures Proposed), and another was over the rio Mississippi (*sic*) near Joinville, December 1989 (Bornschein and Straube 1991). The only other record is from Blumenau (von Berlepsch 1873-1874).

POPULATION Although once described as “common in many areas” (Wied 1831-1833), “not really rare” (Burmeister 1856), and not listed as threatened by Sick (1969, 1972) or Sick and Teixeira (1979; see Remarks 4), the relative paucity of records for this bird of prey suggest a species now in low numbers scattered between isolated forest patches, well deserving to be considered “evidently rare and local” (Brown and Amadon 1968). Survey work at Poço das Antas and Sooretama reserves concluded that it was uncommon and rare respectively (Scott and Brooke 1985), although separate work at the latter site led to its classification as uncommon (TAP). A very conjectural assessment based on one and a pair of soaring birds in the right weather and season at CVRD's Forest Reserve was that less than 30 pairs could be expected to be present (B. M. Whitney *in litt.* 1987).

ECOLOGY The White-necked Hawk seems largely confined to lowland forest (see records under Distribution), with the Mantled Hawk *Leucopternis polionota* tending to replace it at higher altitudes and further inland within the Atlantic Forest region (see Remarks 4); however, some overlap certainly occurs (Sick 1985) and indeed the latter species penetrates to sea-level (Straube and Bornschein 1991), possibly on a seasonal basis, and the ecological separation between the two species remains entirely obscure; the two have been recorded together at Serra dos Órgãos, Morumbeca, Agulha, Xerém and Tinguá in Rio de Janeiro (J. F. Pacheco *in litt.* 1987) and Guaricana in Paraná (F. C. Straube *in litt.* 1987). Habitat is the mid-storey of primary forest (D. F. Stotz *in litt.* 1989), although birds will perch atop dead trees for long periods (Wied 1831-1833, Burmeister 1856). In Ilha do Cardoso State Park they are restricted to the sand-plain forest, making occasional movements to the mainland (P. Martuscelli *in litt.* 1991). Food has been given as reptiles, mammals, birds and insects (Mitchell 1957), large spiders, Orthoptera, beetles and ants (Brown and Amadon 1968), and beetles, spiders and small snakes, taken on the ground (Sick 1985). That the species might tend to take invertebrates as a staple is suggested by the contents of three stomachs of specimens in MZUSP, respectively: several spiders and insects; insects; a large quantity of diverse insects. Moreover, Martuscelli (1991) observed a bird follow an army ant swarm and take a large nocturnal gastropod *Megalobulimus paranaguensis* flushed by the ants. There are no breeding data.

THREATS Destruction of forest within this species's range has been extremely serious, such that only small fragments of the original biome remain (for a full discussion see Sick and Teixeira 1979). Habitat loss is the threat in Minas Gerais (M. A. Andrade *in litt.* 1988). In São Paulo in areas of forest clearance it is further persecuted as a chicken stealer (P. Martuscelli *in litt.* 1991).

MEASURES TAKEN The White-necked Hawk is protected under Brazilian law (Bernardes *et al.* 1990).

It has been recorded from Pedra Talhada Biological Reserve in Alagoas, Monte Pascoal National Park in Bahia, Sooretama Biological Reserve and the adjacent CVRD Linhares Reserve, Augusto Ruschi (Nova Lombardia) Biological Reserve, all in Espírito Santo, Rio Doce State Park in Minas Gerais, Desengano State Park, Poço das Antas Biological Reserve and on the fringes of Serra dos Órgãos, Tijuca and Bocaina National Parks in Rio de Janeiro, Boracéia Biological Reserve and Ilha do Cardoso State Park in São Paulo and Santa Cruz Forest Reserve in Paraná. Despite this array of apparent havens, the species probably lives at such low densities and the areas in question are so far apart that they offer no guarantee of long-term security.

MEASURES PROPOSED Fuller surveys for this and other threatened species of bird need to be undertaken in, for example, the Jequitinhonha valley in Minas Gerais and the Serra do Mar in São Paulo, Paraná and, perhaps especially, Santa Catarina, an ornithologically much neglected state which may yet

prove to harbour important populations of many Atlantic Forest species. Biological studies of the species are likely to prove very difficult, given its evidently retiring nature, but ornithologists should be on the alert for any nests, so that chance discoveries can be followed up immediately by intensive investigation. The tower in the CVRD Forest Reserve (see, e.g., Collar 1986) offers an opportunity to study forest raptor display and dispersion (see Population), and the White-necked Hawk would be the key focus of such a study. Consideration of a reserve at Salto do Pirai in Santa Catarina has been suggested as this is the only locality in the world for Kaempfer's Tody-tyrant *Hemitriccus kaempferi* (see Measures Proposed in relevant account).

REMARKS (1) This is apparently a poor name, since the bird is no more white-necked than the sympatric Mantled Hawk; "Band-tailed Mantled Hawk" has been claimed as far more diagnostic (Mitchell 1957). (2) Paynter and Traylor (1991) listed rio Cágado as untraced, although it is given in OG (1963b); Hellmayr and Conover (1949) place rio Cágado and rio da Pomba together, as if two localities were involved. (3) E. O. Willis *in litt.* (1986) mentioned this species from two unspecified localities in the state. (4) It is curious that Sick (1969, 1972) and Sick and Teixeira (1972) listed the Mantled Hawk as threatened when this bird has a much more extensive range (into Paraguay and Argentina: King 1978-1979) and, by virtue of its occupation of more upland areas, enjoys considerably more habitat security; thus for example in São Paulo it had been found in 12 forest areas as against the White-neck's two (E. O. Willis *in litt.* 1986) and in Paraná it has been found to be fairly abundant and capable of using plantations (Straube and Bornschein 1991).