

This rare hawk inhabits deciduous and evergreen forests in western Ecuador and immediately adjacent north-west Peru, where it is threatened by rampant habitat destruction; it retains large populations at only a few sites, notably Machalilla National Park in Ecuador and Tumbes National Forest in Peru.

DISTRIBUTION The Grey-backed Hawk (see Remarks 1) is restricted to western Ecuador and immediately adjacent north-west Peru: in western Ecuador it has been found on the coastal hill range in Esmeraldas, Manabí and Guayas provinces, in the western lowlands in Pichincha and Los Ríos provinces, and on the Andean slopes in the south-west in Azuay, El Oro and Loja provinces; in north-west Peru, the only confirmed records come from Tumbes department. Unless otherwise stated coordinates in the following account are from Paynter and Traylor (1977), Stephens and Traylor (1983), Best and Clarke (1991), Williams and Tobias (1991), or read from IGM (1989).

Ecuador Records in the coastal range are from: (*Esmeraldas*) Cerro Mutilus (Reserva Jardín Tropical “Luis Vargas Torres”), not located but on a ridge south-east of Esmeraldas, east of río Esmeraldas (sighting in January 1991: TAP); Cabeceras de Bilsa, c.100-300 m, east of Bilsa and north-east of Muisne, i.e. at c.0°42'N 79°52'W (sightings in January 1991: TAP); (*Manabí*) Filo de Monos, 47 (road) km north-west of El Carmen, i.e. at c.0°05'S 79°51'W (specimen in WFVZ collected in July 1988); Mongoya, 200 m, presumably near the river of the same name at c.0°10'S 79°50'W (two specimens in BMNH collected in July 1942; see Remarks 2); Cordillera de Balzar, at c.0°55'S 79°55'W (specimen in BMNH collected before March 1880; see Remarks 3); Cerro Achi, 600 m, at 1°23'S 80°39'W (sighting in January 1991: TAP); Machalilla National Park, on the coast near the Guayas border, at c.1°35'S 80°46'W (recent sightings: King 1978-1979; also sightings of at least two pairs on Cerro San Sebastián in 1991: TAP, R. S. Ridgely *in litt.* 1991); (*Guayas*) Quebrada Canoa, Cerro Blanco reserve, Cordillera de Chongón, at c.2°09'S 80°03'W, c.14 km west of Guayaquil (a possibly nesting pair sighted in January 1991: TAP).

Records in the western lowlands are from: (*Pichincha*—see Remarks 4) Santo Domingo de los Colorados, 490 m, at 0°15'S 79°09'W (given as 0°13'S 79°06'W on label of specimen in AMNH collected in July 1914); Río Palenque reserve (200 m), near the border with Manabí and Los Ríos, at c.0°30'S 79°30'W (King 1978-1979, coordinates and altitude from Leck 1979; species apparently no longer present: see Population); (*Los Ríos*) Valencia, 100 m, (c.15 km north-east of) Quevedo, at 0°56'S 79°21'W (specimen in ANSP collected in October 1950); Quevedo, 100 m, at 1°02'S 79°29'W (specimen in BMNH collected before 1884); Jauneche reserve, at 1°10'S 79°30'W, recently (TAP).

On the Andean slopes in the south-west there are records from: (*Azuay*) Manta Real, at c.2°30'S 79°17'W (singles sighted in July and August 1991: TAP, R. S. Ridgely *in litt.* 1991); above Naranjal, at c.2°35-45'S 79°30-35'W (King 1978-1979); (*El Oro*) Uzhcurumi, 3°19'S 79°36'W (several noted in February 1991: Best 1992); 9.5 km by road west of Piñas (near Buenaventura), 900-950 m, at 3°40'S 79°42'W (Robbins and Ridgely 1990: two specimens in ANSP and MECN collected in June and July 1985, and several subsequent sightings, for which see Population); San Pablo, east of Zaruma, 3°41'S 79°33'W, at 1,200 m (birds seen during September 1991: Williams and Tobias 1991); “Las Piñas, 1,100 m, Alamor range, Loja” (Chapman 1926; specimen in AMNH collected in September 1921), not located by Paynter and Traylor (1977) but judged here to be the Piñas in El Oro, at 3°40'S 79°42'W; Salvias, 1,050 m, at 3°47'S 79°21'W (Chapman 1926; specimen in AMNH collected in August 1920); (*Loja*) Quebrada Cebollal, 945 m, at 3°55'S 80°03'W (Chapman 1926; specimen in USNM collected in September 1921); east of Vicentino, 1,400 m, at c.3°56'S 79°55'W (at least one pair sighted in February 1991: Best 1992); between Vicentino and Alamor, 1,200-1,400 m (at least two pairs sighted in February 1991: Best 1992); El Tigre (untraced), on the Arenillas–Alamor road, 600 m (one bird in September 1991: Williams and Tobias 1991); near Quebrada Las Vegas (near Alamor), 3°59'S 79°57'W (birds seen calling, including three together in August 1991: Williams and Tobias 1991); Alamor, 1,385 m, at 4°02'S 80°02'W (Chapman 1926; specimen in AMNH collected in October 1920); Tierra Colorada, 1,400-1,850 m, at 4°02'S 79°57'W (one pair sighted in February 1991: Best 1992); Guainche (between Alamor and Celica), 975 m (Chapman 1926; specimen in AMNH collected in August 1921; also sighting of a pair in March 1989 at 4°05'S 79°58'W: Rahbek *et al.* 1989; and sighting of at least one pair at 1,600-1,800 m in February 1991: Best 1992); on the Alamor–Celica road, at 4°09'S 79°50'W, 1,900 m (pair seen in March 1989: Bloch *et al.* 1991); Celica, 2,100 m, at 4°07'S 79°59'W (Chapman 1926; specimen in AMNH collected in September 1920; also daily sightings of several at 1,900-2,100 m west of Celica in

August 1989: R. S. Ridgely *in litt.* 1989); Puyango, 300 m, at c.3°52'S 80°05'W (Chapman 1926; specimen in AMNH collected in October 1921).

Peru Records come from June and early July 1979, late February and early March 1986, and late July 1988 at El Caucho and Campo Verde, Tumbes department, at 3°49'S 80°17'W and 3°51'S 80°11'W respectively, in the hills between these localities, and at Pampa de Hospital 24 km to the north-west (Wiedenfeld *et al.* 1985, M. Kessler *in litt.* 1988, Parker *et al.* 1989). A record of the species from above San José de Lourdes in the extreme southern part of Cordillera del Condor (Robbins *et al.* 1987) is the only report of the species east of the Andes, and is now doubted by M. B. Robbins and R. S. Ridgely (R. S. Ridgely *per* B. J. Best *in litt.* 1992).

POPULATION As 90% or more of lowland Ecuador where the species formerly occurred is now deforested, a great decline must have taken place, and the species is now confined to only a few areas (R. S. Ridgely *in litt.* 1989), and similar levels of deforestation have doubtless affected the species's range in Peru. In the following account, evidence is presented from north to south.

Ecuador This hawk was found to be uncommon at Cabeceras de Bilsa, Esmeraldas, in January 1991 (TAP). In the Machalilla National Park, Manabí, some 8-9 birds were seen during four days in 1978 (R. S. Ridgely *in litt.* 1989), and in January 1991 the species was again found to be fairly common (TAP), with at least two pairs on Cerro San Sebastián during the year (TAP, R. S. Ridgely *in litt.* 1991). The species was formerly "not rare" at the Río Palenque reserve, Pichincha (M. Marin *per* M. B. Robbins *in litt.* 1988); however, it has not been seen there recently (P. Greenfield *in litt.* 1989), and there may in fact be no reliable records since 1977 (R. S. Ridgely *in litt.* 1989). There are no recent records from Los Ríos (see Distribution), and only single birds were recorded in Azuay during July and August 1991 (see Distribution). In El Oro, several birds were noted at Uzhcurumi in February 1991 (Best 1991); on the slope 8-10 km west of Piñas (near Buenaventura), numbers seem to be largely unchanged since 1985, despite further habitat destruction (R. S. Ridgely *in litt.* 1989), with five or more (including two pairs and a presumed immature bird) seen in June and July 1985 (Robbins and Ridgely 1990), 3-4 seen there in August 1988 and April 1989 (P. Greenfield *in litt.* 1989), two presumed pairs of adults present in March 1990 (B. M. Whitney *in litt.* 1991), two presumed pairs in February–March 1991 (Best 1992), several pairs present in September 1991 (Williams and Tobias 1991), with one, one and four birds being noted there on consecutive days in January 1992 (G. Kirwan and T. Marlow *in litt.* 1992); slightly further east at San Pablo, a pair was seen daily during September 1991 (Williams and Tobias 1991). In Loja almost all recent records come from the Vicentino–Alamor–Celica area: one pair east of Vicentino in February 1991 (Best 1992), two pairs between Vicentino and Alamor (including one in Quebrada Las Vegas) in February 1991 (Best 1992), one pair at Quebrada Las Vegas in August 1991 (Williams and Tobias 1991), a pair at Tierra Colorado in February 1991 (Best 1992), one pair between Alamor and Celica in March 1989 (Bloch *et al.* 1991), with a pair in March 1989 and at least one pair in February 1991 at Guainche (Rahbek *et al.* 1989, Best 1992), daily sightings of several in August 1989 west of Celica (R. S. Ridgely *in litt.* 1989), and a pair displaying 5 km north-west of Celica in February 1991 (Best 1992).

In its small Peruvian range the species is "uncommon" (Parker *et al.* 1982) or rare (Wiedenfeld *et al.* 1985), M. Kessler (*in litt.* 1988) recording only two singles and a pair during a six-day survey in Tumbes National Forest during late February and early March 1986, and Parker *et al.* (1989) reported finding two pairs and a subadult, 15 and 5 km south-west and 5 km north-east of El Caucho in late July 1988.

ECOLOGY The Grey-backed Hawk inhabits deciduous and evergreen forests, mainly at 100-1,400 m, but locally (as around Celica) as high as 2,100 m (Brown and Amadon 1968, Meyer de Schauensee 1970, Blake 1977, R. S. Ridgely *in litt.* 1989). The preferred habitat was probably moist evergreen forest (as described by Dodson *et al.* 1985, and Dodson and Gentry 1991), a forest type now restricted to a few small patches in the río Guayas basin and north on the slopes of the coastal mountains to the east of Esmeraldas.

The species avoids drier areas such as Tambo Negro (Best 1991), and appears to rely on more humid areas than many other Tumbesian endemics (Williams and Tobias 1991). In Peru it has been recorded in both low-elevation (500 m) deciduous forest (dominated by *Ceiba trichistandra*), as well as in semi-

deciduous *Cavanillesia platanifolia* dominated forest at 750 m (Parker *et al.* 1989), but in Ecuador most recent sightings are from evergreen moist forest and wet forest on the lower slopes of the Andes (Piñas) (P. Greenfield *in litt.* 1989). Between Alamor and Celica it survives in very scattered, fragmented and disturbed forest patches (R. S. Ridgely *in litt.* 1989, Best 1992), this area being described as having 30-40% forest cover, 50% of which is probably secondary in nature (Bloch *et al.* 1991). Birds occur singly, in pairs or small groups of 3-4, singles or loose pairs, often perched quietly in the mid-upper levels of large open trees (both within forest and in cleared agricultural areas with scattered tall trees) as is typical of other members of the genus, but unlike those species (and like White Hawk *Leucopternis albicollis*) it often soars, sometimes to considerable heights (Wiedenfeld *et al.* 1985, M. Kessler *in litt.* 1988, P. Greenfield *in litt.* 1989, R. S. Ridgely *in litt.* 1989, Robbins and Ridgely 1990, Best 1992).

In the Alamor–Celica area, birds were seen occasionally to sally short distances within and above the canopy, although none was seen actively hunting (Best 1991). One bird in Peru was seen carrying a 14 cm long teiid lizard (Parker *et al.* 1989), and another a snake (R. S. Ridgely *in litt.* 1989). A bird near Quebrada Las Vegas was carrying a 30-40 cm snake, and another took an Ecuadorian Thrush *Turdus maculirostris* in the bottom shelf of a mist-net (Williams and Tobias 1991). A recently collected female (specimen in ANSP) had crab, beetle (Scarabidae) and *Conocephalus* katydid (Tettigoniidae) remains in the stomach (Robbins and Ridgely 1990), and a male (in MECN) collected at the same site a few days later had eaten two small rodents and a freshwater crab *Pseudotelphusa* sp. (J. C. Mathéus *in litt.* 1989). The latter specimen was collected in a small remnant of humid forest at 900 m, where it sat in the sun near the road in an open area: others seen at this site were observed fishing crabs in a brook, or soaring high above the forest (J. C. Mathéus *in litt.* 1989, Robbins and Ridgely 1990). One or two individuals that regularly perched on low branches overhanging forest streams in steep ravines (on Cerro San Sebastián and Cerro Blanco) were apparently attracted to large numbers of small frogs *Colostethus* sp. and *Leptodactylus* sp. concentrated around small pools (TAP).

As with many species endemic to this region, breeding apparently takes place during the rainy season from December to April: a pair circling noisily just above the canopy at El Caucho, in March 1986, was possibly nesting (M. Kessler *in litt.* 1988), as was a pair in the Cordillera de Chongón in January 1991 (TAP). One of two birds between Alamor and Vicentino was seen carrying nest-material in February 1991 (Best 1992, NK). Nearby, at Celica, also in February 1991, a pair was seen involved in aerial display (Best 1991), but by August and September of that year (in the Celica–Alamor area) display activity was virtually absent, although two birds were seen calling during aerial play (Williams and Tobias 1991). A presumed immature was seen near Piñas in June 1985, and a female taken there at the same time was sexually inactive (Robbins and Ridgely 1990).

THREATS The dry and moist forest habitats of this and numerous additional endemic bird species in western Ecuador and adjacent north-west Peru are among the most threatened of Neotropical habitats, facing near-total destruction (Dodson and Gentry 1991). Only a few small and widely scattered patches of (mostly degraded) tall forest survive, one of the largest surviving below 500 m being the Jauneche reserve of only 130 ha (TAP). A few dry and moist forest endemics also range into adjacent wet forests on the lower Andean slopes and north as far as Esmeraldas, but that forest type is also threatened within Ecuador. Throughout western Ecuador moist lowland forest covered about 32,000 km² (40%) in 1958, but only 1,500 km² (4%) in 1988: dry forest covered about 28,000 km² (35%) in 1958, but a mere 200 km² (less than 1%) in 1988 (Dodson and Gentry 1991). Between Alamor and Celica the area has been described as comprising highly disturbed, scattered and disturbed forest patches, with just 30-40% forest cover, 50% of which is apparently secondary in nature (R. S. Ridgely *in litt.* 1989, Bloch *et al.* 1991, Best 1992), and habitat destruction is continuing rapidly (NK).

A few larger islands of moist forest persist in the coastal cordillera of Manabí, as at 500-700 m in Machalilla National Park (which is, however, ineffectively protected, and only part of which holds suitable habitat: see below), and even as far north as Cerro Mútiles near Esmeraldas city, but all remnants of this habitat are being eroded away or otherwise degraded (TAP, A. Gentry verbally 1991). The Machalilla National Park suffers from the activities of numerous families living within its boundaries (TAP, R. S. Ridgely *in litt.* 1991), and there is little other than its remoteness to protect the Tumbes National Forest in Peru (M. Kessler verbally 1991). Floristically similar forests to those in south-west Ecuador can be found on the lower Andean slopes in Piura and Lambeyque, Peru: these are important for a number of the other threatened endemics to this region, and are also gravely threatened (see Threats under Grey-breasted

Flycatcher *Lathrotriccus griseipectus*).

In addition to rampant deforestation throughout this densely settled region (south-west Ecuador and north-west Peru), further habitat degradation is caused by considerable trampling of the undergrowth by livestock and clearance of bamboo (by local people) for pack-animal food: this especially affects undergrowth inhabitants such as the threatened Blackish-headed Spinetail *Synallaxis tithys*, Henna-hooded Foliage-gleaner *Hylocryptus erythrocephalus*, Rufous-necked Foliage-gleaner *Syndactyla ruficollis*, and Grey-headed Antbird *Myrmeciza griseiceps* (Parker *et al.* 1985, Best and Clarke 1991), but also leads to the general deterioration of the remnant forest patches and thus presumably influences all threatened species.

MEASURES TAKEN Small but perhaps significant populations of the Grey-backed Hawk occur in only two relatively large protected areas, the Machalilla National Park and the Tumbes National Forest (and possibly also in the adjacent Cerros de Amotape National Park). The species has been reported from several very small reserves such as Río Palenque, Jauneche, and Cerro Blanco, none of which is large enough to support more than a few pairs: it also occurs in the small “Luis Vargas Torres” reserve in Esmeraldas (see Distribution).

The coverage of protected areas in western Ecuador and north-west Peru is far from adequate (as is the degree to which they are protected), considering the large number of endemic (including 17 threatened) bird species reliant on the region’s specialized forest types. The following (from north to south) is a list of the formally protected areas that harbour many of the threatened species endemic to the region (see Measures Proposed for a list of the threatened species recorded at each site): none (except perhaps the Jauneche reserve) appears to receive adequate protection (Dodson and Gentry 1991):

Ecuador (1) Reserva Jardín Tropical Luis Vargas Torres (Cerro Mutiles), east of Esmeraldas city; (2) Machalilla National Park (55,000 ha: IUCN 1992; 0-800 m), which remains ineffectively established, suffering throughout from the activities of numerous families living (indeed owning the land) within its boundaries (Ridgely 1981a, R. S. Ridgely *in litt.* 1991, TAP); (3) Centro Científico Río Palenque, a 167 ha reserve of which only 87 ha is mature forest (NK); (4) Cerro Blanco Protected Forest, in the Cordillera de Chongón (2,000 ha; from 0-500 m), the land being donated by the Cemento Nacional company (sometimes referred to as the “Reserva Cemento Nacional”, and run with the involvement of Fundación Natura (C. Strang *in litt.* 1991); (5) Jauneche reserve, El Oro (130 ha), which is apparently well protected (Dodson and Gentry 1991: see above), and owned and operated by the University of Guayaquil as a biological research station (Best 1992); (6) Arenillas Military Reserve, a large tract of forest controlled by the army between Arenillas and Huaquillas (R. S. Ridgely *in litt.* 1992);

Peru (7) Tumbes National Forest, recently renamed Reserva de la Biosfera del Noroeste Peruano (75,100 ha: IUCN 1992); and (8) Cerros de Amotape National Park (91,300 ha; 200-1,600 m) (IUCN 1992): these latter two adjacent protected areas encompass the largest remaining tracts of deciduous and moist forest west of the Andes, but they receive only meagre protection; both are far from secure, and are ultimately threatened with habitat destruction (M. Kessler verbally 1991, TAP).

MEASURES PROPOSED Western Ecuador and adjacent north-west Peru (the Tumbesian centre of endemism) is a critically important region for conservation, with an exceptionally high rate of floristic endemism (Dodson and Gentry 1991); no fewer than 48 species of bird are restricted to it (ICBP 1992, Crosby *et al.* in prep.), 13 of which appear in the following list of 17 considered to be threatened: Grey-backed Hawk, White-winged Guan *Penelope albipennis*, Bearded Guan *P. barbata*, Ochre-bellied Dove *Leptotila ochraceiventris*, El Oro Parakeet *Pyrrhura orcesi*, Esmeraldas Woodstar *Acestura berlepschi*, Little Woodstar *A. bombus*, Blackish-headed Spinetail *Synallaxis tithys*, Rufous-necked Foliage-gleaner *Syndactyla ruficollis*, Henna-hooded Foliage-gleaner *Hylocryptus erythrocephalus*, Grey-headed Antbird *Myrmeciza griseiceps*, Grey-breasted Flycatcher *Lathrotriccus griseipectus*, Pacific Royal Flycatcher *Onychorhynchus occidentalis*, Ochraceous Attila *Attila torridus*, Slaty Becard *Pachyramphus spodiurus*, Pale-headed Brush-finch *Atlapetes pallidiceps* and Saffron Siskin *Carduelis siemiradskii* (the attila and becard are in fact essentially endemic to this region, but were for various reasons omitted from the analysis in ICBP 1992).

A suggestion presented by Dodson and Gentry (1991) for the conservation of the endemic flora in this region also holds true for the avifauna: there is a desperate need for the identification and survey of all forest remnants be accomplished as soon as possible, using satellite imagery and overflights for “ground-truthing” (it is parenthetically to be noted, as a measure already taken, that several important surveys – the projects led by B. J. Best and R. Williams – directly resulted from measures proposed in earlier drafts of species accounts in this book). Further information on the distributional limits, potential seasonal movements and behavioural ecology (including the extent to which species can tolerate habitat degradation and disturbance) for each of the species mentioned above is also requisite. However, despite these exigencies, it is already clear that various areas are vitally important for the conservation of these threatened (and endemic) species: some are already formally (or privately) protected (see Measures Taken), but others have recently been identified as having concentrations of the threatened species, and their protection must therefore be of the highest priority. Further initiatives, specific to each of these areas, are given below (where applicable), along with the threatened species known to occur there (the requirements of individual species are discussed under the relevant accounts); all of these areas require further work, and those already designated as reserves need more adequate protection, and preferably some expansion in size to incorporate any remaining forest that exists adjacent to their boundaries.

Río Palenque holds: Little Woodstar, Grey-breasted Flycatcher, Ochraceous Attila, Slaty Becard.

Machalilla National Park holds: Grey-backed Hawk, Ochre-bellied Dove, Esmeraldas Woodstar, Little Woodstar, Blackish-headed Spinetail, Henna-hooded Foliage-gleaner, Grey-breasted Flycatcher, Pacific Royal Flycatcher, Ochraceous Attila, Saffron Siskin. This park is possibly (with perhaps the exception the Tumbes National Forest) the single most important site for the threatened species mentioned above, and deserves far more careful protection from the Ecuadorian authorities than is currently being given (R. S. Ridgely *in litt.* 1991). Effective protection of Machalilla National Park, the only protected area where the Esmeraldas Woodstar is known to occur, should be ensured. Ideally, a research station should be set up as a centre for studies and activities within the park, but there also a need for more wardens with powers to stop illegal settling, hunting and deforestation (B. J. Best *in litt.* 1991). Maintaining the integrity of the small areas of moist forest near the coast just south of this park should also be a priority, and the more extensive tracts of forest on the higher ridges inside the park (e.g. Cerro San Sebastián) should receive immediate attention. People with rights to part of the land in Machalilla National Park should be compensated for ceding these rights and either moved elsewhere or employed in the management of the park; as an immediate measure, they should be restrained from clearing additional areas of forest and from allowing their livestock to roam freely through the forest, especially that of Cerro San Sebastián.

Cerro Blanco Protected Forest and Cordillera de Chongón holds: Grey-backed Hawk, Ochre-bellied Dove, Blackish-headed Spinetail, Grey-breasted Flycatcher, Saffron Siskin. There is a proposal from Fundación Natura to create a 2,000 ha buffer-zone around the Cerro Blanco reserve, involving other landowners and reforestation schemes (C. Strang *in litt.* 1991); with its close proximity to Guayaquil (c.15 km), it would also be an ideal area for an educational and interpretive centre. Additional tracts of dry and moist forest should be identified, surveyed and protected in some way (e.g. as carefully managed extractive reserves, as well as watershed management areas).

Jauneche reserve holds: Grey-backed Hawk, Grey-breasted Flycatcher, Pacific Royal Flycatcher, Ochraceous Attila.

Manta Real on the Pacific slope of Azuay (near the border with Cañar) at 300-1,000 m, is currently in the process of being protected (P. Greenfield *in litt.* 1990) and holds: Grey-backed Hawk, El Oro Parakeet, Grey-breasted Flycatcher, Pacific Royal Flycatcher, Ochraceous Attila, Slaty Becard. Fairly large but diminishing blocks of forest remain along the lower slopes of the Andes in the Cordillera de Molletura, south of Manta Real in Azuay (TAP); these are in urgent need of survey and some form of protection.

Arenillas Military Reserve holds: Blackish-headed Spinetail and probably Slaty Becard, but should be searched for the presence of White-winged Guan and other species.

Cordillera de Chilla (incorporating the west slope from Uzhcurumi 30 km south to Piñas, the important forest areas west of Piñas and also the wooded ravines to the east of Piñas) holds: Grey-backed Hawk, Bearded Guan, Ochre-bellied Dove, El Oro Parakeet, Rufous-necked Foliage-gleaner, Grey-breasted Flycatcher, Pacific Royal Flycatcher, Ochraceous Attila. In the late 1980s, just west of Piñas, an extensive tract of relatively untouched forest stretched out to the north, although in all other directions the

forest was either in small isolated patches or absent: forest to the south and towards Piñas had long since been denuded, but downslope deforestation appeared to have occurred more recently (Robbins and Ridgely 1990). The Cordillera de Chilla has apparently only 10 patches of habitat (totalling 400 ha) suitable for the Bearded Guan (see relevant account), and quite clearly all of these must be targeted for immediate protection.

Sabanilla (10 km below the town, and 20 km by road north of Zapotillo) holds: Little Woodstar, Blackish-headed Spinetail, Henna-hooded Foliage-gleaner, Grey-breasted Flycatcher, Saffron Siskin, and other rare endemics listed in the equivalent section under Saffron Siskin; the site seems ideal for the as-yet unrecorded Ochre-bellied Dove (M. B. Robbins *in litt.* 1992). This area still holds some relatively good deciduous forest, and is apparently a stronghold for the Henna-hooded Foliage-gleaner and Saffron Siskin (M. B. Robbins *in litt.* 1992). As neither the spinetail, foliage-gleaner nor siskin was recorded in the area in 1991, it is essential that a survey is undertaken during a non-El Niño year (Best 1992, B. J. Best *in litt.* 1992).

Cordillera de Alamor–Cordillera de Celica (300-2,000 m) holds: Grey-backed Hawk, Ochre-bellied Dove, Little Woodstar, Blackish-headed Spinetail, Rufous-necked Foliage-gleaner, Henna-hooded Foliage-gleaner, Grey-headed Antbird, Grey-breasted Flycatcher, Pacific Royal Flycatcher, Ochraceous Attila, Slaty Becard. Protection of forest patches in this area is critically important due to the large number of threatened species present, and identification of suitable areas must be of the highest priority.

Sozoranga–Tambo Negro holds: Ochre-bellied Dove, Blackish-headed Spinetail, Rufous-necked Foliage-gleaner, Henna-hooded Foliage-gleaner, Grey-headed Antbird, Grey-breasted Flycatcher. Sozoranga (1,300-1,800 m) comprises small patches of semi-deciduous forest, and Tambo Negro (550-1,100 m; between Macará and Sabiango) is mainly deciduous forest (Best 1991), and represents the largest intact forest block (c.15 km², with an intact understorey) in western Loja and El Oro provinces, extending into northern Peru (Best 1992). Although the forest at Sozoranga and Tambo Negro is not linked, it is close enough to allow species to move seasonally into their preferred habitat types (Best 1992), making this forest block critically important for protection.

Angashcola and Amaluza hold: Bearded Guan and Rufous-necked Foliage-gleaner.

Tumbes National Forest (and probably the adjacent Cerros de Amotape National Park) holds: Grey-backed Hawk, Ochre-bellied Dove, Blackish-headed Spinetail, Rufous-necked Foliage-gleaner, Henna-hooded Foliage-gleaner (for which it is a major stronghold), Grey-headed Antbird (mostly too low for this species), Grey-breasted Flycatcher, Pacific Royal Flycatcher, Ochraceous Attila, Slaty Becard, Saffron Siskin. Tumbes National Forest (and Cerros de Amotape National Park) should be secured against possible invasion by colonists (M. Kessler *in litt.* 1991), and adequate protection initiated as an absolute priority. As with Machalilla National Park, it would be ideal for a research station to be set up as a centre for studies and activities within the park, but there also need to be more wardens with powers to stop illegal settling, hunting and deforestation (B. J. Best *in litt.* 1991). A detailed ornithological survey of Cerros de Amotape National Park is urgently needed, during which the White-winged Guan should be searched for.

Middle and upper Marañón drainage holds: Henna-hooded Foliage-gleaner, Grey-breasted Flycatcher and Slaty Becard, but is a centre of avian endemism in its own right, holding (amongst the threatened species) at various altitudes: Peruvian Pigeon *Columba oenops*, Yellow-faced Parrotlet *Forpus xanthops*, Marvellous Spatuletail *Loddigesia mirabilis*, Grey-winged Inca-finch *Incaeziza ortizi* (see equivalent section under Peruvian Pigeon).

Cruz Blanca–Palambra–Canchaque holds: Bearded Guan, Ochre-bellied Dove, Rufous-necked Foliage-gleaner, Henna-hooded Foliage-gleaner, Grey-headed Antbird, Grey-breasted Flycatcher, Slaty Becard. The immediate vicinity of Palambra is devoid of forest, but there is still some unexplored forest away from the road, and White-winged Guan has been found in eight valleys (with forest) between Palambra and Abra de Porculla (50 km to the south) (see Distribution under Henna-hooded Foliage-gleaner). Conservation initiatives in this area should consider the montane threatened species: several large areas of upper montane forest still exist on the west slope of the Andes in Piura between Ayabaca and Cruz Blanca (see Measures Proposed under Bearded Guan).

The largest remaining moist/wet forest in western Ecuador south of the río Esmeraldas/Guailabamba lies to the north-east of Muisne in an area (of c.200 km²) drained by the ríos Bilsa and Vince (TAP); this forest will survive for only a few years if the present rate of clearance continues (TAP), and should be surveyed urgently for the presence of threatened species, and protected

accordingly.

Further studies (on the status of the forest, the species, and their ecological requirements) are required in each of these areas (as outlined above), and their findings should be used to produce management plans for the protected areas and strategy documents for the others (B. J. Best *in litt.* 1991). The watershed importance (to the banana industry, for example) of forests on the lower slopes of the Andes, especially those at 500-1,000 m from near Manta Real to near Piñas, has apparently been overlooked or ignored by government officials, and this should be stressed at all levels when areas are proposed for protection.

An environmental education campaign initiated in reserves and settlements, using interpretive facilities and guided walks within the reserves, should be combined with a parallel programme of education in sustainable agricultural techniques (perhaps using model farms as demonstrations), both aiming at a more sustainable usage of the remaining forest fragments (B. J. Best *in litt.* 1991). The conservation of the White-winged Guan and Pale-headed Brush-finch generally falls outside of this sort of integrated approach, and both species require individual action plans (see relevant accounts).

REMARKS (1) The Grey-backed Hawk is closely related to the White Hawk and has been judged conspecific with it, but is now maintained as a distinct species (Blake 1977); it is perhaps also closely related to the near-threatened Mantled Hawk *Leucopternis polionota* (Meyer de Schauensee 1966). (2) Concerning Mongoya, Paynter and Traylor (1977) listed "Mangaya", with no province noted, although the BMNH label, which is interpretable as both Mangaya and Mongoya, specifies Manabí; OG (1957b) gave the río Mongoya as at 0°10'S 79°38'W and this fits fairly well with the river as marked in IGM (1989). (3) Comments concerning the Cordillera de Balzar are in Remarks under Saffron Siskin. (4) A specimen in AMNH collected on 20 October 1914 labelled "near the crater of Pichincha, 3,660 m" (i.e. Pichincha province, at 1°10'S 78°33'W) (Chapman 1926) is undoubtedly mislabelled, as all other known records are at considerably lower elevations.