

Lost and found: a gap analysis for the Neotropical avifauna

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Most birdwatchers dream of discovering vagrants, or a species new to science, but there is a special charm about finding a bird considered 'lost' for many years. These species, described and catalogued long ago, have escaped detection for decades on end. A few of them, for one reason or another, are probably extinct, but most are still with us, as history has tended to prove.

Fernando Pacheco and Fernando Carvalho found one on 24 September 1987 when they saw a pair of Black-hooded Antwrens *Formicivora erythronotus* south of Rio de Janeiro⁵⁴. Ricardo Parrini did the same on 27 October 1996, when he stumbled across the Kinglet *Calyptura calyptura cristata* in the foothills of the Serra dos Órgãos⁵⁵. And Thomas Valqui found another on 3 July 2001, when he raised his binoculars, just north of Tierra Blanca in the Amazonian lowlands of Peru, and came face to face with a White-masked Antbird *Pithys castaneus*⁴¹ (Fig. 2).

These were moments of jubilation because they represented major rediscoveries of the irrefutable kind. The first two species had been lost without trace for over a century, whilst the third had only been found once before, on 16 September 1937. After such long absences they had been feared extinct, or in one case thought perhaps to represent a hybrid. By finding them, the person or persons involved sent ripples of delight, and sometimes astonishment, through the ornithological community. These events did not generate as much media attention as the see-sawing tale of the Ivory-billed Woodpecker *Campephilus principalis*^{17,18,22,35,51,73}, nor by any means do they guarantee survival for the species concerned, but somehow they all felt like minor victories for life in the long and seemingly doomed struggle against extinction. And with each rediscovery came hope of the next.

In recent decades, with the opening up of remote areas to travelling birders and

biologists, such events have been reported at fairly frequent intervals. We are now re-acquainted with many species which eluded us for decades, or even centuries, including Rufous-fronted Anthrush *Formicarius rufifrons*⁵⁶, White-winged Potoo *Nyctibius leucopterus*¹⁴, Pelzel's Tody-tyrant *Hemitriccus inornatus*⁸², Cherry-throated Tanager *Nemosia rourei*^{54,71}, Kaempfer's Tody-tyrant *Hemitriccus kaempferi*⁴⁸ and Buff-cheeked Tody-flycatcher *Poecilatriccus senex*⁸³. Most recently, the Cone-billed Tanager *Conothraupis mesoleuca* was re-found in remnant cerrado woodlands of Emas National Park, Brazil, after an absence of 65 years¹¹ (Fig. 6). The number of true mysteries is dwindling, such that now, at the outset of the 21st century, we are left with a much-reduced selection of absentees.

In the following section we highlight the last 20 missing birds (not including forms already treated as Extinct), some of which have not been seen for over 150 years, but which we hope against hope may still survive (Fig. 1). To this list, we add nine species that, although recently re-found, have either disappeared again, or remain so poorly known that new surveys are imperative. Finally, we make mention of six species assigned to the Data Deficient category of the IUCN Red List (IUCN 2005). Although populations of these taxa are known, and they might not immediately be threatened, we do not know enough about them to classify their conservation status, and thus the need for data is urgent.



Figure 1. Map of the last 20 'lost' Neotropical species indicating the regions where they should be looked for.



Figure 2. After years of controversy regarding its validity as a species, White-masked Antbird *Pithys castaneus* was rediscovered in July 2001 in dpto. Loreto, Peru, by a team of ornithologists from Louisiana State University (Dane Lane)

We outline the distribution and status of all 36 species, including any recent feedback from the field, and priorities for future searches. Our information largely derives from the global summary factsheets in *Threatened birds of the world 2004*⁴ (regularly updated online at www.birdlife.org). Readers are directed to these sources for more detailed information and citations to original sources of data. The IUCN Red List categories are drawn from the 2006 IUCN Red List (available at www.birdlife.org and to be released at www.iucnredlist.org later in 2006). The application of the 'Possibly Extinct' tag to some of these species follows Butchart *et al.*¹⁰.

Our aim is to draw attention to the major gaps in knowledge in the hope that people working or travelling in the Neotropics will be inspired to search a little more carefully in the right places. In particular, the tendency of birders to visit the same popular birding sites greatly reduces their chances of tracking down any missing or mystifying birds. We strongly encourage them to venture further afield, into the gaps between tourist lodges and previous surveys, where some of these mysteries will surely be solved.

'Lost' species

Magdalena Tinamou *Crypturellus saltuarius*

Critically Endangered. The species has not been recorded since the type-specimen (an immature male) was collected in 1943, near Ayacucho (150 m) in the río Magdalena Valley, aside from a historical report from the vicinity of Mariquita, dpto. Neiva, 650 km away in the same watershed. Specific searches at and near the type locality in 2002 drew a blank but unearthed fairly convincing reports of the species, suggesting that it remained moderately common until at least the 1980s¹⁶. Recent habitat destruction and fragmentation has been severe in the Magdalena Valley, especially at lower altitudes, so any surviving population is likely to be very small. A tiny amount of potentially suitable forested habitat remains in the foothills (perhaps 1–2 % of original cover), so the species may still occur on the western slope of the Eastern Cordillera, or the eastern slope of the Serranía de San Lucas. It is thought that security concerns are no longer an issue, and that conditions for field surveys are acceptable (P. G. W. Salaman *in litt.* 2006). Exploration should focus on the lower Magdalena Valley, in semi-deciduous or humid forests at low elevations,

although these are in very short supply. Apart from working with hunters, we suggest that the best method of detecting this bird—and confirming its existence—involves listening for, and recording, tinamou-like songs in suitable forest. *Crypturellus* tinamous are generally vocal, especially at dawn and dusk, and much more readily encountered by ear than by sight. Magdalena Tinamou is reported to have a trisyllabic song, apparently similar to other members of the *C. erythropus* group¹⁶. Tape-recordings of this song are especially desirable as they would shed light on its status as a species. It is not currently treated as such by the South American Checklist Committee⁶³, although a taxonomic proposal is under review (www.museum.lsu.edu/~Remsen/SACCprop209-211.html).

Guadalupe Storm-petrel *Oceanodroma macrodactyla*

Critically Endangered (Possibly Extinct). Only known from Guadalupe Island (265 km²), Mexico, 280 km west of Baja California, this species has not been recorded since 1912, and is often predicted to be extinct^{21,28,45}. It may well have died out in the face of predation by introduced cats and habitat destruction by introduced goats. However, it is known to have nested in burrows in small, nocturnally active colonies, and these are presumably difficult to find, especially on a remote, rugged island without roads or transport. Under these conditions, comprehensive searches are virtually impossible and there is still a chance that the species survives. In particular, the persistence of breeding Leach's Storm-petrel *O. leucorhoa* on the main island and on two nearly inaccessible predator-free offshore rocks raises hopes that the intensive search currently underway by Island Conservation (www.islandconservation.org) may meet with success (B. Tershy *in litt.* 2006). If it is extant, current conservation actions on Guadalupe should aid recovery. Goats have almost been eradicated from the island, fundraising for cat eradication is underway, the native forest is recovering, and the island was decreed a Mexican Biosphere Reserve in 2004. Whether these steps have been taken in time remains to be seen. If the present initiative fails, would-be discoverers should liaise with Island Conservation and aim to look for nesting burrows in native woodland during the breeding season (mainly March–July, although the most vocal period is likely to be before this, during egg-laying in March–April). Finally, it is worth

remembering that the New Zealand Storm-petrel *Oceanites 'maorianus'* was recently rediscovered at sea after an absence of over 150 years¹⁹; observers on pelagic trips off the coast of Mexico and California should therefore keep their eyes open—and their cameras ready—for the Guadalupe Storm-petrel, the largest member of its family.

Jamaica Petrel *Pterodroma caribbaea*

Critically Endangered (Possibly Extinct). Once plentiful, the population of this species declined drastically through the 19th century, probably because of depredation by introduced rats and mongooses. It has not been positively identified since 1879. Searches between 1996 and 2000 failed³, but rare nocturnal petrels are notoriously difficult to detect and it seems premature to declare the species extinct. Again, history provides a basis for optimism: the Fiji Petrel

Pseudobulweria macgillivrayi had been lost for 138 years when an individual chose to make itself known by flying into a biologist's head in 1983⁷⁷. Fresh surveys for the Jamaica Petrel should focus on the only known breeding areas, the Blue and John Crow Mountains of eastern Jamaica, where any survivors would probably breed above 1,000 m in cliff burrows and holes under trees. The best time for searches is likely to be October–December, when courtship and egg-laying supposedly occurred. Like most other *Pterodroma* petrels, any flights to and from the nests would only occur at night, so searchers should look for burrows by day and listen for nocturnal flight-calls. It should also be borne in mind that the species may have nested on Dominica and Guadeloupe^{8,15}. It would be very difficult to identify this form at sea conclusively, but observers in the Caribbean should look out for dark *Pterodroma* petrels, and take photographs of any they encounter.

Eskimo Curlew *Numenius borealis*

Critically Endangered (Possibly Extinct). Repeated searches in the Canadian breeding grounds and the transcontinental migration routes have failed to locate this species since the mid 1980s, and it has not been positively identified on the wintering grounds since 1939¹⁵. However, it should not be declared extinct until all potential breeding areas have been thoroughly surveyed, and the series of occasional unconfirmed reports ceases. It seems likely that the wintering distribution was centred

on the Argentine pampas, with some birds occurring in Uruguay, southern Brazil and Paraguay, at least on migration⁴. In the 1990s there were repeated reports of up to four individuals at Mar Chiquita, Argentina, but these sightings have never been confirmed. The main confusion species are Whimbrel *Numenius phaeopus* and Upland Sandpiper *Bartramia longicauda*, two Nearctic shorebirds that migrate as far as Argentina in the non-breeding season. In the Argentine pampas the sandpiper is a fairly common visitor, whilst the Whimbrel—which is mainly coastal at this season—turns up occasionally in small numbers (probably accounting for the Mar Chiquita records mentioned above). Hopes for the Eskimo Curlew have faded almost to vanishing point, but observers in the pampas region, and virtually everywhere else, should remain vigilant, and familiar with identification criteria for the species.

Spix's Macaw *Cyanopsitta spixii*

Critically Endangered (Possibly Extinct in the Wild). Known for over 150 years from small numbers of traded birds, the true home of Spix's Macaw was only traced to the rio São Francisco watershed in northern Bahia, Brazil, in the early 1980s. Unfortunately, the remaining birds were trapped, leaving only one famous individual that disappeared at the end of 2000³⁷. The species may well be extinct in the wild, but it cannot be confirmed as such until all areas of potential habitat have been thoroughly surveyed. About 70 individuals are thought to survive in captivity (Y. de Soye pers. comm. 2006), and there are long-term plans for a reintroduction programme. However, this should not deter further exploration of gallery forests in the rio São Francisco region and other areas of *caatinga*: internal areas of north-east Brazil remain very poorly explored or monitored by ornithologists, and occasional local reports, such as those from Serra da Capivara National Park⁵², provide hope that one or more small wild populations may persist. Given the role of trapping and trading in the demise of this species, the news of a discovery, even if pertaining to a single bird, should be passed in strict confidence to BirdLife International.

Glaucous Macaw *Anodorhynchus glaucus*

Critically Endangered. Old records of this species cover a wide area of northern Argentina, southern Paraguay, north-east Uruguay and Brazil, from

Paraná state southwards, but are mostly clustered along the middle reaches of the major rivers (the Uruguay, Paraná and Paraguay) and adjacent areas, especially in Corrientes province, Argentina. It was rare even before the mid 19th century and there were only two reasonably convincing reports in the 20th century, one a direct observation in Uruguay in 1951, and another based on local reports in Paraná in the early 1960s¹⁵. A recent, thorough survey of Corrientes (Argentina) and Rio Grande do Sul (Brazil) found no evidence of its presence and concluded that it had become extinct in the first half of the 20th century. Whilst it has been generally treated as extinct, persistent rumours of recent sightings, local reports and birds in trade indicate that a few birds may survive. Anyone with an urge to track down the Glaucous Macaw is best advised to seek out suitable—and ideally remote—savanna habitats with fruiting palms (on which the species fed) and nearby cliffs (where it roosted and nested). The main food plant was probably the Yatay Palm *Butia yatay*, so any regions where this is a dominant feature should be identified, perhaps through remote sensing techniques, and surveyed. As with Spix's Macaw, any sightings of this species should be reported with extreme discretion, involving in the first instance a strictly confidential communication to BirdLife International.

Blue-eyed Ground-dove

Columbina cyanopis

Critically Endangered. The species is inexplicably rare, with very few records in total and recent sightings from only three localities, suggesting that the total population is extremely small. Historical records are available from São Paulo and Goiás to Mato Grosso, Brazil. It seems now to be restricted to the western half of this region, with sightings from the Serra das Araras reserve in February 1986, and from the region of Cuiabá in the 1980s, both in Mato Grosso¹⁵, and a record in October 1992 from Campo Grande, Mato Grosso do Sul⁵⁸. None of these records is documented (i.e. supported by material evidence in the form of a specimen, photograph or sound-recording), and subsequent searches of the same localities have repeatedly failed^{15,58}. Because of its proximity to the Pantanal, Cuiabá in particular is often visited by birdwatchers, many of whom seek out *cerrado*-like grasslands, but they have produced no further reports of this dove. It has undoubtedly declined because of the wholesale conversion of Brazilian *cerrado* to agriculture and grazing land, but it seems surprising that the

species has not been found in the large fragments of such habitat which persist within Emas National Park, or elsewhere in south-central Brazil and easternmost Bolivia. It is a dull-plumaged bird superficially similar to other *Columbina*, particularly the sympatric Ruddy Ground-dove *C. talpacoti*⁵⁸ and Plain-breasted Ground-dove *C. minuta*, and the main hope is that it has been overlooked. All visitors to the *cerrado* region should carefully check through foraging flocks of ground-doves, and new grassland sites should be visited wherever possible.

Jamaican Pauraque

Siphonorhis americana

Critically Endangered (Possibly Extinct). Known from five old specimens (only four traced) from four localities on Jamaica, three of which are in the lowlands on the south side of the island. The last of these specimens was taken in 1860, and the species has not been reliably recorded since. It may have been driven to extinction by introduced predators and habitat destruction, but unconfirmed reports persist, especially from the Milk River and Hellshire Hills areas, where some observers have reported unidentified caprimulgids which apparently do not refer to other known species on the island. It seems possible that surveys have overlooked this unobtrusive nocturnal species, and intensive searches of any reasonably intact dry limestone forest, semi-arid woodland or open country at low elevations would seem worthwhile. As with other rare nightjars, the use of sound-recording equipment is crucial in any such field work.

Cayenne Nightjar

Caprimulgus maculosus

Data Deficient. The type-specimen (lacking data on habitat) was taken at Saut Tamanoir on the Fleuve Mana, c.10 km above the confluence of the Rivière Cockioco, French Guiana, in 1917. Since then, there have been no confirmed sightings, although a possible female was caught near Saül airstrip in 1982, and two nightjars, possibly this species, were seen near the same village in October–November 1999³⁴. Its taxonomic status has been questioned, but a re-examination of the type specimen appears to confirm it as a valid species¹². Renewed searches should target the type locality, the region of Saül, and further afield, focusing on trapping nightjars (with mist-nets or by dazzling) in a range of habitats—those present at the type locality include sandy or rocky riverine beaches, a few savanna-like clearings and (nearly)

closed-canopy forest, whilst one report from Saül was from a small man-made clearing in tall forest³⁴. As separation of Cayenne Nightjar from Blackish Nightjar *C. nigrescens* is unlikely to be straightforward¹², records need to be supported with, at the very least, a series of good photographs (ideally in-hand) or sound-recordings. Whilst it is possible that this species, like Blackish Nightjar, does not have a loud territorial call, any locality found with roosting nightjars suspected to be *C. maculosus* should be visited at dawn and dusk to make sound-recordings. Any such recordings could prove vitally important as an aid to identification, a clue to the validity of the species, and a tool for future surveys.

Coppery Thorntail

Discosura letitia

Data Deficient. This hummingbird is known from two specimens simply labelled 'Bolivia?' both taken prior to 1852, when it was described (see Fig. 3). Its taxonomic validity was questioned until a museum study²⁶ concluded that the specimens did not represent immature or variant plumages of Racquet-tailed Coquette *Discosura longicauda* (probably the most closely related species) or a hybrid form. However, because of the inaccuracy of trade-skin label data in the 19th century, as well as subsequent changes to the international border, we cannot be sure exactly where these specimens came from. As an example, the type-description is published alongside the first mention of '*Trochilus dohrnii*'—the Hook-billed Hermit *Ramphodon dohrnii* of the Atlantic Forest of eastern Brazil—which gives the country of origin as Ecuador⁶. These inaccuracies notwithstanding, it has been

postulated that the Coppery Thorntail could occur in the lowland forests of present-day north or north-east Bolivia, as this region is relatively poorly known⁶⁴. The only congener currently known here is Black-bellied Thorntail *D.*

langsdorffi, with records from extreme north-west Pando⁵⁷—a listing of the latter species from dpto. La Paz³⁰ is probably in error⁷⁵. If the Coppery Thorntail survives, and there seems to be no compelling reason to suspect otherwise, it is probably a bird of the upper levels and borders of primary and secondary forest. Given our ignorance of its whereabouts, the would-be rediscoverer is advised to check the upperparts colour (whether coppery or green) of all thornails encountered anywhere in the Amazonian lowlands and foothills, especially within or near the borders of Bolivia.

Turquoise-throated Puffleg

Eriocnemis godini

Critically Endangered (Possibly Extinct). Of six specimens known for this species, only the type carries locality information, having been taken at Guallabamba, in ravines of the río Guallabamba south of Perucho, Pichincha, in northern Ecuador. The species has not been conclusively identified since the 19th century, and what is surmised to be natural habitat in the vicinity of the type locality has been almost completely destroyed. There was an unconfirmed sighting near Quito, in the Chillo Valley, in 1976, but a survey of likely localities in 1980 failed to encounter the species¹⁵. However, since hummingbirds can be difficult to detect, and their populations are capable of surviving in remarkably small patches of habitat, it is possible that the species persists in steep-sided gullies



Figure 3. The adult male type-specimen of Coppery Thorntail *Discosura letitia*, which is housed in the Natural History Museum, Tring, UK. Following its description by Bourcier & Mulsant (1852), the specimen entered the collection of John Gould, and was finally bequeathed to the British Museum. Only one other specimen is known (also pre-1852), and the species has not been seen since. The locality was given as 'Bolivia?' (Joe Tobias ©Natural History Museum)

somewhere in the semi-arid intermontane valleys of northern Ecuador and southern Colombia. Anything resembling natural habitat in this region should be carefully investigated (ideally with fine-mesh mist-nets), especially around 2,100–2,300 m, but also substantially higher or lower.

Bogotá Sunangel

Helianthus zusii

Data Deficient. This species is known from a single trade-skin, purchased in 1909 from Bogotá, and probably collected in the East Andes or Central Andes of Colombia, within a few hundred kilometres of the capital. Its true provenance is impossible to determine, however, as some 'Bogotá' trade-skins came from much further afield, at least as far away as Venezuela and Ecuador. This fact, along with the lack of recent records and the possibility that the only specimen is a hybrid, has prompted much speculation as to its taxonomic validity and status as a species⁶³ (see www.museum.lsu.edu/~Remsen/SACCPop57.html). While this may prove to be the case, the only intensive museum study suggests that it is, or was, a valid species²⁵. If so, it must have been rare. Around the turn of the 19th century, shipments of hummingbird skins from Colombia ran into the hundreds of thousands, so the fact that only one example of this distinctive form turned up suggests that it was always highly restricted in range. If we assume an ecological similarity to other sunangels, it should be looked for in humid Andean forest and well-developed shrublands between 1,500 and 3,400 m, especially in remote portions of the Colombian cordilleras. Whoever finds this taxon alive, no matter how far from Bogotá, will have much reason to celebrate, for this is one of the most spectacular of 'lost' birds (Fig. 4).

Imperial Woodpecker

Campephilus imperialis

Critically Endangered (Possibly Extinct). Easily the largest woodpecker ever known (20% larger than the Ivory-billed Woodpecker *C. principalis*), the Imperial Woodpecker has not been conclusively identified since 1956. It is, or was, an inhabitant of old-growth pine forest in the Sierra Madre Occidental of Mexico. Sadly, a great deal of natural habitat within this range was removed during the Second World War, and the remainder has been severely fragmented by logging. Given that Imperial Woodpecker was also a favourite quarry of rural hunters^{40,60}, the outlook for this magnificent bird (Fig. 5) is dismal. Most recent

analyses (e.g. Mendenhall⁴⁹) have concluded that it has a far slimmer chance of survival than the Ivory-billed Woodpecker. Nonetheless, the original range was fairly large, and reports of sightings surface occasionally and require follow-up. For example, a bird was reported in November 2005 in the Barrancas–Divisadero region of Barranca del Cobre, Chihuahua, Mexico, but subsequent searches did not find Imperial Woodpeckers, nor appropriate habitat or recent local knowledge of the species, within a 50 km radius of the locality (G. R. Homel *in litt.* 2005). Such leads should continue to be pursued until the chances of survival are deemed nil. If the species does survive it would be between 1,900 and 3,100 m above sea level, in extensive mature tracts of pines—if any still exist—in the Mexican states of Sonora, Chihuahua, Durango, Nayarit, Zacatecas, Jalisco and Michoacán.

Caatinga Woodpecker

Celeus obrieni

Status currently under evaluation. The type specimen of this woodpecker was collected in 1926 near the rio Parnaíba at Iruçui, Piauí, Brazil, but specific searches in this region (by F. C. Novaes in 1980, B. M. Whitney in 1999, A. Whittaker and K. J. Zimmer in 2003, and Fábio Olmos and Fernando Pacheco in 2005) have failed to produce any further sightings. It was described as a subspecies of the Rufous-headed Woodpecker *C. spectabilis*⁷², but on the grounds that it differs in a number of morphological features, and occurs 3,150 km east of the nearest known locality of *C. spectabilis* in a very different habitat⁸⁴, *obrieni* has recently been elevated to species level by Remsen *et al.*⁶³. It is evidently very rare, threatened or perhaps extinct, but a small population could survive in this remote and poorly known region of interior Brazil. However, most of the area seems to comprise grasslands and *cerrado* woodlands with only narrow and discontinuous belts of gallery forest. It is worth bearing in mind that Rufous-headed Woodpecker is most often found in dense stands of *Guadua* bamboo and riverside vegetation mixed with *Gynerium* cane, habitat preferences that make it patchy in occurrence and difficult to detect unless the call, or drum, is recognised (pers. obs.). If *C. obrieni* bears any ecological similarity to its (apparent) closest relative, it is probably an inconspicuous inhabitant of tangled forest, with some bamboo- or cane-like component. Anyone wishing to make a name for themselves as the first person alive to see a Caatinga Woodpecker is advised to visit the region

somewhere in the semi-arid intermontane valleys of northern Ecuador and southern Colombia. Anything resembling natural habitat in this region should be carefully investigated (ideally with fine-mesh mist-nets), especially around 2,100–2,300 m, but also substantially higher or lower.

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(presumably February–May), to seek this species using sound-recording equipment and mist-nets.

Hooded Seedeater

Sporophila melanops

Critically Endangered (Possibly Extinct). This species has not been recorded since the type specimen (an adult male in heavy moult) was collected in October 1823 at a lake 15 km north of Registro do Araguaia, on the east bank of the rio Araguaia in extreme west-central Goiás, Brazil. It may have been driven to extinction by habitat loss and/or other threatening processes, but as habitat in the region of the type locality remains relatively

intact, and poorly surveyed, it seems safer to assume that a small population survives. The type specimen was collected from within a mixed flock of seedeaters, suggesting that the species behaves in very similar fashion to other *Sporophila*. As many of these are migratory, surveys for Hooded Seedeater should be targeted around the type locality in September–November, and further afield at all other times of year. The only widely available illustration of this species was published by BirdLife International³, although at least three other paintings will appear in works currently under preparation. Ridgely & Tudor⁶⁸ described it as like Yellow-bellied Seedeater *S. nigricollis* but

Figure 4. Bogotá Sunangel *Heliangelus zusii* sits astride the blurred boundary between myth and reality. It is known from only one specimen, which may be a hybrid, and which was taken from an indeterminate locality (perhaps Colombia). If it was a hybrid, the parentage is unclear, and there remains a slim chance that this beautiful hummingbird survives somewhere in the northern Andes (Jon Fjeldså)



Figure 5. There have been no conclusive sightings of the Imperial Woodpecker *Campephilus imperialis* for exactly half a century and searches of all its old haunts have failed. One of the most iconic of 'lost birds', it is even larger and seemingly even rarer than its celebrated relative, Ivory-billed Woodpecker *C. principalis*. Its native habitat, old-growth pine forests of north-west Mexico, have all but disappeared, but is there still a chance it could linger in some remote portion of its range? (Norman Arlott)

'hood black, *contrasting* with olive upperparts and *extending only over throat* (not down over chest). Remaining underparts dingy buff. They also queried whether the Hooded Seedeater might in fact be a hybrid, or else an aberrant Yellow-bellied Seedeater, but C. E. Hellmayr, quoted by Collar *et al.*¹⁵, had no doubt as to the validity of the species, having examined the type.

Carrizal Seedeater

Amaurospiza carrizalensis

Discovered as recently as 2001 on Isla Carrizal, an island in the lower río Caroni, Venezuela⁴³, this species has already disappeared because the only known locality was cleared of habitat, then flooded by a hydroelectric development. Like other *Amaurospiza* seedeaters, it was strongly associated with tropical deciduous forests containing spiny *Guadua latifolia* and *Ripidocladus* sp. bamboos. Similar habitat should be searched nearby.

Recently rediscovered species for which more information is urgently needed

Least Pauraque

Siphonorhis brewsteri

Data Deficient. Once considered extinct, the species was rediscovered in the central and western Dominican Republic (particularly on the northern slope of the Sierra de Baoruco and between Oviedo and Pedernales) and in Haiti (between Arcahaie and Montruis, north of Port-au-Prince). It was formerly numerous on Île de la Gonâve, but there are no recent records from this island. Although generally rare, the species is at least locally common, and possibly under-recorded. Most records come from the arid or semi-arid lowlands, especially scrubby or transitional woodland, and also broadleaf, pine or mixed forest below 850 m. It has a distinctive territorial song which makes it much more detectable in the breeding season, and in some areas 5–15 individuals can be heard in a night (S. Latta *in litt.* 2006). Habitat destruction and introduced predators perhaps threaten the species, but its true status and local distribution are poorly known. Searchers armed with tapes of the song should conduct systematic surveys throughout the known range (including Île de la Gonâve) in order to identify new localities, assess threats, and generate data from which population estimates

and trend assessments can be made. Nothing is known as to the current status in Haiti, but the dry thorn scrub between Arcahaie and Montruis is probably not a safe area to work at night (S. Latta *in litt.* 2006).

Dusky Starfrontlet

Coeligena orina

Status currently under evaluation. This species was described from a single immature collected in December 1951 at 3,200 m above the town of Urrao, on the east slope of Páramo de Frontino, dpto. Antioquia, Colombia⁷⁹. After the validity of the species was questioned by Bleiweiss⁵, it was generally treated as a form of Golden-bellied Starfrontlet *C. bonapartei*⁶⁹, and thus omitted from conservation assessments (e.g. Collar *et al.*¹⁵, BirdLife International³). It was rediscovered in August 2004 at the type locality, and (two weeks later and 70 km to the south) at Farallones de Citará³⁸. The collection of adult males and females, along with subsequent specimen analysis, has established the validity of the species³⁸. Further surveys are required in the high páramos of Antioquia, such as Páramo de Paramillo, as well as similar habitat further south in Risaralda, Chocó and Valle, including Cerro Tatamá, Serranía de los Paraguas and Farallones de Cali, to assess its true range and status.

Recurve-billed Bushbird

Clytoctantes alixii

Endangered. This rare antbird is known from extreme north-western Venezuela (Sierra de Perijá, Zulia) and northern Colombia (foothills of the Magdalena Valley in Santander and Cesar; Serranía de San Lucas, Bolívar; and four foothill sites north of the Andes in Antioquia and Córdoba, including both slopes of the Serranía de Abibe). It was once fairly common, judging by the large series of specimens held in museums and the scatter of reports from a fairly wide area. Recent survey work has been hampered by the significant security risk, owing to paramilitary factions and narcotics traffickers, and we assume that the species itself—highly inconspicuous by nature, and with an unknown voice—did not lend itself to rediscovery. For these reasons there was a long gap in reports after 1965, before it was finally found in April 2004 in the Sierra de Perijá, Venezuela, on the third trip specifically planned to relocate it (C. Sharpe *in litt.* 2006). Shortly afterwards, in 2005, it was discovered at Ocaña, dpto. Norte de Santander, Colombia, where it appeared to be fairly common along a 2-km

stretch of road between 1,600 m and 1,750 m, much higher than previous records, in mature secondary growth with a strong bamboo component; here, the distinctive loudsong was tape-recorded, along with other calls (O. Laverde *in litt.* 2006). Further surveys should use playback tapes of these songs and calls, as well as mist-nets, and target any areas of extensive, well-developed secondary growth at 150–1,750 m, especially where bamboo abounds. Cuts of vocalisations can be sought from Chris Sharpe (sharpebird@gmail.com) or Oscar Laverde (ohara_co@yahoo.com).

Rondônia Bushbird

Clytoctantes atrogularis

Critically Endangered. This antbird is known from a single female specimen and two sightings of males at the type locality on the west bank of the rio Ji-paraná in Rondônia, Brazil, in 1986⁴², and an uncertain sight record of a male along the rio Teles Pires, at Alta Floresta, northern Mato Grosso, in 1989^{15,86}. More recently, in 2004, a pair of *Clytoctantes* bushbirds, almost certainly this species, was found near the rio Sucunduri, Amazonas, some 460 km away⁸¹. Finally, in May 2006, a pair was seen and tape-recorded in Reserva Biológica do Jarú, at Ji-Paraná, Rondônia, close to the border with Mato Grosso (D. Buzzetti *in litt.* 2006). Given its reclusive nature, this species may be rather more wide-ranging and secure than hitherto suspected. Future surveys in Rondônia, as well as neighbouring Amazonas and Mato Grosso states, should search for it in rank undergrowth, borders, vine-tangles and tree-falls in primary and secondary forest, perhaps especially the latter. Cuts of the call are available on request from Bret Whitney (ictinia@earthlink.net) and the song from Dante Buzzetti (dante@dantebuzzetti.com.br). Any new data regarding the distribution and ecology of *C. atrogularis* will help us to estimate more accurately the conservation status of this bird.

Bahia Tapaculo

Scytalopus psychopompus

Critically Endangered. Until recently this species was known from three specimens taken at two localities in coastal Bahia, Brazil: a male collected in July 1944 at Ilhéus and a pair obtained in October 1983 at Valença^{15,38}. Since the mid-1990s there have been a few reports from several sites in Bahia, including Valença and Ituberá municipalities, and Una Biological Reserve (P.

Lima *in litt.* 2006, F. Olmos *in litt.* 2006, C. Gatto *in litt.* 2006). A bird thought to be this species was photographed near Ituberá (see Krabbe & Schulenberg³⁹). Some of these sightings stem from the ‘Scytalopus’ expedition (in December 2004) and subsequent research project, funded by Birdlife International/SAVE and led by M. R. Bornschein and G. N. Maurício (C. Gatto *in litt.* 2006). There was some doubt about the validity of earlier sightings, and the taxonomic status of the species, but new analyses of morphology, voice and genetics suggest that the Bahia Tapaculo is extant, and specifically (if narrowly) distinct from the White-breasted Tapaculo *S. indigoticus* (C. Gatto *in litt.* 2006). The native lowland forest of Bahia was largely cleared during the last century, and only small fragments remain, comprising perhaps 10% of the original extent³⁸. Further field surveys, ideally equipped with a tape of the song, should visit all tracts of humid forest in the region in search of the species.

Stresemann’s Bristlefront

Merulaxis stresemanni

Critically Endangered. Until recently, this reclusive tapaculo was known from just two specimens: the type, collected near Salvador in the 1830s, and a second taken near Ilhéus in 1945, in coastal Bahia, Brazil¹⁵, although a third (of unknown provenance) was located subsequently (in Berlin), having probably been collected in the early 19th century⁵⁹. It was rediscovered in 1995 when a single bird was tape-recorded and photographed near Una, Bahia¹. Although there have been no subsequent records from this locality despite searching (G. M. Kirwan *in litt.* 2006), the species has also been found in the Jequitinhonha Valley, Minas Gerais, near the border with Bahia⁶⁵. Here, too, the future of the species seems to hang in the balance: it survives in a strip of humid valley-floor forest, much of which has recently been cleared to make room for agriculture (F. Olmos *in litt.* 2006). Clearly, we need more data on distribution, population size and trends in this species, and further surveys of lowland forests in and around Bahia should be undertaken, using playback if possible. A recording of the voice is available from Rômulo Ribon (ribon@iceb.ufop.br) on request.

Kinglet Calyptura

Calyptura cristata

Critically Endangered. Judging from the number of specimens scattered in the world’s museums, this species was once fairly easy to find, but it is

now extremely rare. After an absence of over a century, it was rediscovered when two birds were observed by R. Parrini *et al.* on the slopes of the Serra dos Órgãos, near Rio de Janeiro, Brazil, on several mornings in late October 1996⁵⁵. Unfortunately, these sightings proved to be nothing more than a tantalising glimpse before the species once more lapsed into obscurity. Long lost, dramatically re-found, then lost again, the Kinglet Calyptura is quite possibly on the brink of extinction. Its chances of survival took a potential upturn when a single individual was reported near Ubatuba, São Paulo state, in February 2006 (M. Schaefer *in litt.* to J. Minns & E. Endrigo 2006), although this sighting is unconfirmed. Further searches are urgently required, focusing on the immediate area of the 1996 sightings and the 2006 report, but embracing the full extent of the historical range. The species seems to occur at varying altitudes, but is perhaps most likely to be found at 200–1,000 m in humid forest canopies, where it forages on insects, seeds and fruit, perhaps especially those of mistletoes. It is a tiny, short-tailed bird, reminiscent of a miniature purpletuft *Iodopleura* in shape and upright stance, with a red crest often held erect; it should not pose an identification problem.

Cone-billed Tanager

Conothraupis mesoleuca

Critically Endangered. For many years this species was known from a single specimen: a male collected in August 1938 in the *cerrado* region of south-central Brazil². The type locality was thought to be in the state of Mato Grosso, but it proved impossible to trace exactly¹⁵. Searches in this area failed, as did those in other parts of the Brazilian *cerrado*⁸, but an unusual female or juvenile passerine seen in 1993 in a nearby Bolivian protected area, Noel Kempff Mercado National Park, was thought likely to be this species (B. M. Whitney *in litt.* 2006). This record remains unconfirmed, and it was not until 2003–04 that two Brazilian ornithologists found a small population of the Cone-billed Tanager in gallery woodlands of Emas National Park, Goiás¹¹. The species is apparently rare and is only known with certainty from one locality (Fig. 6). Armed with a good impression of the bird's appearance (it has a whitish bill, unlike the black bill of all previous illustrations) and a tape of the song (available from the rediscoverers), searchers should look for this bird in remnant *cerrado* woodland and gallery forest between Emas and eastern Bolivia.

Chestnut-bellied Flowerpiercer

Diglossa gloriosissima

Endangered. This species occurs near the timberline at 3,000–3,800 m in semi-humid/humid montane scrub and elfin forest edge. Until recently it was known from three widely separated localities in the West Andes of Colombia: Páramo Frontino and Cerro Paramillo, both in Antioquia, and Cerro Munchique, in Cauca¹⁵. Following a lacuna in sightings since 1965, there have been recent reports from three localities. The first, an unpublished record from near Jardín, Antioquia, in October 2003 (P. C. Pulgarín *in litt.* 2006), was closely followed by records at the type locality²⁰, and 70 km further south at Farallones del Citará⁶¹, both in August 2004 (Fig. 7). The full extent of high-quality páramo vegetation in the West Andes of Colombia is possibly quite limited, and it is likely that the population of this flowerpiercer has declined as a result of the destruction of such habitats, principally through the deliberate setting of fires and over-grazing. Further surveys are required. Like most members of the genus, however, it appears able to tolerate some habitat degradation and its population density is fairly high²⁰. Surveys are required of high-altitude habitats throughout the global range to acquire a clear picture of population size, trends and threats.

Other poorly known species

White-vented Storm-petrel

Oceanites gracilis

Data Deficient. Although this species is numerous and easily found in tropical waters of the eastern Pacific Ocean, only one nest had ever been found prior to January 2002, when a small colony of perhaps 11 pairs was located on Isla Chungungo, off the coast of Chile³¹. All known breeding records come from this same tiny island, which is thought unlikely to support many undiscovered additional pairs. This means that the whereabouts of thousands, and possibly hundreds of thousands, of nesting pairs is a mystery, including the entire population of the subspecies *galapagoensis*, which is believed to breed in the Galápagos archipelago, Ecuador⁸. Without information on breeding sites, threats and trends in population, the conservation status of the species is impossible to determine. Surveys should seek to pinpoint new colonies by visiting islands in the eastern Pacific Ocean, from

Chile north to the Galápagos, focusing on rocky islets, rather than large islands.

Markham's Storm-petrel
Oceanodroma markhami

Data Deficient. This species (Fig. 8) is often seen on pelagic trips off Peru, but we know almost nothing of its overall numbers, trends and threats, making the task of determining this petrel's conservation status very difficult. New data on breeding sites are urgently required. It is fairly common, at least seasonally, in tropical waters of the eastern Pacific Ocean, spending July–September (and possibly longer) in warm equatorial waters, and January–July in the cooler waters of the Peru Current. The only known breeding site is the Paracas Peninsula, Peru, where a minimum of 2,305 pairs were nesting in June–November 1992 in small, dispersed colonies up to 5 km from the sea on sloping ground, usually where saltpetre deposits offered fissures and holes for nesting^{8,36}. This breeding area probably accounts for a small fraction of the global population, and there is very strong evidence that

further colonies exist in the region of Iquique, northern Chile, where many recent fledglings have been found⁸. Searchers should listen for adults flying near colonies at night, and check for active burrows during the day, especially around Salar Grande, 100 km south of Iquique. They should bear in mind that Chilean birds may breed earlier (January–May) and much further inland than their Peruvian counterparts.

Ringed Storm-petrel
Oceanodroma hornbyi

Data Deficient. This distinctive seabird (Fig. 9) is fairly common in parts of the eastern Pacific Ocean but data on overall numbers and trends are lacking, in part because the breeding grounds have never been found, despite repeated searches^{7,8}. Records at sea suggest that its entire population (probably numbering tens of thousands of individuals) breeds somewhere between 20°S and 25°S, in southern Peru and northern Chile. The regular appearance of grounded juveniles in July near the Chilean town of Antofagasta suggests that the breeding season in this region is between



Figure 6 (above). Long 'lost' in the Cerrado region, Cone-billed Tanager *Conothraupis mesoleuca* was recently rediscovered by Brazilian ornithologists in Emas National Park, Goiás. It is only known from a single patch of habitat, and further searches are urgently required (Dante Buzzetti)



Figure 7 (below). Chestnut-bellied Flowerpiercer *Diglossa gloriosissima* went unreported for almost 40 years before it was rediscovered in 2003 near Jardin, Colombia. The species was later trapped at another site, Farallones del Citará, in August 2004 (Paulo Pulgarín)

March and July, and that colonies may lie inland in the Atacama Desert⁸. This is corroborated by a few reports of mummified adults and fledglings found up to 50 km inland, and 1,500 m above sea level, often in nitrate beds⁸. Colonies should be searched for on offshore islands, coastal cliffs, and in the arid hinterland, focusing especially on the region of Antofagasta in March–July. The difficulty of working in this region must be emphasised: the Atacama Desert, the driest place on earth, is a land of featureless plains broken up by steep, loose-walled valleys. This petrel seems less likely to nest on the plains (where colonies of Grey Gull *Larus modestus* can be found) than in rockier valleys, or mid-altitude slopes above the Atacama proper. On the one hand, any signs associated with nesting (e.g. faeces and eggshells) would hardly ever be washed away by rain, thus increasing the chance of detecting a nesting burrow; on the other, that no one has come across such evidence suggests that the species may breed in small scattered groups⁸. Searchers should make use of all access roads, looking for burrows in daylight, listening for flight calls at night (taking sound-recordings if possible),

and following up any new reports of dead or grounded fledglings inland.

Colombian Crake *Neocrex colombiana*

Data Deficient. Of the two races of this species, *ripleyi* is known from two specimens taken in central Panama and north-west Colombia, and sightings at a further site in east Panama, whilst the nominate race is thought to be rare from northern Colombia southward on both slopes of the West Andes to western Ecuador. There are recent records (1990s) from at least two sites in Esmeraldas (Same and Playa de Oro, at which it was ‘not uncommon’), and the species is thought unlikely to be at risk in the lowlands of western Ecuador⁶⁶. There are no known recent records from Colombia, but it is presumably overlooked as there is ample suitable habitat on the Pacific slope (P. G. W. Salaman *in litt.* 2006). It is not restricted to areas with water, occurring in marshes, swamps, ditches, damp pastures and overgrown forest edge up to 2,100 m. Nonetheless, the species is very rarely reported and new



Figure 8. Markham's Storm-petrel *Oceanodroma markhami*, at sea off dpto. Arequipa, southern Peru, 8 November 2006 (Chris Collins)



Figure 9. Ringed Storm-petrel *Oceanodroma hornbyi*, at sea off dpto. Arequipa, southern Peru, 8 November 2006 (Chris Collins)

information on its status, distribution and natural history should be sought and published. The relatives of this elusive crane in *Laterallus* and *Neocrex* are generally vocal and responsive birds, and thus the process of discovering its distribution and status would almost certainly be facilitated by knowledge and use of its calls. The apparent song is described elsewhere⁶⁷, and a pre-recorded cut is an essential tool for future surveys. Played back in suitable habitats, this would hopefully result in much new data on the distribution of both races (assuming they are conspecific).

Purple-winged Ground-dove *Claravis godefrida*

Critically Endangered. Fairly common at the beginning of the 20th century, judging by the wide scatter of specimen records and reports of flocks of up to 100 birds, when the species occurred from Bahia, south through eastern Brazil to northern Argentina and eastern Paraguay, from sea level to 2,300 m. In the last 20 years there have been several reports of 1–3 individuals, including one from eastern Paraguay in 1995⁴⁴, one from Iguazú, Misiones province, Argentina, in 1991 (F. R. Lambert *in litt.* 2006), and a few from Brazilian sites such as Itatiaia (2004), Ubatuba (1997 and 2004) and Urubici (1997), in the states of Rio de Janeiro, São Paulo and Santa Catarina, respectively (Naka *et al.*⁵⁰, Mazar Barnett *et al.*⁴⁷, G. M. Kirwan *in litt.* 2006). These reports are almost certainly reliable, but none is documented. The species has clearly undergone a severe decline over the last century, presumably owing to the loss and fragmentation of forest, and perhaps exacerbated by a reliance on a specialised habitat. Its Andean relative, the Maroon-chested Ground-dove *C. mondetoura*, is difficult to find away from patches of flowering or seeding bamboo, where it gathers to forage and breed, sometimes semi-colonally²⁷. Purple-winged Ground-dove is also associated with bamboo, and it probably has similar ecological requirements. If this proves to be true, the conservation implications could be serious: dependence on a resource which is naturally patchy—and which habitat destruction renders far more local—in space and time is a circumstance which, albeit with the help of many guns, killed off the Passenger Pigeon *Ectopistes migratorius*⁹. There is an urgent need for more data on the distribution, population and ecology of the Purple-winged Ground-dove, ideally supported by good sound-recordings and/or photographs. As this species is unobtrusive and easily overlooked, it may be more common than we realise, but we

need data from the field before we can make an accurate status assessment. It does have a fairly distinctive song—‘a full oo-OOT’ according to Sick⁷⁴—and this should be listened for and recorded if possible (as evidence, and for playback). Surveys, perhaps using mist-nets, should be targeted at patches of flowering or seeding bamboo anywhere in the historical range, especially in the Serra do Mar and the hills of Santa Catarina, Brazil, with lesser attention on northern Argentina (Misiones) and eastern Paraguay.

White-fronted Swift *Cypseloides storeri*

Data Deficient. This species has a restricted range in south-west Mexico, where it is known only from a few sight records and six specimens taken in Guerrero (Sierra de Atoyac), Michoacán (Tacámbaro) and Jalisco (Sierra de Manantlán and Juanacatlán). It went unreported for many years until a single individual was identified in a mixed flock of c.100 swifts, flying over hills and fields bisected by a narrow, steep-sided canyon near Tacámbaro in September 1995³³. There is a subsequent record from near Manzanillo, where a flock of Chestnut-collared Swifts *C. rutilus* contained several birds showing some features of White-fronted Swift, in February 2002³² (D. F. Lane *in litt.* 2006). Well-documented records are from February, June, July and September, suggesting that the species is sedentary. Based on this meagre knowledge, we cannot yet determine whether the species is dangerously close to extinction, or else—given the difficulty of identifying swifts in the field—merely overlooked. Fresh surveys and new data are required.

Sinaloa Martin *Progne sinaloae*

Data Deficient. This species breeds in pine–oak forest and semi-open habitat on the west slope of the Sierra Madre Occidental in Sonora, Jalisco and Michoacán states, Mexico. It has been recorded on migration in Mexico and casually in Guatemala and Belize but its wintering range is unknown. We know so little of its distribution, population size, trends and possible threats that its conservation status cannot be assessed at present. Surveys in the breeding range should map its extent, and assess the size of the breeding population. Field workers in South America should try to locate the wintering population, which may be localised or threatened by habitat alteration. The main problem in this case is that the wintering grounds

of the Caribbean Martin *P. dominicensis*, a very similar taxon which is often considered conspecific, are also unknown, and likewise probably in South America⁷⁶. White-bellied *Progne* martins thought perhaps to be *P. dominicensis* have been seen as far south as Peru¹³ and Bolivia (e.g. Mayer⁴⁶), although identification in all cases is very far from conclusive. The identification of *Progne* martins outside the breeding grounds is notoriously challenging, partly because it is often difficult to observe them closely, let alone trap or photograph them, and also because the characters which might be used to separate them are subtle and poorly known. The best non-lethal way to confirm the presence of one or other of these species in the non-breeding season is to take good photographs of males, ideally in the hand. Non-breeding *Progne* martins in Amazonia often attend communal, mixed-species roosts, sometimes in vast numbers, and often in urban or suburban settings. These roosts should be thoroughly checked for *P. sinaloae* and *P. dominicensis*. The relevant field marks are described by Turner⁷⁶.

Afterword

Drawing the line between birds included and not included in this article was rather difficult. Several recently discovered species could have been included were it not for constraints on time and space. Those wishing to read more information about species that are very rare or restricted in range, such as Colourful Puffleg *Eriocnemis mirabilis* (Critically Endangered), Chestnut-bellied Hummingbird *Amazilia castaneiventris* (Critically Endangered), Orinoco Softtail *Thripophaga cherriei* (Vulnerable) and Baudó Oropendola *Psarocolius cassini* (Endangered), are advised to visit www.birdlife.org.

We hope that this article will stimulate birders to seek out a host of species, or their unknown breeding grounds, and that new data will help to conserve some of the region's most enigmatic birds. Readers should note that various sources of funding are available to support these activities, e.g. the Birdfair/Royal Society for the Protection of Birds research fund for endangered birds (contact paul.donald@rspb.org.uk), the British Ornithologists' Union's ornithological research grants (see www.bou.org.uk), NBC's Conservation Fund (see www.neotropicalbirdclub.org for more details), the American Bird Conservancy's William Belton Small Grants Fund (http://www.abcbirds.org/international/small_

[grants_2006.htm](http://www.abcbirds.org/international/small_grants_2006.htm)), the Club 300 Foundation for Bird Protection (e-mail birdprotection@club300.se), and the BP Conservation Programme (see <http://conservation.bp.com>). In addition, BirdLife International will soon be launching a small grants fund for conservation projects on threatened species in the Americas (see www.birdlife.org for details in due course).

Most Neotropical countries are covered by local conservation NGOs, many of them partners of BirdLife International. People planning searches for the missing birds described above, or any threatened species, are strongly encouraged to liaise with these organisations (see www.birdlife.org/worldwide/national/index.html) in order to seek advice on local logistics and security, and to maximise the utility of any field work to such organisations' conservation programmes. As BirdLife International is responsible for collating information and assessing the status of all of the world's birds for the IUCN Red List, we would be pleased to hear of the results of any searches (please send information to Stuart Butchart at the address listed below). In some cases (e.g. rare macaws) the event of a discovery should be publicised carefully because of the risk of parrot-trappers and collectors abusing the information: in these cases a strictly confidential message should be sent to BirdLife International. Even negative information is useful, but we hope that at least some of these species will be successfully rediscovered, or tracked down to their true breeding and wintering ranges, in the near future.

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