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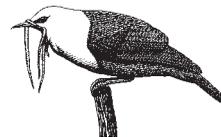
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Club News



Questionnaire results

The Club thanks all those who completed the questionnaire and apologises for any technical difficulties members had downloading it from the website. A full report of the survey's results is available on the website or on request by e-mail.

Some 162 completed questionnaires were received. The highest percentage of responses was from North America (38%), followed by the UK (28%), the EU (18%) and the Neotropics (17%). Average time birding in the field (in days) was as follows: 0–6 (25%), 6–20 (33%), 21–50 (23%) and 51+ (19%). There was an even split between Spanish speakers (with considerably fewer Portuguese speakers) and non-Spanish speakers, but the majority did not favour more articles in either of the principal Latin America languages. Most copies of *Cotinga* arrive in good condition and 87% of respondents thought it represented good value. A small majority wanted more colour photos (60%) and pages (72%), with 56% being prepared to pay a higher subscription for such an increase. Responses concerning the content of *Cotinga* were very encouraging, revealing that the present content is about right. The regular items were thought to be useful, although Club News and Conservation Awards were items perhaps best placed on the website. As for article types, the number dealing with specific species (75%), biology (69%) and ecology (72%) was thought about right, with 15–22% wanting more of each type. However, only 59% thought the number of site and regional articles was currently appropriate, and 32% wanted more. The majority of members that responded wanted more identification papers (78%) and country specials (72%), with a smaller percentage wanting more site guides (63%).

In conclusion *Cotinga* seems to have found the right balance of articles, perhaps with some fine-tuning needed in certain areas. There is, however, a clear demand for more of everything, even if there is a cost implication. Council will now examine these proposals to see how best these demands can be satisfied without diluting the quality of the present format.

Donations

We would like to acknowledge the following members who have made separate donations since the publication of *Cotinga* 23: Anthony B. Crease, Stephen Eccles, Miss E. Forbes, P. J.

Forrest, Marc Guyt, Alan J. Knue, Tony Marr, Rodney Martins, Matt Moser, Neil Osborne, Martyn Overton, Dr Clive Peat, Peter H. Rathbone, Stewart Smith, Johan H. van Balen, Mrs Mona Webster, Mick J. Whitehouse, Norman Williams and Jeannie B Wright.

Period of Membership

The period of membership is for one calendar year from 1 January. Members will receive both copies of *Cotinga* published in that year regardless of when they join. Your membership status can be obtained from the address label, with the number after the membership type being the year of membership, i.e. 04 for 2004. Unless stated all memberships are single year, but multiple years are designated by Xyr, i.e. 2yr for two-year membership. GA appears on the label if you are registered for Gift Aid.

Club Constitution

Any member wishing to obtain a copy of the constitution should send an A5-sized stamped addressed envelope to the Secretary.

Promoting the Club

A membership flyer is available and the Club is seeking members to distribute it. Anyone able to help the Club recruit new members should contact the Secretary.

NBC checklists

The Club's Venezuela checklist was published in 2003. Following the style of the Trinidad & Tobago checklist, all species in Hilty (2003) are listed in a 56-page, 15-column format, and it aims to encourage visiting birdwatchers to keep structured notes that can be easily photocopied and sent to the relevant recording authority. The list is the second in a series of lists for Neotropical countries that the Club plans to produce in the next few years. The list sells for UK£5 or US\$8 per copy, plus postage (UK: £1; Europe UK£1.50; Rest of World UK£2/US\$3) and can be obtained from the Sales Officer at the Club address. The Trinidad & Tobago list is still available, UK£4 or US\$6, with postage rates as above.

Trip reports

The Club has an archive of trip reports generously provided by members and it is our intention to make many of these downloadable free from the

Club's website, www.neotropicalbirdclub.org. NBC was given the rights to the highly regarded trip reports produced by the late Bruce Forrester. The following titles are available directly from the Club. Members wishing to purchase these or any of the reports listed on the Club website should write to one of the usual addresses. Please note that postage is additional.

Birding Venezuela 1995	UK£11/US\$16.50 Postage A
Birding Costa Rica 1996	UK£11/US\$16.50 Postage A
Birding Bolivia 1997	UK£13/US\$21 Postage B
Birding Ecuador 1998–99	UK£20/US\$30 Postage B
Birding Peru 2000	UK£15/US\$22.50 Postage B
Birding Dominican Republic & Puerto Rico 1999	UK£5/US\$7.50 Postage A
Birding Eastern Brazil (update to Birding Brazil)	UK£10/US\$15 Postage B

Postage rates

UK	Rate A—£1, Rate B—£2
Europe	Rate A—£2.50, Rate B—£4
RoW	Rate A—US\$5, Rate B—US\$8 (or sterling equivalent)

Corporate Members

NBC wishes to thank the following Corporate Members for 2005: Asa Wright Nature Centre, Birdquest, Blue Waters Inn, Canopy Tower, Limosa, Lynx Edicions, Manu Expeditions, Serra dos Tucanos, Sunbird, Subbuteo, Swarovski, Travelling Naturalist and Wildwings.

E-mail addresses

Secretary	secretary@neotropicalbirdclub.org
Treasurer	treasurer@neotropicalbirdclub.org
Chair	chair@neotropicalbirdclub.org
Membership	membership@neotropicalbirdclub.org

E-mail group

All Club members wishing to be included on an NBC e-mail group should contact the Secretary. Information useful to Club members will be distributed via this service, such as when *Cotinga* has been published, conservation news and new discoveries.

Adverts on the NBC website

Visitors to the Club website may notice there are a number of discreet adverts. This is a source of funds for the Club, as every time the links are followed the Club receives a payment from Google.

Advance notice of the 2006 AGM

The Club AGM will be held on Sunday 28 May 2006 at Cley Village Hall, Cley, Norfolk, UK. Details of the meeting will be included with *Cotinga* 25 and will also be made available via the Club's website.

Chris Balchin

At the Club's AGM in May 2005, Chris Balchin retired from NBC Council and as Club Secretary, a position he had held since the Club's inception in 1994.

The role of Secretary is vital to the efficient running of the Club and Council would like to place on record their grateful thanks to Chris for all his hard work over the years. There is little doubt that without his dedicated input, the Club would not be the respected organisation that it is today and we believe that all members will want to join us in thanking Chris.

Although Chris has relinquished his duties and retired from Council, he will still have a role in the Club as he and his partner, Jan Rowland, are to continue administering the membership database.

Cotinga 24

Neotropical Bird Club**Conservation Awards****New Awards • Nuevos Premios •
Novos Prêmios**

Council is pleased to announce two new Conservation Awards. We are also finalising details to co-sponsor two further projects with the 'Small Grants Scheme' of the Royal Society for the Protection of Birds. We look forward to further co-sponsored projects with the RSPB and collaboration with other conservation bodies around the world.

El Concejo se complace en anunciar dos nuevos Premios de Conservación. Además, estamos finalizando los detalles para un auspicio conjunto de dos proyectos adicionales mediante el esquema de pequeñas donaciones de la Sociedad Real para la Protección de las Aves (RSPB). Esperamos continuar co-auspiciando proyectos con la RSPB y en colaboración con otras entidades de conservación en el mundo.

Environmental education at Zapata Swamp, Cuba

In 2003, the Club sponsored the successful 'Club los Tres Endémicos' project in Cuba. This year, Orestes Martínez García has been awarded US\$1,000 in order to expand his education project in the Zapata Swamp. Orestes and two local teachers will continue to involve children and locals in the conservation of wildlife in the swamp, and are seeking to increase the number of participants to at least 60. They will also introduce local children to bird study (feeding, reproduction and behaviour) and habitat conservation. The project has a particular focus on the three endemic and Endangered species found in the region: Zapata Rail *Cyanolimnas cerverai*, Zapata Wren *Ferminia cerverai* and Cuban Sparrow *Torreornis inexpectata*.

Educación ambiental en la Ciénaga de Zapata, Cuba

En 2003 el NBC auspició el exitoso proyecto 'Club de los Tres Endémicos' en Cuba. Este año, Orestes Martínez García ha recibido un premio de US\$1.000 para desarrollar su proyecto de educación en la Ciénaga de Zapata. Orestes y dos profesores locales continuarán involucrando a

niños y habitantes locales en la conservación de la vida silvestre de esta ciénaga, y están en procura de incrementar el número de participantes a por lo menos 60. Además, planean introducir a los niños en el estudio de las aves (alimentación, reproducción y comportamiento) y en la conservación de hábitat. El proyecto tiene un enfoque particular en tres especies endémicas y amenazadas de extinción que existen en la zona: la Gallinuela de Santo Tomás *Cyanolimnas cerverai*, *Ferminia cerverai* y el Cabrerito de la Ciénaga *Torreornis inexpectata*.

Distribution, behaviour and habitat use of Masked Antpitta *Hylopezus auricularis*

Council has awarded Oswaldo Maillard Z. U\$750 to study the Vulnerable Masked Antpitta *Hylopezus auricularis* in Amazonian Bolivia. The project will investigate the behavioural ecology and seasonal habitat preferences of the species, about which very little is known. Together with searches of potential new sites, this will help map the species' range in Bolivia. Potential threats to the species and its habitat will also be identified during the project. Oswaldo is a recent biology graduate who is currently working as head of the ornithology section at Noel Kempff Mercado Natural History Museum, in Santa Cruz de la Sierra, and is coordinator of wetland bird surveys in dpto. Santa Cruz.

Distribución, comportamiento y uso de hábitat del Tororoi Enmascarado *Hylopezus auricularis*

El Concejo ha premiado a Oswaldo Maillard Z. con U\$750 para el estudio del Tororoi Enmascarado *Hylopezus auricularis* en la Amazonía boliviana. El proyecto investigará la ecología del comportamiento y las preferencias de hábitat de la especie, sobre lo cual se conoce muy poco. Adicionalmente, buscará nuevos sitios para generar un mapa del rango de la especie en Bolivia, e identificará amenazas potenciales para la especie y sus hábitat. Oswaldo es un biólogo recién graduado que trabaja en la actualidad como líder de la sección de ornitología del Museo de Historia Natural Noel Kempff Mercado, en Santa Cruz de la Sierra, y es además el coordinador de los inventarios de aves de humedales en el dpto. Santa Cruz.

Updates • Novedades • Actualidades

Distribution and identification of sites for study and conservation of Horned Guan *Oreophasis derbianus* in Guatemala

Ana José Cóbar Carranza has surveyed sites in San Marcos, Guatemala, and expects to have completed her field work by the time this issue of *Cotinga* is published. She has also contributed to a presentation at the II International *Oreophasis derbianus* Symposium held in April, at Reserva Los Tarrales, on the slopes of Volcán Atitlán, Guatemala.

Distribución e identificación de sitios para estudio y conservación del Pavón *Oreophasis derbianus* en Guatemala

Ana José Cóbar Carranza ha inventariado sitios en San Marcos, Guatemala, y espera finalizar su trabajo de campo para cuando se publique este número de *Cotinga*. Ana ha contribuido además en una presentación para el II Simposio Internacional sobre *Oreophasis derbianus* que se desarrollará en abril en la Reserva Los Tarrales, en las estribaciones del volcán Atitlán, Guatemala.

Great Green Macaw

The Club sponsored a workshop held in Ecuador in 2003 which succeeded in producing a 'National *in situ* Conservation Strategy for the Great Green Macaw *Ara ambigua guayaquilensis*'. The strategy comprises six policies concerning research, sites for conservation, reforestation, promotion of sustainable alternative livelihoods for local communities and landowners, protective legislation, and environmental education and publicity. On the legislative front, a ministerial agreement has been signed through which the conservation strategy has been made law. Implementation of this important strategy will require access to considerable financial resources, much of which will inevitably need to be found outside Ecuador.

Guacamayo Verde Mayor

El NBC financió un taller desarrollado en Ecuador en 2003, el cual fue exitoso en producir la Estrategia Nacional de Conservación *in-situ* del Guacamayo Verde Mayor *Ara ambigua guayaquilensis*. Esta estrategia comprende seis políticas sobre investigación, sitios para conservación, reforestación, promoción de alternativas sustentables de vida para las comunidades locales y dueños de las tierras, legislación para la protección, y educación ambiental y publicidad. En el campo legislativo, se ha firmado un Acuerdo Ministerial mediante el cual la estrategia de conservación se convierte en un instrumento legal. La imple-

mentación de esta importante estrategia requerirá del acceso a fuentes de financiamiento, gran parte del cual deberá, inevitablemente, buscarse fuera del Ecuador.

Educational material for Río Blanco reserve, Colombia

Teachers in the Río Blanco area have tested the draft educational materials and have met to discuss their comments and suggestions prior to finalisation of the work-book. This process should be completed and the book published and distributed to schools by the time this issue of *Cotinga* is published.

Material educativo para la reserva Río Blanco, Colombia

Profesores en el área de Río Blanco han probado material educativo preliminar y se han reunido para discutir y aportar sugerencias previas a la finalización de un libro de trabajo. Este proceso deberá completarse, y el libro deberá publicarse y distribuirse en escuelas locales para cuando este número de *Cotinga* esté publicado.

Serranía de las Quinchas

In *Cotinga* 23 we described the purchase of forest in the Serranía de las Quinchas by ProAves, the Colombian conservation NGO. The legal formalities required by the sale have now been finalised, and the new nature reserve staffed by a full-time guard and researchers. ProAves has developed an education programme involving local schools and a wide range of research projects have been initiated. A short paper for *Cotinga* on the importance of the new reserve and its facilities is in an advanced state of preparation.

Serranía de las Quinchas

En *Cotinga* 23 reportamos la compra de bosques en la Serranía de las Quinchas por parte de ProAves, organización de conservación de Colombia. Las formalidades legales requeridas para esta compra han finalizado, y se ha establecido el personal de esta nueva reserva natural con un guardia a tiempo completo y con investigadores. ProAves ha desarrollado un programa educativo con escuelas locales, y un variedad de proyectos de investigación han iniciado. Una nota para *Cotinga* sobre la importancia de esta nueva reserva y sus instalaciones está en un estado avanzado de elaboración.

Cotinga 24

Neotropical News



PAN-AMERICAN

Distribution maps for Western Hemisphere birds and mammals

Published in 2003 on separate CDs, these digital distribution maps for birds and mammals in the Western Hemisphere should prove to be an invaluable resource for ornithologists and birdwatchers (as well as mammalogists). The project to produce the maps was a joint venture between the Center for Applied Biodiversity Science at Conservation International, NatureServe, The Nature Conservancy, The Field Museum (Chicago), Wildspace (Ontario) and the World Wildlife Fund. You can now also download compressed files of the maps for any genus of bird or mammal in the Americas free from the NatureServe website (www.natureserve.org/getData/mammalMaps.jsp). However, unless you have a broadband internet connection, it is worth noting that the file sizes are still quite large. To read any of the maps you need to have installed either ArcView 3.X (available for purchase at distributors listed on www.esri.com) or ArcExplorer software, which can be downloaded free of charge from www.esri.com/software/arcexplorer/index.html or from the NatureServe site.

- Ridgely, R. S., Allnutt, T. F., Brooks, T., McNicol, D. K., Mehlman, D. W., Young, B. E. & Zook, J. R. (2003) *Digital distribution maps of the birds of the Western Hemisphere*. Version 1.0. Arlington, VA: NatureServe.
- Patterson, B. D., Ceballos, G., Sechrest, W., Tognelli, M. F., Brooks, T., Luna, L., Ortega, P., Salazar, I. & Young, B. E. (2003) *Digital distribution maps of the mammals of the Western Hemisphere*. Version 1.0. Arlington, VA: NatureServe.

Quail symposium proceedings published online

The proceedings of a symposium held on the conservation of quail in the Neotropics during the VI Neotropical Ornithological Congress in Monterrey, Mexico, in 1999, have been published online. Edited by Jack C. Eitnearer, John T. Baccus, Sheldon L. Dingle and John P. Carroll, they may be downloaded free at www.cstbinc.org/neotropicalQuail.html.

NORTH AMERICA

USA

Ivory-billed Woodpecker in Arkansas' 'Big Woods'

Outside the Neotropical region, but concerning a species at least formerly known from Cuba, comes the exciting news of the rediscovery of Ivory-billed Woodpecker *Campephilus principalis* in the USA. Following a sighting by Gene Sparling while kayaking in Arkansas in 2004, ornithologists have confirmed the species' continued survival, having obtained video footage documenting the record. Surveys reveal little about population or breeding, but the observations to date are consistent with a very sparse population. The 'Big Woods' area of eastern Arkansas covers 220,000 ha of which 40% is forest approaching maturity (a requisite of the species). Since the rediscovery, the US Fish & Wildlife Service and Nature Conservancy have continued their 20-year policy of buying land and replanting in the area in order to protect the species and its habitat.

- Fitzpatrick, J. W., Lammertink, M., Luneau, M. D., Gallagher, T. W., Harrison, B. R., Sparling, G. M., Rosenberg, K. V., Rohrbaugh, R. W., Swarthout, E. C. H., Wrege, P. H., Barker Swarthout,

S., Dantzker, M. S., Charif, R. A., Barksdale, T. R., Remsen, J. V., Simon, S. D. & Zollner, D. (2005) Ivory-billed Woodpecker (*Campephilus principalis*) persists in continental North America. *Scienceexpress report* 10.1126/science.1114103.

Available at: www.sciencemag.org/cgi/rapidpdf/1114103v1.pdf, published online 28 April 2005

- Big Woods Conservation Partnership website: <http://www.ivorybill.org/> [accessed 11/5/05]

CARIBBEAN

ST LUCIA

New hotel threatens White-breasted Thrasher

A hotel and residential development has been proposed on a 215-ha site with an estimated 138 breeding pairs of White-breasted Thrasher *Ramphocinclus brachyurus* (22% of the world population of this Endangered species). Overall, the dry forests of eastern St Lucia hold c.80% of the species' population, so any spin-off developments would further impact the thrasher. The UK-based developers, Design Construction Group, hoped to begin forest clearance in early 2005 for this European Investment Bank-funded project which is linked to the 2007 cricket world cup. They were waiting for, but apparently expecting, a favourable decision from the St Lucia Development Control Authority on whether they could proceed. St Lucia needs to develop its tourist industry, especially after 2005 when small Caribbean banana producers lose the favourable status an illegal European Union trade policy affords them. The development would provide jobs and improve marina facilities, but fishermen and sea-moss farmers

would be forced to move, and dredging and mangrove clearance would have a negative impact on fish stocks, so the decision is not simply a bipolar conservation versus development argument.

- *World Birdwatch* 27 (1): 6 (March 2005)

SOUTH AMERICA

BOLIVIA

Blue-throated Macaw found west of the río Mamoré

Bolivian ornithologist Mauricio Herrera, coordinator of the Asociación Armonía/Loro Parque Foundation Blue-throated Macaw *Ara glaucogularis* conservation program, has found the species west of the río Mamoré—a 100 km extension of the known range in dpto. Beni. This comes as a result of work with landowners, ranch hands, families and communities in the region, whose economy is based on cattle ranching. Anecdotal evidence from the new site suggests that the macaw population could be spreading again after capture for the illegal bird trade affected the species in the 1980s and 1990s. Further new sites have been found in the north of the known range, but surveying is logistically difficult in that area.

- *World Birdwatch* 27 (1): 11 (March 2005)

BRAZIL

Study of Araripe Manakin

A team supported by the BP Conservation Programme has discovered a nest of the Araripe Manakin *Antilophia bokermanni* (Critically Endangered)—a species described only eight years ago. The team has also found ten new springs in the area, each with associated manakin populations, and has increased the number of known sites for the species to 26.

- *World Birdwatch* 27 (1): 9 (March 2005)

Murdered environmentalists

The conservation movement can only be shocked and saddened to learn of the murders of human

rights and environmental activist Dorothy Stang on 12 February, and conservationist Dionisio Ribeiro Filho on 22 February. Dorothy Stang taught sustainable farming methods to poor settlers unfamiliar with Amazon soils and helped to establish a federal peasant farming reserve in the state of Pará, and to protect it from illegal loggers and ranchers encroaching the area. In 2004, although aware of the risk to her life, she gave evidence before a congressional committee of inquiry into deforestation, naming logging companies that were invading state areas. Sister Stang bravely continued her work in the face of death threats that continued until her murder in February.

Dionisio Ribeiro Filho dedicated the last 15 years of his life to protecting the 26,000-ha Tinguá Biological Reserve from poachers, cagebird collectors and edible palm heart *Euterpe edulis* cutters. Tinguá, just north of Rio de Janeiro, is part of the Tijuca-Tinguá-Órgãos Biosphere Reserve and harbours Atlantic Forest species including, at least formerly, White-necked Hawk *Leucopternis lacernulata* and Blue-chested Parakeet *Pyrhura cruentata* (both Vulnerable). Again, Dionisio Ribeiro Filho worked on bravely despite the death threats he and colleagues received. Police believe that opponents of these environmentalists' inspiring work were responsible for both murders.

- Rocha, J. (2005) Obituary: Sister Dorothy Stang. *Guardian Unlimited* (21 February 2005). Available at: www.guardian.co.uk/brazil/story/0,12462,1419087,00.html [accessed 11/5/05]
- UNEP-WCMC (1991/2003) Tijuca-Tingua-Órgãos Biosphere Reserve. Available at: www.unep-wcmc.org/sites/pa/0569q.htm [accessed 11/5/05]

Serra do Urubu IBA to be preserved

A 390-ha plot adjacent to the 630-ha Frei Caneca Private Nature Reserve has been purchased by SAVE Brasil, thereby protecting

the Serra do Urubu Important Bird Area (IBA) in Pernambuco state. BirdLife Brasil is working with community leaders, government agencies and other stakeholders to promote the sustainable use of surrounding land, and to prevent the spread of fire onto these government-recognised reserves. The American Bird Conservancy-funded surveys of the IBA discovered 21 endemic birds, including four species previously known only from Murici: Alagoas Foliage-gleaner *Philydor novaesi*, Alagoas Antwren *Myrmotherula snowi* (both Critically Endangered), Alagoas Tyrannulet *Phylloscartes ceciliae* and Orange-bellied Antwren *Terenura sicki* (both Endangered). The reserves protect other rare flora and fauna, including a bromeliad new to science. Similar work is being pursued in the Serra das Lontras in Bahia state (see elsewhere in this issue).

- *World Birdwatch* 27 (1): 11 (March 2005)

COLOMBIA

Good news for Humboldt Oak forest birds

A ProAves study funded by the American Bird Conservancy's William Belton Small Grants Program brings encouraging news concerning four endemic species that are at least seasonally dependent on the (endemic) Humboldt Oak forests of Colombia. Between 66% and 85% of the habitat in the ranges of the four species has been converted to agriculture. The ProAves study located Mountain Grackle *Macroagelaius subalaris* (Critically Endangered), Black Inca *Coeligena prunellei* (Endangered), Rusty-faced Parrot *Hapalopsittaca amazonina* (Endangered) and Gorgeted Wood-quail *Odontophorus strophium* (Critically Endangered) at 20–29 of the 151 sample sites each. These results exceeded conservationists' expectations and have led each of the species to be reclassified as Vulnerable.

- Study of rare birds in Colombian oak forests encouraging (26 April 2005) *Surfbirds News*. Available at: http://www.surfbirds.com/sbirdsnews/archives/2005/04/study_of_rare_b.html [accessed 11/5/05]

ECUADOR

First Ecuadorian Ornithological Meeting

The First Ecuadorian Ornithological Meeting was held in Quito, in March 2005, marking a great step towards the creation of a National Ornithological Network and the development of a National Strategy for the Conservation of Birds. The 140 delegates took part in plenary talks, follow-up workshops and oral and poster contributions. The proceedings are due to be published before *Cotinga* 24 is distributed and will be available at: www.geocities.com/reunionavesecuador. NBC donated three subscriptions as awards for the best contributions.

- Juan F. Freile *in litt.* (16 March 2005)

Ecotourists sought at Playa de Oro

Playa de Oro is a small community in north-west Ecuador that owns 11,000 ha of very humid tropical

rainforest, the country's last pristine Chocó Forest. The area holds 340 bird species, including Chocó endemics and Endangered species. A project of Neblina Forest, the Gaia Foundation for ecotourism and the Earthways Foundation has established a lodge in the nearby Reserva de Tigrillos and is seeking to do the same at Playa de Oro. The project has strong local support, and is seen as the only way to resist a logging company that has been active in surrounding areas and which is seeking to buy the land. The project organisers are seeking donations to refurbish suitable log cabins in the area, and offer significant contributors a three-night/four-day package with accommodation and a bird guide whilst in Playa de Oro. For more information, please contact Mercedes Rivadeneira of Neblina Forest via mrivadene@pi.pro.ec.

- Mercedes Rivadeneira *in litt.* (2 May 2005)

Tumbes reserves

The 2004 British Birdwatching Fair focused conservation attention on the Tumbesian dry forests of south-west Ecuador and north-west Peru. A broad consortium of scientific, conservation and cultural organisations have

purchased 1,680 ha adjacent to La Ceiba Private Reserve, bringing the total area protected to 6,980 ha. The former landowner also donated 300 ha to 23 local households and the project will help these and other local people to use their land sustainably, protecting the forest in order to maintain the watersheds on which they depend and as a source of forest products. Some local people will be employed directly as park guards, whilst the provincial and municipal authorities are seeking to develop the area's tourist potential. It is hoped that emigration from this marginal land will be stemmed because without local people's interest in the forest resources, it becomes vulnerable to large-scale timber extraction for short-term gain by non-residents. Another member of the *Bosques Sin Fronteras* consortium has purchased an 800-ha site known as Jatunpamba-Jorupe. Between them, the two reserves serve to further the viability of the Tumbesian region's endemic flora and fauna, including Endangered birds like Grey-cheeked Parakeet *Brotogeris pyrrhopterus* and Blackish-headed Spinetail *Synallaxis tithys*.

- *World Birdwatch* 27 (1): 8 (March 2005)

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Taxonomic Round-up



A new parakeet from the Sun Parakeet group

Luís Fábio Silveira and colleagues have described a new parakeet, the Sulfur-breasted Parakeet *Aratinga pintoii*, from the region of Monte Alegre, on the north bank of the Amazon in Pará, Brazil, where it appears to be not uncommon. Like the recently described *Pionopsitta aurantiocephala*, also from Pará (see *Cotinga* 20: 15), specimens of the new species had been first collected many years ago, but had lain overlooked as an already recognised species, in this case Sun Parakeet *A. solstitialis*, or had been considered to represent a hybrid. The new species differs from Sun Parakeet in having the mantle and wing-coverts green, the underparts pale yellow, with pale orange restricted to the belly and flanks, and the feathers on the underparts have a dark rachis. The authors also review systematics of the *solstitialis* group and reaffirm the need to recognise the other taxa, *jandaya* and *auricapillus*, at specific level under any currently operating species concept, as well as discussing the range of *solstitialis* in Brazil and Suriname.

- Silveira, L. F., Lima, F. C. T. & Höfling, E. (2005) A new species of *Aratinga* parakeet (Psittaciformes: Psittacidae) from Brazil, with taxonomic remarks on the *Aratinga solstitialis* complex. *Auk* 122: 292–305.

Oryzoborus and *Sporophila* represent a monophyletic grouping

Evolutionary affinities within and among many groups of nine-primaried oscines have been the subject of several recent publications. A new study has focused on clarifying the relationship between the genus *Sporophila* and the closely related *Oryzoborus*, as well as examining the phylogenetic affinities of the 'capuchinos', a

group of 11 *Sporophila* species that share similar male plumage patterns. Using mtDNA sequences, the study indicated that:

Oryzoborus lies within a well-supported clade containing all of the *Sporophila*, thus suggesting that the two genera should be merged; that the 'capuchinos' are a monophyletic group, and this clade comprises two sub-clades, one including two species from northern South America and the other eight species distributed south of the Amazon. It appears that the southern capuchinos radiated rapidly, within the last half-million years. Should *Oryzoborus* and *Sporophila* be merged then the latter name would have priority.

- Lijtmaer, D. A., Sharpe, N. M. M., Tubaro, P. L. & Lougheed S. C. (2004) Molecular phylogenetics and diversification of the genus *Sporophila* (Aves: Passeriformes). *Mol. Phyl. & Evol.* 33: 562–579.

Whither lies the Broad-billed Sapayoa?

True to its name, *Sapayoa aenigma* has long defied biologists' attempts to classify it. Although Sibley & Ahlquist (1990) had suggested that the *Sapayoa* was perhaps closely related to Old World broadbills, this monotypic genus has traditionally been considered to lie somewhere within the New World flycatchers. Recent base sequencing of two nuclear genes reveals that it is, as speculated, most closely related to the only two Old World suboscine families, either the pittas or the broadbills.

- Fjeldså, J., Zuccon, D., Irestedt, M., Johansson, U. S. & Ericson, P. G. P. (2003) *Sapayoa aenigma*: a New World representative of 'Old World sub-oscines'. *Proc. Roy. Soc. Lond. B Suppl.* 270: 238–241.

Relationships of the Red-bellied Grackle

Red-bellied Grackle *Hypopyrrhus pyrohypogaster* is a Colombian endemic that is currently classified as Endangered. Much genetic work has recently been conducted on the New World blackbirds, with the aim of producing an accurate phylogeny for the group. Until now, no DNA data were available for this grackle, but the authors of a study published in *Condor* have now demonstrated through mtDNA sequencing that the monotypic genus *Hypopyrrhus* is most closely related to Oriole Blackbird *Gymnomystax mexicanus* and Velvet-fronted Grackle *Lampropsar tanagrinus*, and although these three species form a well-supported clade, it is unclear which is sister to *Hypopyrrhus*.

- Cadena, C. D., Cuervo, A. M. & Lanyon, S. M. (2004) Phylogenetic relationships of the Red-bellied Grackle (Icteridae: *Hypopyrrhus pyrohypogaster*) inferred from mitochondrial DNA sequence data. *Condor* 106: 664–670.

Saffron Toucanet is a *Pteroglossus*

Saffron Toucanet *Bailloni* *bailloni* is the sole member of its genus, and *Bailloni* has long been recognised as being somewhat close to the genus *Pteroglossus* on the basis of behaviour, morphology and, more recently, molecular work. Fresh phylogenetic analysis, using cytochrome-*b* gene fragments, strongly supports the idea that *Bailloni* is indeed part of *Pteroglossus* and that it is most closely related to Lettered Aracari *P. inscriptus*, suggesting that Saffron Toucanet is better named *Pteroglossus bailloni* and that *Bailloni* is best considered a synonym of *Pteroglossus*.

- Kimura, R. K., Pereira, S. L., Grau, E. T., Höfling, E. &

Wajntal, A. (2004) Genetic distances and phylogenetic analysis suggest that *Baillonius* Cassin, 1867 is a *Pteroglossus* Illiger, 1811 (Piciformes: Ramphastidae). *Orn. Neotrop.* 15: 527–537.

An endemic species of nuthatch in the Bahamas

The conservation plight of the endemic subspecies of the Brown-headed Nuthatch *Sitta pusilla insularis*, which is confined to Grand Bahama and under increasing threat due to habitat destruction and modification, invasive alien predators, and storm damage, has been spotlighted in recent years. The total population is, at most, a few thousand individuals. A recent paper in the *Bahamas Journal of Science* recommends that the local population, the only West Indian nuthatch, be elevated to specific status based on its unusual morphometrics and distinctive vocalisations. If this proposal becomes widely accepted it should assist in promoting the conservation of this declining form.

- Hayes, W. K., Barry, R. X., MacKenzie, Z. & Barry, P. (2004) Grand Bahama's Brown-headed Nuthatch: a distinct and endangered species. *Bahamas J. Sci.* 12: 21–28.

How many species of Dusky-capped Flycatcher...?

A recent mtDNA study of populations of Dusky-capped Flycatcher *Myiarchus tuberculifer* raises the possibility that, in fact, three species are involved: the first represented by all those populations between the southern USA and north-west South America, and perhaps including northern *M. t. atriceps*; the second represented by southern populations of *M. t. atriceps*; and thirdly *M. t. tuberculifer*, which occurs across much of northern South America and in eastern coastal Brazil. In addition to the need to better understand the relationships between the two populations of *M. t. atriceps*, which may require the naming of a new taxon, the authors also spotlight the apparent close association

between *M. tuberculifer* and Swainson's Flycatcher *M. swainsoni* as a priority for future research.

- Joseph, L. & Wilke, T. (2004) When DNA throws a spanner in the works: testing for monophyly in the Dusky-capped Flycatcher, *Myiarchus tuberculifer*, and its South American subspecies, *M. t. atriceps*. *Emu* 104: 197–204.

...and Rosy Thrush-tanager?

Based on analyses of morphology and mensural data the authors of a study pertaining to geographic variation in Rosy Thrush-tanager *Rhodinocichla rosea* recommend that the 4–6 allopatric populations of this species represent just one biological species, but potentially five phylogenetic species: namely *schistacea* (western Mexico), an unnamed population in the Acapulco region of Mexico, *eximia* (south-west Costa Rica and western Panama), *harterti* (the Venezuela/Colombia border region, and probably including *beebei*), and nominate *rosea* (central-north Venezuela). Geographic variation in this intriguing species forms two separate leapfrog patterns. The authors recommend that DNA sampling of all these taxa and the unnamed Mexican population be performed in the future.

- Peterson, A. T., Rice, N. H. & Navarro-Sigüenza, A. G. (2004) Geographic variation in the Rosy Thrush-tanager (*Rhodinocichla rosea*) complex of Mesoamerica (Aves: Passeriformes). *Biota Neotropica* 4 (2). See: www.biota-neotropica.org.br/v4n2/pt/toc

Relationships within the antbirds

A new mtDNA study has suggested some novel relationships amongst the antbirds, most importantly and surprisingly that the *Terenura* antwrens, Wing-banded Antbird *Myrmornis torquata*, Spot-winged Antshrike *Pygiptila stellaris* and Russet Antshrike *Thamnistes anabatinus* are sister to all other typical antbirds, whilst the remaining genera fall into two major clades. The first includes antshrikes, antvireos and *Herpsilochmus* antwrens, and the second comprises most antwren genera,

Myrmeciza antbirds, the 'professional' ant-following antbirds and allied species. The study also supported previous findings that suggested polyphyly of *Myrmotherula* antwrens and *Myrmeciza* antbirds.

- Irestedt, M., Fjeldså, J., Nylander, J. A. A. & Ericson, P. G. P. (2004) Phylogenetic relationships of typical antbirds (Thamnophilidae) and test of incongruence based on Bayes factors. *Evol. Biol.* 23. Published online at www.biomed-central.com/1471-2148/4/23.

A new genus of booby and a new condor from the Peruvian Pliocene

Cranial material pertaining to a new genus (*Ramphastosula*) of Sulidae has recently been described from the early Lower Pliocene of the Pisco Formation on the central-southern coast of Peru. The skulls differ in at least five features from other cranial material in the family. Similar deposits from the same area have also yielded a new fossil condor, named *Perugyps diazi*.

- Stucchi, M. & Urbina, M. (2004) *Ramphastosula* (Aves, Sulidae): a new genus from the early Pliocene of the Pisco Formation, Peru. *J. Vert. Paleontology* 24: 974–978.
- Stucchi, M. & Emslie, S. D. (2005) A new condor (Ciconiiformes, Vulturidae) from the late Miocene/early Pliocene Pisco Formation, Peru. *Condor* 107: 107–113.

A new Pleistocene furnariid

The Uruguayan Pleistocene has yielded a new species of fossil furnariid, named *Pseudoseiuropsis cuelloi*. Very few fossil furnariids are currently known, all of them from the Pleistocene, and this the third to be described within the extinct genus *Pseudoseiuropsis*. Two other extinct species have been ascribed to the extant genera *Cinclodes* and *Pseudoseisura*.

- Claramunt, S. & Rinderknecht, A. (2005) A new fossil furnariid from the Pleistocene of Uruguay, with remarks on nasal type, cranial kinetics, and relationships of the extinct genus

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Taxonomic Round-up

Pseudoseisuropsis. *Condor* 107: 114–127.

Is Socorro Wren a *Troglodytes*?

Currently placed in the genus *Thryomanes*, the Socorro Wren *T. sissonii* has long presented taxonomists with something of a quandary. A fresh interpretation of the species' relationships has been obtained through mtDNA sequence analysis, wherein Socorro Wren nestled phylogenetically within the House Wren species complex, being placed as sister to the clade containing *Troglodytes aedon* and *T. musculus*. Thus, the idea that Socorro Wren is a sister taxon of *Thryomanes bewickii* appears highly dubious, and available evidence suggests that it is best considered a *Troglodytes*.

- Martínez Gómez, J. E., Barber, B. R. & Peterson, A. T. (2005) Phylogenetic position and generic placement of the Socorro

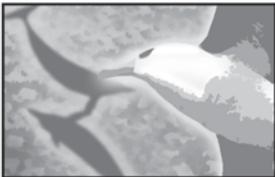
Wren (*Thryomanes sissonii*). *Auk* 122: 50–56.

Relationships in southern cone miners

The results of the first attempt to reconstruct a molecular phylogeny for the miners (*Geositta*) using mtDNA analysis have been reported recently. All currently recognised species of *Geositta*, as well as *Geobates poecilopterus* and two outgroup taxa (*Upucerthia ruficauda* and *Aphrastura spinicauda*), were included in the work. Levels of sequence divergence amongst *Geositta* species were high, ranging from 7.4% to 16.3%, and the results clearly indicate that relationships among *Geositta* species differ considerably from those traditionally recognised. The study also provided strong support for the recognition of *Geobates* as a separate genus, but the hypothe-

sised sister relationship between *G. antarctica* and *G. cunicularia* does not appear to be valid. *Geositta* apparently consists of two distinct clades, with *antarctica* and *cunicularia* in different groups. The results also strongly suggest that the evolutionary history of *Geositta* is much older and far more complex than had been thought.

- Cheviron, Z. A., Capparella, A. P. & Vuilleumier, F. (2005) Molecular phylogenetic relationships among the *Geositta* miners (Furnariidae) and biogeographic implications for avian speciation in Fuego-Patagonia. *Auk* 122: 158–174.



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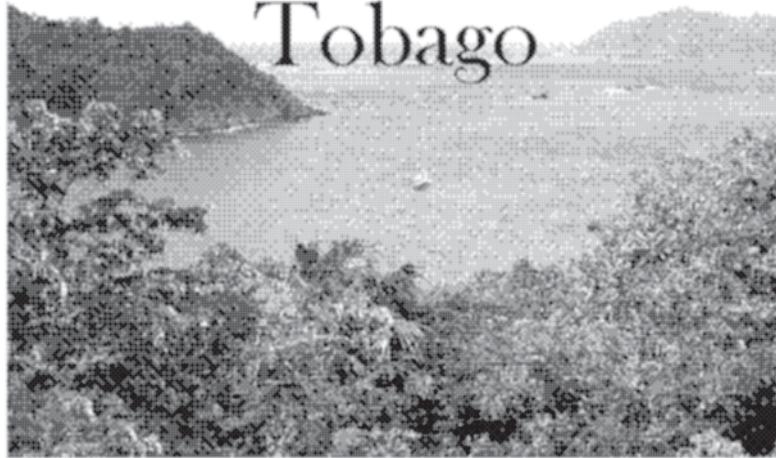
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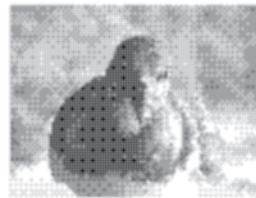
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New distributional information for some Colombian birds, with a new species for South America

Carl Downing

Cotinga 24 (2005): 13–15

El siguiente artículo publica las primeras observaciones de *Stelgidopteryx serripennis* en Colombia indicando su presencia en Suramerica. Además incluye extensiones de distribución y altitud de otras 21 especies que he observado en los últimos 11 años.

Here I present information on the first observations of Northern Rough-winged Swallow *Stelgidopteryx serripennis* in Colombia indicating its presence in mainland South America, plus notable range or altitudinal extensions and breeding information on a further 21 species observed during the last 11 years.

Glossy Ibis *Plegadis falcinellus*

A pair on 16 March 1996 was an exceptional record and probably the first for Laguna de Sonso, dpto. Valle. Subsequent visits demonstrated that the species has become increasingly common, with sightings in February 2000 outnumbering the usually commoner Whispering Ibis *Phimosus infuscatus*, although interestingly none was recorded on 4 September 2002. At least 20 were at Ciénaga Grande, dpto. Magdalena, on 17 September 2002. Since the publication of Hilty & Brown², this species has clearly increased dramatically in Colombia.

Rufous-necked Wood-rail *Aramides axillaris*

This species' status on the Pacific coast of Colombia is poorly known, with only a single record near Nuqui, dpto. Chocó². In Ecuador there is only one record for the north-west of the country⁷. On 13 July 1995 a single was observed in a tiny area of mangroves on El Morro Island, dpto. Nariño, the first departmental record. This area is directly adjacent to the major tourist beach on the island and is therefore extremely disturbed with habitation on all sides.

White-rumped Sandpiper *Calidris fuscicollis*

Three were observed among Least *C. minutilla* and Semipalmated Sandpipers *C. pusilla* in the Los Flamencos Sanctuary at Perico, dpto. La Guajira, on 13 September 2002. Hilty & Brown² suggested that the species is probably an uncommon spring and autumn migrant east of the Andes and that it is probably rare in the Caribbean region. The only previous reports from the latter region involved unconfirmed sightings at La Boquilla, dpto. Bolívar^{2,5}.

American Golden Plover *Pluvialis dominica*

An uncommon autumn migrant and rare winter visitor, American Golden Plover is also an extremely rare spring migrant, with records east of the Andes and a single to the west², and a recent record from Santa Marta¹⁰. An adult in winter plumage at Laguna de Sonso, dpto. Valle, on 23 March 1996 is, therefore, only the second spring record west of the Andes and the second at the site, the first being in August 1994³.

Southern Lapwing *Vanellus chilensis*

On 23 December 1995 and subsequent dates, an adult was observed below the village of Altaquer. This is the first Pacific slope record, and only the second for Nariño, the first being at Laguna de la Cocha in August 1995 (W. Beltrán pers. comm.).

Ring-billed Gull *Larus delawarensis*

A second-summer individual at Laguna de Sonso, dpto. Valle, on 10 March 2001 was the first departmental record and the first inland record in Colombia. Previous records included two reports from Buenaventura Bay, dpto. Valle² and a single in the Los Flamencos Sanctuary at Camarones, dpto. La Guajira⁴.

Elegant Tern *Sterna elegans*

Known in Colombia from a single record at Buenaventura, dpto. Valle². Until recently its regularity along the Pacific coast had been overlooked. Numerous sightings are now available and several specimens have been taken at Gorgona Island, dpto. Cauca (L. G. Naranjo pers. comm.). Its status in Ecuador, where it is now considered an uncommon to locally fairly common visitor to the entire coast, has also become better known recently⁷. On 5 January 1995 an adult winter was observed in Tumaco Sound among a small group of Royal Terns *S. maxima*, providing the first record for Nariño.

White-throated Quail-dove *Geotrygon frenata*

Unusually, a single was flushed from a track at 3,300 m in Ucumarí reserve, dpto. Risaralda, on 13 March 2001 and was then observed in a pasture. This record represents an altitudinal

extension in Colombia from 2,500 m, although it has also been recorded to 3,300 m in Ecuador^{2,7}.

Barn Owl *Tyto alba*

A single was observed at dusk below the village of Altaquer, dpto. Nariño, on 31 December 1994. This is only the second site where the species has been recorded on the Pacific slope of Nariño⁶.

White-chinned Swift *Cypseloides cryptus*

On numerous occasions between October 1994 and August 1995, on days with low cloud and showers, at Cali I observed low-flying swift flocks, which appeared late afternoon and chiefly comprised White-collared Swifts *Streptoprocne zonaris* and Chestnut-collared Swifts *Cypseloides rutilus*. They usually appeared between 16h00 and 18h00, and always disappeared before the first bats arrived over the Cauca Valley from their roosts. Suitable days for observing these flocks soon became predictable. My interest stemmed from a desire to find White-chested Swift *C. lemosi*, which I failed to find here at least¹. However, twice I found White-chinned Swift *C. cryptus* among the other swifts. Two were present on 4 December 1994, with three on 8 May 1995.

Chapman's Swift *Chaetura chapmani*

A single, loosely associated with White-tipped Swifts *Aeronautes montivagus*, was at Parque Chicaque, dpto. Cundinamarca, on 1 March 2000, and represents the first record for the East Andes of Colombia. Identification to subspecies level was not made at the time, although given the season it is probable that the austral migrant form *viridipennis* was involved (C. T. Collins pers. comm.).

Lesser Swallow-tailed Swift *Panyptila cayennensis*

This species' distribution in Colombia is surprisingly little known and sparse, given the ease with which it is identified. Until recently this swift's range was considered restricted to the Andean and Amazonian regions², but on 22–23 September 1998, at 200 m above Quebrada Valencia, dpto. Magdalena, c.5 birds were observed with Cliff Swallows *Petrochelidon pyrrhonota* and Chestnut-collared Swifts *Cypseloides rutilus*, and two were observed at 750 m above the Minca Road, Santa Marta, on 20 March 2001, providing the first evidence of its presence in Caribbean Colombia, although it has subsequently been noted at several sites in this region by Strewé & Navarro¹⁰.

Scaled Piculet *Picumnus squamulatus*

In Colombia, the species is known only from the south and west sides of the Santa Marta Mountains^{2,10}. On 18 March 2001 a family party (two adults and three immatures) was observed at

750 m at the Minca Road, in the north-west corner of the Santa Marta Mountains, dpto. Magdalena, and singles were seen on 14 September 2002 at 850 m and 950 m.

Hooded Antpitta *Gallarecula cucullata*

A single was observed singing in dense scrub within a forest clearing near the cabin at La Pastora, Ucumarí reserve, dpto. Risaralda (2,400 m), on 19 September 1998. This is the second reserve record, the first being one mist-netted a few months previously (W. Beltrán pers. comm.).

Snowy-throated Kingbird *Tyrannus niveigularis*

On 4 July 1996 a single was present below Altaquer, dpto. Nariño (1,000 m), only the second site for the species in Colombia². In Ecuador, its presence in the north-west is seasonal, as birds reach the area from further south, suggesting that the species is only present in Colombia as a non-breeding migrant (June–November)⁷. It must, however, be uncommon, as this is the only record I possess from this site in four years of observations at the appropriate season.

Northern Rough-winged Swallow

Stelgidopteryx serripennis fulvipennis

On 7 February 1996, together with Marion McAusland and Valerie Cooper at Laguna de Sonso, dpto. Valle, I noticed that several rough-winged swallows feeding over the río Cauca did not show the characteristic pale rump typical of Southern Rough-winged Swallow *Stelgidopteryx ruficollis*, but possessed uniform upperparts, with no obvious contrast between the rump, tail and mantle. In addition, the underparts were uniform pale brown, becoming whitish on the lower belly and vent, and lacked the orange tone to the throat, typical of *S. ruficollis*. We watched them feeding for c.15 minutes, and it was clear during the close views obtained that they were Northern Rough-winged Swallows *S. serripennis* of the Central American race *fulvipennis*. In total, I counted at least five amongst 10+ *S. ruficollis*, which were perched on a dead tree and flycatching over the river. On 4 September 2002 another two were observed feeding together over Laguna de Sonso. There has been some speculation as to the possible occurrence of the species in South America^{2,9,11}, with probably the best evidence to suggest that it could occur in the continent being sightings of what appeared to be transients in Central Panama⁸.

Indigo Bunting *Passerina cyanea*

A rare winter vagrant², thus two at 750 m and a single at 1,700 m on 18 March 2001 in the Santa Marta Mountains, dpto. Magdalena, are notable records for the country.

Pectoral Sparrow *Arremon taciturnus*

On 20 July 1995 an adult of the nominate race was identified at a forest border at San Cipriano (200 m), dpto. Valle. Given that this subspecies' known range lies east of the Andes, its occurrence here is highly unusual. A possible explanation is that it had escaped from cage-bird shipment out of the port of Buenaventura 15 km distant.

Yellow-rumped Warbler *Dendroica coronata*

On 16 March 1996 a first-summer female was at Laguna de Sonso, dpto. Valle, the first departmental record and only the third for Colombia^{2,9}. Its occurrence here is probably the most southerly for this species in South America.

Hooded Warbler *Wilsonia citrina*

On 23 March 1996 1–2 females were observed in shrubbery alongside Laguna de Sonso, dpto. Valle. Though frequently recorded in the Santa Marta region, especially in Tayrona National Park, dpto. Magdalena² (D. Gandy pers. comm.), there are no inland reports. My record represents the first for dpto. Valle.

Red-breasted Blackbird *Sturnella militaris*

Found to be common in pastures below Altaquer, dpto. Nariño, with the first record on 31 July 1993. Though predicted for Nariño, previous records near Barbacoas did not eliminate the possibility of Peruvian Meadowlark *Sturnella bellicosa*², making my sightings the first records for Nariño.

House Sparrow *Passer domesticus*

A female was observed on a rooftop in Altaquer, dpto. Nariño, on 23 August 1993. This is the first montane record for the species and the first away from its previously described range in the Pacific coastal towns of Tumaco, Guapi and Buenaventura.

Acknowledgements

I thank Dave Sewell, Jeremy Hickman, William Beltrán, Mauricio Florez, Sean Scanlon, Mark Piper, Sam Bosanquet, Rod McCann, Marion McAusland, Valerie Cooper and Nigel Goodgame for their company on my many trips to Colombia, and especially Humberto Alvarez-Lopez and his wife Maria for regularly inviting me to visit Laguna de Sonso and El 18 with them. Many thanks to Lucho Neira, from the Universidad del Valle, for organising permission for me to visit some sites.

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A new population of Cinnamon-breasted Tody-tyrant *Hemitriccus cinnamomeipectus* in Ecuador

Ana Ágreda, Jonas Nilsson, Luis Tonato and Hernando Román

Cotinga 24 (2005): 16–18

En febrero de 2004 llevamos a cabo una expedición a la meseta de Naytza, entre los valles de los ríos Zamora y Namangoza, provincia de Morona-Santiago, sur-oriente de Ecuador, durante la cual registramos a *Hemitriccus cinnamomeipectus* y localizamos nueve territorios a lo largo de un transecto de 5 km de longitud. Este registro representa la extensión del rango de una especie restringida y vulnerable 78 km hacia el noroccidente de Chinapintza, Cordillera del Cóndor, provincia de Zamora-Chinchipec, la única localidad previa en donde se había registrado esta especie en bajas densidades.

Cinnamon-breasted Tody-tyrant *Hemitriccus cinnamomeipectus* is endemic to the Cordillera del Cóndor region of south-east Ecuador and north-east Peru^{10,11}. The species was discovered as recently as 1976, above San José de Lourdes, dpto. Cajamarca, Peru, at 2,200 m⁴, and for some years was known only from the type locality, La Peca (dpto. Amazonas) and Abra Patricia (dpto. San Martín), at 1,800–2,200 m. In September 1990, during an expedition to Chinapintza, Zamora-Chinchipec province, the species was finally located in Ecuador⁵. Chinapintza, at 1,700 m, is an isolated montane ridge very close to the Peruvian border, with stunted forest resembling that at San José de Lourdes, although soils there comprise reddish-brown clay, gravel and sand⁸, instead of whitish sand as at the type locality, where soils are primarily quartz and sandstone³.

The species is considered rare within its very restricted range, although it is perhaps numerous in optimal habitat². Extensive searches for the species have been undertaken during recent decades in stunted forest within the cordilleras del Cóndor and Cutucú in Ecuador^{1,5,9,12,13}, but it was not recorded until recently, on a low-elevation ridge (Naytza) at the confluence of the ríos Namangoza and Zamora, Morona-Santiago province. Here we report in detail on the discovery of *H. cinnamomeipectus* at Naytza, at 1,592 m (02°59'S 78°18'W), 10 km south-east of General Leonidas Plaza, thus extending the species' range 78 km north-west from Chinapintza.

Forest at this elevation resembles that on the flat-topped mesetas of the Cordillera del Cóndor, on the east bank of the río Zamora¹. Vegetation at Naytza is sclerophyllous scrub, a habitat described by Foster & Beltrán⁶ for the tepui-like vegetation of the Cordillera del Cóndor. It is typically stunted, 3–5 m high, and has a dense, shrubby understorey. Forest canopy is sparse and uneven, but reaches 15 m. The presence of emergents like *Podocarpus* sp. and palms is characteristic, and the most common shrubs belong to Ericaceae, Clusiaceae,

Melastomataceae, Asteraceae and Lecythidaceae. A dense layer of moss, bromeliads and ferns covers the ground, and the presence of roots, vines and *Chusquea* bamboo in the understorey renders the forest relatively impenetrable. Orchid diversity is high in the undergrowth. Soil composition is mainly coarse sand and gravel, with a high proportion of silicates, limestone and quartz, and soils are poorly drained.

Results

The site was visited in February 2004 following a preliminary exploration of the area undertaken on 18–20 January 2004, during which we observed that habitat and soil composition closely resembled those of the Cordillera del Cóndor highlands that we were concurrently surveying. Thus, our main objective in February 2004 was to search for species found in the Cordillera del Cóndor. The study revealed an impoverished avifauna and a mixed composition of highland and low-elevation species inhabiting stunted forest. A total 67 species was recorded during 512 hours of mist-netting and four days of censuses along part of the trail (5.2 km). Total trail length was 6.9 km, crossing the top of the meseta in a south-east direction.

Hemitriccus cinnamomeipectus was initially recorded on 20 February 2004. We estimated nine territories along 5.2 km of trail. Four individuals were trapped in different mist-nets placed within the dense understorey. Two specimens were taken and deposited at Museo Ecuatoriano de Ciencias Naturales (MECN 3297, 3298), Quito, and aged as juveniles based on skull ossification, although plumage and soft-part coloration matched the adult description in Fitzpatrick & O'Neill⁴ and Ridgely & Greenfield¹⁰. They had olive-green upperparts, pale yellowish fringes to the tertials, cinnamon lores, eye-ring and ear-coverts, and a rich buffy breast grading into yellow over the rest of the underparts. Body moult was medium to heavy and the flight-feathers fresh. Mandible pink, not black as in other juveniles⁴. Stomachs contained parts of insects, but

these could not be identified. Plumage of the other individuals resembled adults, with no evidence of body moult and had faded primaries; no brood patches were observed.

Few data are available concerning the ecology of the species. We closely observed several individuals and sound-recorded their natural vocalisations. Birds foraged mostly alone or in pairs and once apparently within a mixed-species flock. Foraging behaviour was not quantified, but all the observations by JN were of individuals foraging in the understorey, 2–3 m above ground, and sometimes up to 4 m in the lower mid storey. Typically, *H. cinnamomeipectus* is curious of observers, making it easy to detect and follow for a short period, before disappearing into dense vegetation. The species forages in short horizontal movements, both hops and flights, gleaning the underside of leaves. Movements are fast, but birds tended to perch upright (c.75% vertical) on narrow bare branches. Two different vocalisations were identified: a short rattle *ddddrr-rt* and a loud high-pitched *squeéck* or *wheék*, repeated 3–4 times, with pauses of 4–10 seconds. These vocalisations are quite similar to those of Black-throated Tody-tyrant *H. granadensis pyrrhops*, although calls of the last are often longer and faster⁷. Once, JN identified the begging call of a fledgling accompanied by another bird, presumably an adult. Both foraged low in the understorey and were observed briefly before they disappeared in the dense vegetation. This vocalisation seemed higher pitched and faster than other calls. As we visited the study area during the rainy season, it is possible that birds had finished breeding.

Discussion

H. cinnamomeipectus is considered Near Threatened². It has a very restricted distribution on the ridges of the cordilleras del Cóndor and Colán in south-east Ecuador and northern Peru. Furthermore, Ridgely & Greenfield⁹ suggested that it might be treated as Vulnerable, a proposition with which we agree given the species' miniscule range. Population size is undetermined, although given the number of records at localities such as Abra Patricia, it has been suggested that the species is numerous in appropriate habitat². However, the species is rare in Ecuador, where known from only two sites: four specimens taken at Chinapintza, just west of the Peruvian border⁸, and the locality reported herein. At Chinapintza territory size was established as 15 m by just a few metres^{2,8}. In contrast, at Naytza we suggest that *H. cinnamomeipectus* has larger territories, given our counts of nine individuals over a transect of 5.2 km. However, estimating population size at the site is difficult as the species exhibited low to intermedi-

ate capture rates in comparison to the most abundant species (Speckled Hummingbird *Adelomyia melanogenys*, Sepia-brown Wren *Cinnycerthia olivascens* and Golden-eyed Flowerpiercer *Diglossopsis glauca*). Although natural vocalisations were not infrequent, all observers considered the species to be generally inconspicuous. The species responds vigorously to playback, as already noted by Krabbe & Sornoza⁸.

It has been suggested that the disjunct and restricted distribution of *H. cinnamomeipectus* corresponds to competitive interactions with *H. granadensis*^{2,8,10}. The subspecies *pyrrhops* of *H. granadensis* occurs at higher elevations on Andean slopes of south-east Ecuador (1,700–3,000 m)¹⁰ and also occurs on ridges of the Cordillera del Cóndor, where it has been recorded on both slopes above 2,000 m^{1,9,13}. Thus, the two species overlap in altitude and might share similar habitat preferences as they have been found in the same forest type in the Cordillera del Cóndor⁸. Furthermore, *H. granadensis* is syntopic with *H. cinnamomeipectus* at two localities, Abra Patricia and Chinapintza^{2,8}. It is presently unknown as to whether *H. granadensis* occurs at other Peruvian localities, e.g. San José de Lourdes, from where *H. cinnamomeipectus* has been recorded. We report the largest number of *H. cinnamomeipectus* to be found at a single locality, at which *H. granadensis pyrrhops* appears absent, which supports the proposition that the latter is the dominant species where the two are syntopic. Furthermore, that the apparently preferred habitat of *H. cinnamomeipectus*, sclerophyllous scrub on sandstone, is rare outside the Cordillera del Cóndor, may limit the species' presence elsewhere, e.g. in Cordillera of Cutucú. The absence of *cinnamomeipectus* at the latter is perhaps related to the presence of *H. granadensis*^{8,12} or might correspond to limited dispersal capabilities.

The new locality for *H. cinnamomeipectus* is a low-elevation ridge at 1,550–1,750 m and possesses a mixed avifauna of temperate and montane species. Other species, typical of the stunted forest of Cordillera del Cóndor, are absent, e.g. Rufous-headed Pygmy-tyrant *Pseudotriccus ruficeps*, Black-capped Tyrannulet *Phyllomyias nigrocapillus* and Orange-banded Flycatcher *Myiophobus lintoni*, which are primarily found above 1,900 m in the Cóndor region¹, and are also fairly common but local in montane forest at 2,200–3,300 m on the east slope of the Andes¹⁰. Their absence from the isolated Naytza ridge might also explain the presence of Cinnamon-breasted Tody-tyrant, given that some of these (e.g. *P. ruficeps*) can be numerous in dense undergrowth of montane forest. Further ecological studies are required to test these theories.

Given the limited ecological data for this species and its current conservation status, protecting the few known populations and promoting the conservation of these forests among local people can be considered priorities. One of the major threats we identified is silica mining, which is also the major threat at Chinapintza, where gold mining has been the principal economic activity since the late-20th century. However, the species' Peruvian populations are also threatened by deforestation², from which country no very recent information is available. Nothing is known of the species' dispersal capabilities, but its presence on the opposite bank of the río Zamora and on both banks of the río Marañón in Peru suggests that the main rivers of the Córdor region do not limit its distribution. Thus, continued searches for the species in ornithologically unexplored parts of the cordilleras del Córdor and Colán are also much needed.

Acknowledgements

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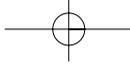
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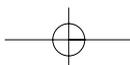
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Range extension for, and description of the juvenile of, Bicoloured Antvireo *Dysithamnus occidentalis punctitectus* in Ecuador

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En marzo de 2004 llevamos a cabo una expedición a la falda occidental de la Cordillera del Cóndor, específicamente a la region denominada San Carlos de Limón y San Pedro de Apondios, provincia de Morona-Santiago, sur-oriente de Ecuador, durante la cual registramos un individuo juvenil de *Dysithamnus occidentalis* y observamos el comportamiento de forrajeo de adultos de la misma especie en un bosque montano primario. Estos registros son los primeros de esta especie en la región de la Cordillera del Cóndor que corresponde a Ecuador y representan la extensión del rango de distribución 120 km al sur-oeste del Volcán Sumaco, provincia de Morona-Santiago, la última localidad donde se había registrado a esta especie. La descripción del plumaje del juvenil de *Dysithamnus occidentalis* era previamente desconocida hasta este reporte.

Bicoloured Antvireo *Dysithamnus occidentalis* is a rare bird with a scattered distribution from south-west Colombia to east Ecuador^{1,4,5}, and has recently been discovered in north-east Peru (D. Lane pers. comm.). The species' populations are apparently small and isolated, and there is some variation in morphological and vocal characters between populations². Consequently, the species' taxonomy is unclear. Pacific-slope populations in Colombia belong to nominate *occidentalis*, which is known from four localities and five specimens, including the type, collected at El Cocal at 1,200 m^{1,7}. In Ecuador, *D. o. punctitectus* is distributed east of the Andes, but a female presumed to be of nominate *occidentalis* was observed and tape-recorded on the west slope, at Reserva Cerro Golondrina (2,200 m), Carchi province². The five specimens from Oyacachi, Baeza and Volcán Sumaco, in the Ecuadorian east Andes, collected in the 1920s, are all adult *punctitectus* and are deposited at the American Museum of Natural History, New York (AMNH) and Natural History Museum, Tring (BMNH)^{1,7}. Recently, *punctitectus* has also been collected 180 km south-east of Volcán Sumaco on the río Abanico (1,500 m), in the region of Volcán Sangay, Morona-Santiago province². These specimens, an adult male and female, are deposited at Museo Ecuatoriano de Ciencias Naturales (MECN 7037, 7038), Quito.

Here we report the presence of *D. occidentalis punctitectus* on the west slope of the Cordillera del Cóndor, extending the species' range 120 km south-east of the most recently discovered Ecuadorian locality, on the opposite side of the río Zamora, Morona-Santiago province. This record is the second from this region since its discovery in Peru (D. Lane pers. comm.). In Ecuador, Bicoloured Antvireo was observed in a pristine montane forest in the foothills of the Cordillera del Cóndor, at 1,600–1,900 m. On 3–20 March 2004, we undertook avian surveys in that part of the Cordillera del

Cóndor at 03°14'S 78°20'W, at c.1,700 m, belonging to the district of San Carlos del Limon and the Shuar Community San Pedro de Apondios. The study area comprises primary forest selectively logged by local farmers in recent years. The resultant cleared areas possess a dense, 3–4 m-high understorey at forest borders and some early-successional vegetation. We also noted some natural light gaps within the forest.

Description of juvenile male Bicoloured Antvireo

A specimen, inferred from range as belonging to the subspecies *punctitectus* and currently deposited at MECN (8211), was mist-netted on 8 March within dense 2–3 m-high understorey inside riparian forest. It weighed 21.2 g. Mensural data from this specimen were compared with the adults deposited at MECN (Table 1). Wing chord was measured from the bend of the closed wing to the end of the longest primary, the culmen (1) from the tip of the bill to the forehead, and alternatively culmen (3) as from the tip of the bill to the distal part of the nostril, the longest rectrix from the body to the tip, and tarsus from the rear middle of the intertarsal joint to the distal edge of the last complete scale or the end of tarsal bone³. The specimen exhibited some body moult but none in the primaries. Age was determined by skull ossification and presence of bursa. Skull ossification was estimated as 40% and the whitish bursa measured 4.5 mm in diameter. The bird was a male having inconspicuous whitish testes of 1.9 mm. Soft-part colours (noted prior to preparation) were as follows: irides dark grey, tarsus dark grey and bill mainly black with a yellowish gape. Stomach content consisted of the remains of insects, but specific identification proved impossible.

Although the specimen was sexed as a male, it more closely resembled a female in plumage characters. It has a dark brown, almost rufescent, crown and forehead, and greyish nape. The

Table 1. Mensural data for specimens of Bicoloured Antvireo *Dysithamnus occidentalis* at the Museo Ecuatoriano de Ciencias Naturales (MECN), Quito, Ecuador.

MECN catalogue number	Sex	Age	Wing chord (mm)	Culmen 1 (mm)	Culmen 3 (mm)	Tarsus (mm)	Tail (mm)
7037	male	adult	73	18.2	11.5	23.5	57.6
7038	female	adult	70	17	10.3	23.6	59.9
8211	male	juvenile	71	17	10.5	23.7	60.6

upperparts, mantle and tail are primarily sooty grey with some rufous-brown feathering. The head-sides are dark grey with unstreaked throat-sides. The throat, breast and upper belly are uniform slate grey, slightly darker on the breast, but the flanks and lower belly are chestnut. Two distinct lines of round whitish terminal spots are present on the median and greater wing-coverts, and a conspicuous white patch on the innermost lesser wing-coverts. The fringes of the primaries and secondaries, as well as of the marginal-coverts, are chestnut. There is no concealed dorsal patch (*contra* Ridgely & Tudor⁵ and Ridgely & Greenfield⁴), as in adults at MECN, which also lack such a character. In contrast to the adult female deposited at MECN, the new specimen lacks chestnut coloration on the upperparts and the fine whitish striations on the throat, breast and underparts.

Field observations

On 10 March at c.17h30 and at an elevation of 1,850 m, JN briefly observed two parties of Bicoloured Antvireos. The first comprised a male, female and at least one additional, unsexed individual. The birds foraged rapidly 2–5 m above ground in the undergrowth, inspecting dead leaves and twigs within stands of vegetation interspersed by treefalls and open undergrowth. They were generally quiet, but vocalisations were described as a soft *puh-puh, puh*, as well as a faster rolling *tcheuw-uw-uw-uw, tcheuw-uw-uw-uw*. The first call is reminiscent of the natural vocalisations described by Whitney⁷ and, subsequently, by M. Lysinger in Ridgely & Greenfield⁴ as a short uninflected whistled note, given by birds in the Sumaco region. The second observation by JN of Bicoloured Antvireo was of a pair of adults foraging with an undergrowth mixed-species flock containing Pearled Treerunner *Margarornis squamiger*, Sepia-brown Wren *Cinnycerthia olivascens* and Russet-crowned Warbler *Basileuterus coronatus*. This observation differs from previous foraging behaviour, described by Whitney⁷, who observed the species primarily in pairs or alone, but did not reject the potential for participation in mixed-species flocks, as known for congeners.

In the same area we collected, and tape-recorded the natural vocalisations, of White-streaked Antvireo *Dysithamnus leucostictus*, representing the first records on the west side of

the Cordillera del Cóndor in Ecuador (the first records in this region are from Comainas⁶). The specimens are an adult male and juvenile male, which (much as the Bicoloured Antvireo described above) resembled a female in plumage characters. These specimens are smaller than Bicoloured Antvireo and, in contrast to the latter, exhibit whitish streaks on the head-sides and body. The presence of both species at the same locality and elevation is apparently indicative of the good forest state at this locality.

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La avifauna de la isla de La Plata, Parque Nacional Machalilla, Ecuador, con notas sobre nuevos registros

Diego Francisco Cisneros-Heredia

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Isla La Plata, in Machalilla National Park, is located 30 km off the Ecuadorian coast. It harbours 37 species of waterbirds and 34 landbirds. At least 17 species breed on the island and it is the only site in mainland Ecuador where Waved Albatross *Phoebastria irrorata*, Red-billed Tropicbird *Phaethon aethereus*, Nazca Booby *Sula granti* and Red-footed Booby *S. sula* nest. The *platensis* subspecies of Long-tailed Mockingbird *Mimus longicaudatus* is the only endemic bird taxon. Brown Booby *Sula leucogaster*, Cattle Egret *Bubulcus ibis*, Red Phalarope *Phalaropus fulicarius*, Ecuadorian Ground-dove *Columbina buckleyi*, Little Woodstar *Chaetocercus bombus* and Yellow-bellied Elaenia *Elaenia flavogaster* are reported on the island for the first time. La Plata harbours important biodiversity, necessitating the implementation of conservation, management and sustainable tourism plans, along with long-term monitoring studies of the fauna and flora.

La ornitofauna de la isla de La Plata ha sido poco estudiada. Los primeros registros de aves de la isla fueron publicados por Chapman⁶. Owre¹⁴ describió por primera vez la colonia de *Phoebastria irrorata* que anida en la isla, aunque desde mucho antes ya se conocía su presencia¹². Ortiz-Crespo & Agnew¹³ resumieron los datos obtenidos en la expedición de las universidades de Bristol y Católica del Ecuador (PUCE), junto con registros históricos y comparaciones con la avifauna del archipiélago de Galápagos, dando a conocer un total de 29 especies. En 1995, un grupo de estudiantes de la PUCE realizó observaciones sobre la fauna y flora de la isla, haciendo estimaciones del tamaño poblacional de la Fragata Magnífica *Fregata magnificens*¹. En 1999–2000, el Instituto de Ecología Aplicada (ECOLAP) de la Universidad San Francisco de Quito (USFQ) realizó estudios sobre la capacidad de carga de la isla, particularmente en relación a la población del Piquero Patiazul *Sula nebouxii* que anida en la isla y los efectos del turismo. Además, desde hace más de dos décadas, investigadores como R. S. Ridgely, F. Sornoza, S. N. G. Howell, R. Behrstock, J. Nowak, F. Sibley, B. Haase, P. Coopmans, T. de Vries y J. F. Freile han visitado esporádicamente la isla. El objetivo de este artículo es dar a conocer algunos datos obtenidos durante observaciones realizadas en junio del 2000, resumir datos de la literatura y presentar una lista de la avifauna de la isla de La Plata registrada hasta el momento.

Área de estudio y métodos

La isla de La Plata (01°16'S 81°03'W) se encuentra aproximadamente a 30 km de las costas de la provincia de Manabí, Ecuador. Esta isla tiene un área de 14,2 km² y su punto más alto alcanza los 167 m sobre el nivel del mar^{2,13}. La isla de La Plata es parte del Parque Nacional Machalilla y está oficialmente protegida dentro del Sistema Nacional

de Áreas Protegidas (SNAP). Desde 1990 fue declarada como Humedal Ramsar de Importancia Internacional junto al P. N. Machalilla y se ubica dentro del Área de Endemismo de Aves de la Región Tumbesina (EBA 045)¹⁶. Las costas están formadas en su mayor parte por altos acantilados, siendo la playa de Bahía Drake el único acceso para embarcaciones y donde se encuentra un antiguo hotel que ahora funciona como oficina y vivienda de guardaparques e investigadores. Desde este punto parten dos senderos que atraviesan Punta Palo Santo, Punta Machete, Punta Escalera y la Quebrada del Faro (obs. pers.).

La vegetación de la isla es básicamente xerofítica y se compone de aproximadamente 100 especies, de las cuales las más características son *Capparis* spp. (Capparaceae), *Prosopis juliflora* (Mimosaceae), *Bursera graveolens* (Burseraceae), *Croton rivinifolius* (Euphorbiaceae) y *Cordia lutea* (Boraginaceae), típicas de las formaciones del Matorral Seco Litoral y el Matorral Seco de Tierras Bajas^{2,7,8,13}. La capa vegetal de muchas áreas de la isla ha sido afectada por las cabras introducidas (*Capra hircus*). La población de cabras ha disminuido considerablemente, desde centenares de individuos¹³ hasta menos de una decena, gracias a esfuerzos por controlar su población realizados por las autoridades del P. N. Machalilla y ONG's (obs. pers. junio de 2000). La mastofauna terrestre de la isla es bastante reducida y predominan especies introducidas como cabras, Rata Negra *Rattus rattus*, Ratón Casero *Mus musculus* y Gato Doméstico *Felis silvestris*^{2,13}. Entre las especies nativas, se encuentra una especie de ratón (*Oryzomys* sp.) y una especie de murciélago (posiblemente de la familia Vespertilionidae)^{2,13}. Entre los mamíferos marinos se incluye una pequeña población del Lobo Marino de Galápagos *Zalophus californianus wollebaecki*^{2,13} y cerca de 11 especies de cetáceos que han sido registrados cerca

de la isla², siendo una de las especies más notables la Ballena Jorobada *Megaptera novaeangliae*, cuyos avistamientos atraen a cientos de turistas nacionales y extranjeros cada año. No existen anfibios en la isla por la ausencia de agua dulce (obs. pers.), pero se han registrado cinco especies de reptiles terrestres (*Ameiva edracantha*, *Microlophus occipitalis*, *Phyllodactylus reissii*, *Mastigodryas (Dryadophis) cf. melanolomus* y *Oxybelis aeneus*), y cinco especies de reptiles marinos (*Pelamis platurus*, *Chelonia mydas*, *Lepidochelys olivacea*, *Dermochelys coriacea* y *Eretmochelys imbricata*) (obs. pers.).

En junio del 2000 conduje algunas observaciones sobre la fauna de la isla de La Plata como parte del Proyecto 'Mediciones de la Diversidad Biológica en el Parque Nacional Machalilla: Componentes de Ornitofauna y Herpetofauna Terrestres', realizado por Fundación Natura, Ecuador. Las observaciones fueron principalmente llevadas a cabo en Bahía Drake, Punta Palo Santo y el sendero entre Punta Machete y Quebrada del Faro. La taxonomía, secuencia de especies y nombres comunes son utilizados de acuerdo a Ridgely & Greenfield¹⁵.

Resultados

Un total de 71 especies de aves, pertenecientes a 28 familias, se han registrado en la isla de La Plata; de las cuales por lo menos 17 son nidificantes (ver Apéndice). En total 37 especies son de hábitos acuáticos y 34 son terrestres. La familia mejor representada es Tyrannidae (tiranos y mosqueros) con ocho especies, seguida por Laridae (gaviotas y gaviotines) con siete especies, Scolopacidae (playeros y falaropos) con seis especies y Procellariidae (petreles y pardelas), Hydrobatidae (paíños) y Sulidae (piqueros) con cinco especies cada una. Se han reportado en la isla doce especies de aves que tienen alguna categoría de riesgo según la UICN, sea a escala global o nacional^{15,10} (ver Apéndice) y 15 especies que son consideradas endémicas de la región Tumbesina^{15,16}. La única especie de ave exótica que se ha registrado en la isla es *Passer domesticus*.

Recuento de especies

Albatros de Galápagos *Phoebastria irrorata*

Observé un individuo volando a 1 km de Punta Machete el 4 de junio del 2000. El primer registro de esta especie en la isla fue en 1924¹², aunque al parecer solo desde la década de los 60 se conoce la presencia de una colonia reproductora¹³, lo cual puede ser efecto de la falta de observaciones previas o reflejo de que el establecimiento de la colonia es reciente. Los albatros suelen anidar en el área de Punta Machete y su población fluctúa desde una

sola pareja hasta cerca de 15 parejas^{2,12-15}. Entre el 27 y 28 de julio del 2000, Anderson *et al.*³ encontraron tres individuos en la isla, pero no evidencias de reproducción. *P. irrorata* se reproduce en el ámbito mundial solamente en dos islas: Española y La Plata, siendo la isla Española (Galápagos, Ecuador) la que mantiene la colonia más numerosa y La Plata la única en el área continental. La época reproductora se extiende entre los meses de marzo a junio. Individuos se dispersan a lo largo del Pacífico en aguas oceánicas desde Panamá hasta Perú y Chile, los patrones de dispersión varían dependiendo de la condición reproductiva^{3,9,11,15}. Fernández *et al.*⁹ señalaron la ausencia de un incremento poblacional de esta especie en isla de La Plata, y expusieron dos hipótesis, que isla de La Plata es menos adecuada que isla Española para la reproducción de la especie, o que la población de La Plata fue extirpada con la presencia de humanos en la isla desde hace 1.200 años y que con la reciente protección de la isla por las autoridades gubernamentales, la población podría crecer. La especie fue clasificada en Ecuador como En Peligro¹⁰ y Vulnerable en el ámbito mundial⁵, si la segunda hipótesis es probada, la presencia de la población del albatros en isla de La Plata es un importante factor en la conservación de la especie.

Fragata Magnífica *Fregata magnificens*

La colonia reproductora de esta especie en la isla de La Plata (junto con la de isla Santa Clara, El Oro) es uno de los sitios de anidación más australes en el Pacífico sudamericano. El número de individuos reportados varía año tras año e incluso al parecer algunos años no anida¹³. Ortiz & Agnew¹³ registraron la presencia de 2.598 fragatas, mientras que Albuja & Muñoz² indican 1.345 individuos entre pichones, juveniles y adultos. En el 2000 observé un número cercano a 1.600 fragatas adultas, pero no se hicieron evidentes nidos o juveniles.

Piquero Patiazul *Sula neboxii*

Con una población de entre 1.000 y 3.000 individuos^{2,13,15}, es el ave más numerosa de isla de La Plata. Es posible encontrarla a lo largo de toda la isla y también en mar abierto entre la isla y el continente. Las colonias reproductoras de isla de La Plata e isla Santa Clara (El Oro) son las únicas dos colonias grandes reportadas en Ecuador continental¹⁵. Durante el periodo de observación se observaron algunas parejas anidando (c.12 en Punta Palo Santo y alrededores). En un caso se observó un nido atacado por gatos y dos polluelos muertos, y en dos casos se observó la depredación de huevos por parte del Gallinazo Cabecirrojo *Cathartes aura*.

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Piquero de Nazca *Sula granti*

La población de esta especie se ubica a lo largo de la costa sur de la isla. Hacia 1993 se registraron unos 400 pares¹⁵, para 1997 se estimó que existían unos 500 pares², mientras que en el 2000 registré cerca de 650 pares. Estos datos podrían indicar un crecimiento poblacional de la población en isla de La Plata, sin embargo, se deben realizar monitoreos para confirmar esta hipótesis.

Piquero Pardo *Sula leucogaster*

Un individuo adulto fue observado inicialmente a c.4 km fuera de la isla volando con dirección a Punta Palo Santo el 4 de junio del 2000. Seguí el ave hasta que llegó a los alrededores de la isla, en Bahía Drake. El ave fue observada tres veces cerca de la isla entre el 4 y 5 de junio del 2002, algunas veces en las cercanías de *S. neboxii* y *S. granti*. Ridgely & Greenfield¹⁵ clasificaron a esta especie como un 'visitante muy raro en aguas abiertas a lo largo de la costa del norte de Ecuador'. Las observaciones en la isla de La Plata fueron hechas cuidadosamente durante más de 15 minutos cada una con excelentes condiciones de luz. Las observaciones se realizaron junto a otros dos observadores, realizándose comparaciones *in-situ* tanto con adultos como juveniles de las tres especies de piqueros residentes en la isla con las cuales puede existir confusión. El individuo de *S. leucogaster* observado presentaba el característico vuelo de la especie y tenía claramente el dorso, la rabadilla, la cabeza, las superficies superiores de las alas y la cola de color café puro (en comparación con el cuello blanco en inmaduros de *Sula granti*, punta de la cola blanca en *S. neboxii* y *S. sula*, rabadilla blanca en inmaduros de *S. neboxii*); con el pico y patas amarillos; y el vientre, crismum y superficies inferiores de las alas de color blanco, lo que permitió rechazar la confusión con juveniles de las especies residentes de piqueros.

Piquero Patirrojo *Sula sula*

Dos juveniles y un adulto fueron observados volando en Punta Palo Santo el 5 de junio del 2000. La isla mantiene una pequeña población reproductiva de entre 10 y 30 individuos que se encuentra anidando en la zona de Punta Escalera^{13,14}. Esta colonia al parecer anida desde finales de los 80¹⁵ y es el sitio de anidación de esta especie más al sur en el Pacífico sudamericano.

Garceta Bueyera *Bubulcus ibis*

Tres individuos de esta especie fueron observados perchados en la vegetación de Punta Palo Santo el 5 de junio del 2000. Es el primer registro de esta especie en la isla, sin embargo dada su capacidad migratoria¹⁵, la presencia de esta garza en la isla era esperada.

Falaropo Rojo *Phalaropus fulicarius*

Un grupo de al menos seis individuos de esta especie fueron observados posados sobre el océano el 4 de junio del 2000 a unos 2 km de la isla. Se diferenció de las otras especies congénéricas (no registradas aun en La Plata) por poseer un pico ancho y dorso gris pálido uniforme.

Tortolita Ecuatoriana *Columbina buckleyi*

Dos individuos fueron observados en Punta Palo Santo el 5 de junio del 2000, alimentándose en un área casi desprovista de vegetación, excepto por algunos arbustos bajos y hierbas aisladas. Las primarias y cobertoras negras y el pico oscuro los diferenciaron de la Tortolita Croante *Columbina cruziana*. *C. buckleyi* es relativamente común en las áreas abiertas continentales del P. N. Machalilla; sin embargo, estas observaciones constituyen los primeros registros de esta especie en la isla de La Plata. *C. cruziana* es, por mucho, la especie más común de tórtola en la isla.

Estrellita Chica *Chaetocercus bombus*

Dos individuos de esta especie fueron observados el 4-5 de junio del 2000 forrajeando en la vegetación del sendero (que estaba particularmente florecida) cerca al antiguo hotel. Un macho estaba forrajeando a 3 m sobre el suelo en una área de arbustos densos. El otro colibrí era una hembra encontrada a 300 m del hotel, alimentándose en flores a 5-6 m sobre el suelo en una zona donde la vegetación se tornaba más cerrada y alta. Esta especie es categorizada como Rara o quizás localmente (estacionalmente?) poco común y sus registros son bastante localizados en el occidente del Ecuador¹⁵. Los dos ejemplares de *C. bombus* fueron observados por más de 30 minutos con buenas condiciones de luz y a una distancia entre 3-8 m. En la isla de La Plata se han reportado dos especies más de colibríes con las que podría existir confusión, el único colibrí residente (aparentemente) es la Estrellita Colicorta *Myrmia micrura*, existiendo además un reporte de la rara y errante Estrellita Esmeraldeña *Chaetocercus berlepschi*⁴. El macho de *C. bombus* observado en la isla de La Plata se diferenció de los machos de las otras dos especies por poseer un collar de color café-anaranjado claro (blanco en *C. berlepschi* y *M. micrura*) y la cola más larga que *M. micrura*, mientras que la hembra se caracterizaba por tener la garganta, pecho y vientre de color café-anaranjado claro (blanquecino en hembras de *C. berlepschi* y *M. micrura*) y la cola de igual color pero con una banda subterminal negra (cola blanca en *C. berlepschi* y mucho más corta en *M. micrura*). Ambos individuos de *C. bombus* tenían un vuelo mucho más suave que el de *M. micrura*. Un macho de *M. micrura* mostró un comportamiento

territorial agresivo contra el macho de *C. bombus* y, como resultado de estas confrontaciones, el macho de *C. bombus* fue expulsado dos veces del área que ocupaba. La proporción de individuos de *M. micrura* y *C. bombus* observados fue de 8:1, notándose que muchas veces había concentraciones de individuos de *M. micrura* en sitios con alta floración. No se observó ningún despliegue por parte del macho de *C. bombus* (al contrario de *M. micrura*) y no se registró ningún individuo de *C. berlepschi*. Esta especie es considerada como Vulnerable^{5,10}.

Elenia Penachuda *Elaenia flavogaster*

Algunos individuos fueron observados en repetidas ocasiones forrajeando en los arbustos alrededor de Bahía Drake (tres individuos) y en el Sendero Machete (uno o dos) entre el 4 y 5 de junio del 2002. Los individuos de esta especie se caracterizaban por la presencia de una cresta prominente mostrando una mancha blanca, dorso café, garganta grisácea, vientre amarillo (vientre blanco o blanco grisáceo en el simpátrico Tiranolete Grisblanco *Pseudelaenia leucospodia*) y dos barras alares blanquecinas (ausentes en *P. leucospodia*). Además, eran claramente más grandes que *P. leucospodia*. Estas observaciones constituyen los primeros registros en la isla.

Vireo Ojirrojo *Vireo olivaceus*

Observé 2–3 individuos en los arbustos detrás del antiguo hotel, y otros más en los senderos cercanos al mismo. Fue reportado por P. Coopmans¹⁵ como ocasionalmente común y quizás se reproduce en la isla.

Sinsonte Colilargo de La Plata *Mimus longicaudatus platensis*

Hasta el momento, de todas las aves residentes en la isla, solo la población del *M. l. platensis* se ha descrito como una subespecie endémica de la isla, debido esencialmente a su mayor tamaño¹⁵. A pesar de la presencia de gatos (*Felis silvestris*), ratas (*Rattus* spp.) y ratones (*Mus musculus*) en la isla, la población de esta subespecie endémica parece estar en relativas buenas condiciones y repartida a lo largo de toda la isla. Sin embargo, registré evidencia de dos ataques al sinsonte por parte de gatos ferales que estaban consumiendo cadáveres de esta especie.

Gorrión Europeo *Passer domesticus*

Esta es la única especie exótica que se ha registrado en la isla. La población es aún pequeña y restringida a los alrededores del antiguo hotel (no se observó que se disperse más allá de Bahía Drake). Mantiene una población reproductiva en isla de La Plata; se observaron durante el período

de permanencia en la isla al menos cinco juveniles en los arbustos alrededor del hotel. El Pinzón Gorgeador Collarejo *Poospiza hispaniolensis* también forrajeaba en las cercanías del hotel (alimentándose de los restos de comida dejados por los turistas) y en algunas ocasiones se observaron comportamientos agresivos entre las dos especies.

Relevancia

La región Tumbesina ha sido muy afectada por la destrucción de la vegetación, la cacería excesiva, el tráfico de especies, la contaminación y otros factores que hacen peligrar la permanencia a largo plazo de la biodiversidad de esa región. Pocos sitios bajo protección legal en la región mantienen poblaciones representativas y viables de la flora y fauna, siendo el P. N. Machalilla actualmente uno de los últimos remanentes de tamaño considerable de bosque seco de la costa central ecuatoriana (otros se encuentran en Loma Alta, Cerro Blanco y Manglares-Churute). La isla de La Plata es parte de este parque y, de acuerdo a los datos presentados en este artículo, mantiene una diversa comunidad de aves tanto de especies marinas como terrestres tomando en consideración su pequeño tamaño y alterada vegetación. Este estudio incluye todos los registros que al momento se conocen de aves de la isla; sin embargo, mayores observaciones e investigaciones seguramente completarán el inventario de especies. Es posible, por ejemplo, que ciertas especies de aves marinas adicionales estén presentes en La Plata, incluso anidando en la misma (Procellariidae e Hydrobatidae). Además, existen algunas aves terrestres que a pesar de no mantener poblaciones residentes, tienen movimientos migratorios que incluyen a la isla o llegan ocasional a la isla (como es el caso de la Tangara Negriblanca *Conothraupis speculigera*). Para muchas especies de aves marinas, La Plata es un sitio importante de anidación en Ecuador continental (*Fregata magnificens*, *Sula nebouxii*, *Sula sula*) y es uno de los pocos sitios donde se pueden encontrar con relativa facilidad ciertas aves endémicas terrestres de la región Tumbesina, como *Pseudelaenia leucospodia* y *Poospiza hispaniolensis*. La isla de La Plata podría tener un papel clave en la conservación de *Phoebastria irrorata* pero se necesita establecer protocolos de monitoreo que permitan determinar su real estado poblacional y variaciones a lo largo del año (ver Anderson *et al.*³). Los registros ocasionales de aves en peligro de extinción como *Chaetocercus bombus*, *C. berlepschi* o *Leptotila ochraceiventris* podrían indicar que a pesar de no mantener poblaciones permanentes en la isla, esta es un sitio de dispersión en épocas de cambios ambientales; aunque también podrían ser solamente registros accidentales, por lo cual es de extrema importancia realizar monitoreos están-

darizados en el área que permitan determinar su relevancia en términos de la conservación de estas especies. Por todas estas razones, es necesario y urgente que se implementen planes de conservación y manejo de la isla, que tomen en cuenta su particular avifauna terrestre y marina y los retos que presenta al ser un destino turístico de importancia. La extirpación de especies introducidas y la restauración de la vegetación original, junto a estudios de monitoreo a mediano y largo plazo de la fauna y flora así como del impacto ambiental de las actividades turística y pesquera son algunos de los aspectos más importantes a considerar.

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Apéndice I. Aves registradas en la isla de La Plata, Parque Nacional Machalilla, provincia de Manabí, Ecuador.

Clave: este lista fue compilada sobre la base de los registros de: Albuja & Muñoz² (AM); Becker et al.³ (BE); D.-F. Cisneros-Heredia obs. pers. (DC); Ortiz-Crespo & Agnew¹² (OA); Ridgely & Greenfield¹⁴ (RG); Rob Williams (RW) / Juan Freile (JF), información de la Base de Datos de las Aves del Mundo (WBDB), CECIA/BirdLife Internacional; Tickell, W. N. L., Univ. Bristol, UK (TB). Simbología utilizada corresponde a: ** = nidificante en la isla de La Plata, @ = endémica de la región Tumbesina. La

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clasificación según las categorías de riesgo de UICN consta de dos casillas '(1)/(2)'. La primera es la clasificación nacional según (1) Granizo et al.⁹ seguida por la clasificación a escala mundial según (2) BirdLife International⁵. Las categorías son: En Peligro (EN), Vulnerable (VU), Casi Amenazado (NT), Datos Insuficientes (DD). Cuando la especie no consta bajo una categoría de peligro en una de las listas, se señala con '0'.

Phoebastria irrorata Albatros de Galápagos **AM, OA, RG, DC
EN/VU

Pterodroma phaeopygia Petrel Lomioscuro ^{RG} **CR/CR**

Procellaria parkinsoni Petrel de Parkinson ^{RW} **0/VU**

Puffinus creatopus Pardela Patirrosa ^{RW} **0/VU**

Puffinus griseus Pardela Sombria ^{RW} **0/NT**

Puffinus lherminieri Pardela de Audubon ^{RG}

Oceanites oceanicus Paíño de Wilson ^{RG}

Oceanites gracilis Paíño Grácil ^{OA, RG} **0/DD**

Oceanodroma tethys Paíño Danzarín ^{RG}

Oceanodroma melania Paíño Negro ^{RW}

Oceanodroma homochroa Paíño Cinéreo ^{RG} **0/EN**

Phaethon aethereus Rabijunco Piquirrojo **AM, DC, OA, RG

Fregata magnificens Fragata Magnífica **AM, DC, OA, RG

Sula neboxii Piquero Patiazul **AM, DC, OA, RG

Sula variegata Piquero Peruano ^{RG}

Sula granti Piquero de Nazca **AM, DC, OA, RG

Sula leucogaster Piquero Pardo ^{DC}

Sula sula Piquero Patirrojo **AM, DC, OA, RG

Phalacrocorax brasilianus Cormorán Neotropical ^{DC, OA, RG}

Pelecanus occidentalis Pelicano Pardo ^{AM, DC, OA, RG}

Pelecanus thagus Pelicano Peruano ^{RG}

Ardea cocoi Garzón Cocoi ^{OA}

Butorides striatus Garcilla Estriada ^{OA}

Bubulcus ibis Garceta Bueyera ^{DC}

Cathartes aura Gallinazo Cabecirrojo **AM, DC, OA, RG

Pandion haliaetus Aguila Pescadora ^{AM, OA}

Ictinia plumbea Elanio Plomizo ^{OA, RG}

Buteo polyosoma Gavián Variable ^{RG}

Falco peregrinus Halcón Peregrino ^{AM, OA} **VU/0**

Heteroscelus incanus Playero Vagabundo ^{OA}

Catoptrophorus semipalmatus Vadeador Aliblanco ^{RW}

Actitis macularius Andarríos Coleador ^{OA}

Numenius phaeopus Zarapito Trinador ^{RW, F}

Aphriza virgata Rompientero ^{RW}

Phalaropus fulicarius Falaropo Rojo ^{DC}

Larus modestus Gaviota Gris ^{RG}

Larus dominicanus Gaviota Dominicana ^{TB}

Larus atricilla Gaviota Reidora ^{TB}

Sterna maxima Gaviotín Real ^{RW}

Sterna elegans Gaviotín Elegante ^{RW}

Sterna hirundo Gaviotín Común ^{RW}

Sterna anaethetus Gaviotín Embridado ^{RG}

Leptotila ochraceiventris Paloma Ventriocrácea ^{RG} **EN/VU** @

Zenaida auriculata Tórtola Orejuda ^{OA}

Columbina buckleyi Tortolita Ecuatoriana ^{DC} @

Columbina cruziana Tortolita Croante **AM, DC, OA, RG

Forpus coelestis Periquito del Pacífico ^{RW} @

Crotophaga sulcirostris Garrapatero Piquiestriado ^{OA}

Anthracothorax nigricollis Mango Gorjinegro ^{RG}

Myrmia micrura Estrellita Colicorta **AM, DC, OA, RG @

Chaetocercus bombus Estrellita Chica ^{DC} **VU/VU** @

Chaetocercus berlepschi Estrellita Esmeraldeña ^{BE} **EN/EN** @

Pseudelaenia leucospodia Tiranolete Grisiblanco **DC, RG @

Elaenia flavogaster Elenia Penachuda ^{DC}

Euscarthmus meloryphus Tirano Enano Frentileonado **RG

Contopus punensis Pibí de Tumbes **RG @

Pyrocephalus rubinus Mosquero Bermellón ^{AM, OA, RG}

Muscigalla brevicauda Tiranito Colicorta **AM, OA, RG @

Tyrannus melancholicus Tirano Tropical ^{RW}

Tyrannus niveigularis Tirano Goliníveo ^{RG} @

Vireo olivaceus Vireo Ojirrojo **DC, RG

Mimus longicaudatus platensis Sinsonte Colilargo **AM, DC, OA, RG @

Progne chalybea Martín Pechigris ^{RW}

Troglodytes aedon Soterrey Criollo **AM, OA, RG

Conothraupis speculigera Tangara Negriblanca ^{RG} **0/NT**

Pheucticus chrysogaster Picogrueso Amarillo Sureño ^{AM, DC, OA}

Rhodospingus cruentus Pinzón Pechicarmesí ^{RG} @

Sporophila peruviana Espiguero Pico de Loro ^{RG} @

Poospiza hispaniolensis Pinzón Gorgeador Collarejo **AM, DC, OA, RG @

Sturnella bellicosa Pastorero Peruano ^{OA, RG}

Passer domesticus Gorrión Europeo ^{OA, DC}

Composition of mixed-species flocks of migrant and resident birds in Cuba

Paul B. Hamel and Arturo Kirkconnell

Cotinga 24 (2005): 28–34

La Chillina *Teretistris fernandinae* y el Pechero *T. fornsi* constituyen un género endémico de aves cubanas que se caracterizan por su comportamiento de bandadas. Durante el período de invierno ciertas especies migratorias y residentes se unen a éstas especies para formar bandadas mixtas. En este trabajo documentamos el número de especies y enumeramos el total de individuos en 230 bandadas mixtas en bosques manejados del oeste de Cuba y en matorral costero del norte de la isla. Documentamos un total de 30 especies residentes y 26 especies migratorias en bandadas. Nuestros resultados resaltan la importancia que juegan las dos especies de *Teretistris* en las bandadas mixtas en Cuba. También documentamos que la participación de especies residentes es menor que la de migratorias en las bandadas mixtas. El fenómeno de bandadas mixtas es un componente importante del ciclo anual para especies migratorias, en especial los parúlidos.

Mixed-species flocks are common and obvious in Neotropical habitats. In the Caribbean islands flocks have been noted on Puerto Rico^{2,5,24,29}, Jamaica⁴, Haiti²⁰, in the Dominican Republic¹⁸, the Virgin Islands⁷ and on Cuba^{6,16}. Unlike other islands, however, such flocks have not been described in detail for Cuba. One previous report treated mixed-species flocks of migratory wood warblers in Cuba¹⁶.

Cuba is an important wintering area for Nearctic–Neotropical migrant birds (hereafter ‘migrants’)^{11,16,30,31}. With 50% of the total land area in the Caribbean, the island offers the largest wintering area for migrants. Cuban avifauna contains 24 endemic species¹⁰, two of which, Yellow-headed Warbler *Teretistris fernandinae* and Oriente Warbler *T. fornsi*, appear to be species around which mixed-species flocks often form. The behavioural ecology of these species has been little studied^{9,26}, and their taxonomic relations to wood warblers (Parulidae) are also uncertain¹⁹. Eaton⁶ did not recognise *Teretistris* spp. as flock associates. Our objectives here are to: document the composition of mixed-species flocks in Cuba; describe the contribution of migratory and resident birds to flock composition; and to assess associations among species within flocks.

Methods

Study areas

We studied flocks in Ciego de Ávila province, on the north coast of Cuba, in Matanzas province, in the south, and noted their presence in Pinar del Río province, in the west (Fig. 1). Kirkconnell counted flocks at study sites on Cayo Coco, Ciego de Ávila province. He also tallied flocks at several localities in the Península de Zapata, Matanzas province: at Bermejas, El Ojo del Roble, Guamá, Los Lechuzos, Los Sábalo, Mera, Playa Larga and Santo Tomás;

and he gathered data on composition of flocks at La Güira and La Majagua, Pinar del Río province, in western Cuba.

Hamel and colleagues counted flocks at study sites in the Península de Zapata, Matanzas province: at Bermejas, Caleta Buena, Caleta del Toro, Camilo, El Cenote, El Brinco, El Ojo del Roble, La Salina, Lindero, Linea de Quintela, Los Canales, Los Gallegos, Los Lechuzos, Los Sábalo, Mera, Placencia and Santo Tomás.

Habitats

We studied flocks in several habitats, including mixed woodland and pastureland, xeric semi-deciduous forest, mesic semi-deciduous forest, moist semi-deciduous forest transitional to freshwater mangrove forest, mangrove forest, and coastal scrub. Brief observations in Pinar del Río province included also montane mixed pine–semi-deciduous forest. Habitats in the localities are described in González Alonso *et al.*¹¹, McNicholl²¹

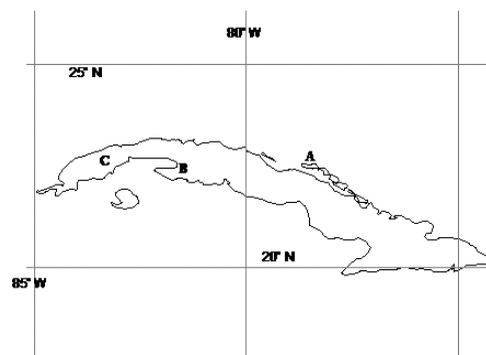


Figure 1. Location of study areas of mixed-species flocks in Cuba: A—Cayo Coco, Ciego de Ávila province; B—Península de Zapata, Matanzas province; C—La Güira, Pinar del Río province.

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Table 1. Composition of 230 mixed-species flocks of birds in Cuba.

Species		Province and Sample size		
		Ciego de Ávila 26 flocks	Matanzas 202 flocks	Pinar del Río 2 flocks
		Mean number of birds/flock ± s.e., number of flocks		
American Kestrel	<i>Falco sparverius</i>	-	1, n=1	-
White-crowned Pigeon	<i>Patagioenas leucocephala</i>	1.5±0.29, n=4	-	-
White-winged Dove	<i>Zenaida asiatica</i>	-	1, n=1	-
Common Ground-dove	<i>Columbina passerina</i>	1±0, n=2	-	-
Cuban Parrot	<i>Amazona leucocephala</i>	-	1, n=1	-
Great Lizard-cuckoo	<i>Saurothera merlini</i>	2, n=1	2, n=1	-
Cuban Pygmy-owl	<i>Glaucidium siju</i>	-	1±0, n=2	-
Cuban Emerald	<i>Chlorostilbon ricordii</i>	-	1.07±0.07, n=15	1, n=1
Cuban Trogon	<i>Priotelus temnurus</i>	-	1.17±0.11, n=12	1, n=1
Cuban Tody	<i>Todus multicolor</i>	1.75±0.48, n=4	1.06±0.06, n=17	-
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	1, n=1	1±0, n=4	-
Cuban Green Woodpecker	<i>Xiphidiopicus percussus</i>	1.67±0.33, n=3	1±0, n=7	-
Northern Flicker	<i>Colaptes auratus</i>	-	1, n=1	-
Cuban Pewee	<i>Contopus caribaeus</i>	1±0, n=3	1.03±0.03, n=35	-
La Sagra's Flycatcher	<i>Myiarchus sagrae</i>	1±0, n=3	1.37±0.09, n=30	1, n=1
Loggerhead Kingbird	<i>Tyrannus caudifasciatus</i>	1.5±0.5, n=2	1.17±0.11, n=12	-
Blue-grey Gnatcatcher	<i>Poliophtila caerulea</i>	-	1.45±0.09, n=92	-
Cuban Gnatcatcher	<i>Poliophtila lembeyi</i>	1±0, n=2	-	-
Red-legged Thrush	<i>Turdus plumbeus</i>	1.33±0.33, n=3	1.3±0.3, n=10	1, n=1
Grey Catbird	<i>Dumetella carolinensis</i>	1, n=1	1.08±0.08, n=12	-
Northern Mockingbird	<i>Mimus polyglottos</i>	1, n=1	1, n=1	-
White-eyed Vireo	<i>Vireo griseus</i>	-	1±0, n=2	-
Cuban Vireo	<i>Vireo gundlachii</i>	1±0, n=2	1.2±0.06, n=50	-
Yellow-throated Vireo	<i>Vireo flavifrons</i>	-	1.14±0.14, n=7	-
Black-whiskered Vireo	<i>Vireo altiloquus</i>	1±0, n=2	1.14±0.14, n=7	2, n=1
Blue-winged Warbler	<i>Vermivora pinus</i>	1, n=1	1±0, n=2	-
Northern Parula	<i>Parula americana</i>	1.33±0.33, n=3	2.59±0.22, n=128	2±1, n=2
Yellow Warbler	<i>Dendroica petechia gundlachi</i>	-	1.67±0.67, n=3	-
Magnolia Warbler	<i>Dendroica magnolia</i>	1, n=1	1.06±0.04, n=34	-
Cape May Warbler	<i>Dendroica tigrina</i>	1.67±0.33, n=3	1.1±0.1, n=10	-
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	1±0, n=5	1.16±0.06, n=56	1, n=1
Black-throated Green Warbler	<i>Dendroica virens</i>	-	1.18±0.1, n=17	1, n=1
Blackburnian Warbler	<i>Dendroica fusca</i>	-	1, n=1	-
Yellow-throated Warbler	<i>Dendroica dominica</i>	1.5±0.5, n=2	1±0, n=8	-
Olive-capped Warbler	<i>Dendroica pityophila</i>	-	-	1, n=1
Prairie Warbler	<i>Dendroica discolor</i>	1.5±0.5, n=2	1.12±0.07, n=41	-
Palm Warbler	<i>Dendroica palmarum</i>	2.4±0.51, n=5	3.5±0.73, n=22	3±0, n=2
Black-and-white Warbler	<i>Mniotilta varia</i>	1±0, n=4	1.37±0.09, n=87	1, n=1
American Redstart	<i>Setophaga ruticilla</i>	1±0, n=3	1.26±0.06, n=96	-
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	1±0, n=2	1±0, n=20	1, n=1
Swainson's Warbler	<i>Limnithlypis swainsonii</i>	1, n=1	-	-
Ovenbird	<i>Seiurus aurocapillus</i>	1±0, n=4	1±0, n=10	-
Northern Waterthrush	<i>Seiurus noveboracensis</i>	1, n=1	1.8±0.37, n=5	-
Louisiana Waterthrush	<i>Seiurus motacilla</i>	-	2±1, n=2	-
Common Yellowthroat	<i>Geothlypis trichas</i>	1±0, n=2	1.4±0.17, n=25	-
Yellow-headed Warbler	<i>Teretistris fernandinae</i>	-	3.22±0.13, n=166	3, n=1
Oriente Warbler	<i>Teretistris forsi</i>	2.55±0.45, n=11	-	-
Hooded Warbler	<i>Wilsonia citrina</i>	-	1±0, n=4	-
Wilson's Warbler	<i>Wilsonia pusilla</i>	-	1, n=1	-
Red-legged Honeycreeper	<i>Cyanerpes cyaneus</i>	-	1, n=1	-
Western Spindalis	<i>Spindalis zena</i>	1.83±0.4, n=6	1±0, n=10	-
Cuban Bullfinch	<i>Melopyrrha nigra</i>	1.67±0.33, n=3	1.63±0.27, n=19	-
Yellow-faced Grassquit	<i>Tiaris olivacea</i>	1, n=1	2.08±0.45, n=12	-
Tawny-shouldered Blackbird	<i>Agelaius humeralis</i>	-	4, n=1	-
Greater Antillean Grackle	<i>Quiscalus niger</i>	1±0, n=2	2.5±0.5, n=2	-
Greater Antillean Oriole	<i>Icterus dominicensis</i>	-	1.33±0.12, n=24	-
Total Species	56	35	50	13
Mean flock size, species	5.38±0.2, n=230	3.69±0.29, n=26	5.58±0.22, n=202	7.5±2.5, n=2
Mean flock size, individuals	9.26±0.38, n=230	5.46±0.49, n=26	9.73±0.41, n=202	12±1, n=2

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and Wallace *et al.*³¹. Briefly, they can be characterised as a wide variety of native, primarily second-growth forests, grazed native forests and some highly modified habitats in the vicinity of tourist resorts and inhabited areas. Prominent tree species in most localities included *Bucida burseras*, *Bursera simaruba* and *Lysiloma latisiliquum*; *Ceiba pentandra*, *Conocarpus erecta* and *Sabal parviflora* were also noticeable, among a variety of other species. Stature of the vegetation in these localities was usually less than 20 m.

Field methods

We observed mixed-species flocks while walking trails and transects, both specifically searching for flocks, and as supplementary observations during other work¹¹. Observations were made primarily during the boreal winter when migrants are present on Cuba, in January 1987–89 and 1992, February 1989, 1991, 1992, and March 1989. Additional observations were made in September 1988 and April 1989. Upon encountering a flock, we followed it and observed as many constituents as possible¹³. We recorded numbers of individuals, by age and sex when possible, of each species encountered. Individuals within c.20 m of other birds were considered to be within a flock, thus our

tallies indicate both active and passive participants.

Because we concentrated on flocks, we did not systematically record the occurrence of solitary individuals of *Teretistris* spp., or of other species. Our data are thus useful as a characterisation of obvious flocks, but not necessarily a characterisation of the tendency of each species to flock. To assess the latter, we compared the frequency of occurrence of species in flocks with that in point counts¹⁵ made at the same study site, at Los Sábalos in the Ciénaga de Zapata, Matanzas province¹¹.

Statistical analysis

Flock composition. We summarised information on the size and species composition of flocks and the frequency of occurrence and abundance of each species within flocks. We conducted correlation analyses of abundance of the most frequent species, χ^2 contingency table analyses of occurrence of less frequent species in relation to more abundant species.

Occurrence on point counts vs flocks. Sufficient numbers of point counts¹⁵ for statistical comparison of flock participation with occurrence on point

Table 2. Significant associations among species in mixed-species flocks in Cuba, after Bonferroni correction. Associations determined between abundance of individuals recorded in 230 flocks, measured by r ; and frequency of occurrence in flocks, measured by χ^2_1 from 2 \leftrightarrow 2 contingency table. Values reported are those whose $P < 0.0002$ for abundance and $P < 0.0003$ for frequency of occurrence.

Species	Associates ^a	r	χ^2_1
<i>Dumetella carolinensis</i>	<i>Vireo altiloquus</i>	0.28	ns
<i>Polioptila caerulea</i>	<i>Contopus caribaeus</i>	ns	12.7
	<i>Dendroica magnolia</i>	ns	15.5
	<i>Dendroica caerulescens</i>	ns	18.1
	<i>Polioptila caerulea</i>	0.40	24.8
<i>Parula americana</i>	<i>Mniotilta varia</i>	0.47	18.4
	<i>Setophaga ruticilla</i>	0.26	ns
	<i>Polioptila caerulea</i>	0.24	ns
<i>Setophaga ruticilla</i>	<i>Vireo gundlachii</i>	ns	15.5
	<i>Dendroica discolor</i>	0.30	ns
	<i>Dendroica caerulescens</i>	0.24	12.3
<i>Helmitheros vermivorus</i>	<i>Mniotilta varia</i>	0.35	16.4
	<i>Icterus dominicensis</i>	ns	17.1
	<i>Polioptila caerulea</i>	ns	13.1
<i>Teretistris fernandinae</i>	<i>Parula americana</i>	0.32	17.6
	(<i>Dendroica palmarum</i>)	ns	(45.0)
	<i>Mniotilta varia</i>	0.30	ns
	<i>Setophaga ruticilla</i>	0.28	19.7
<i>Teretistris fornsi</i>	<i>Xiphidiopicus percussus</i>	0.28	ns
<i>Icterus dominicensis</i>	<i>Chlorostilbon ricardii</i>	0.27	ns
	<i>Priotelus temnurus</i>	0.24	ns
	<i>Dendroica magnolia</i>	ns	15.5
	<i>Dendroica discolor</i>	ns	13.9

^a Parentheses indicate that the relationship between these species is negative, suggesting disassociation.

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counts were taken only in semi-deciduous forest on karst substrate at Los Sábalos, Matanzas province¹¹. We used χ^2 contingency table analysis to compare the relative frequency of species in flocks with their relative frequency on point counts at Los Sábalos.

All analyses were undertaken using procedures in SAS²⁸. Results are presented as \pm SE. We accepted statistical significance at $P=0.05$, after Bonferroni correction to account for the often large number of simultaneous comparisons used.

Results

We recorded 56 species in at least one flock. Of these, 30 were Cuban resident species, six were Cuban endemics and 11 were represented by endemic Cuban subspecies. Among 26 migratory species were 25 Nearctic breeders that visit Cuba in winter and Black-whiskered Vireo *Vireo altiloquus*, a Neotropical species which breeds in Cuba and winters to the south.

We observed a total 230 flocks (Table 1) comprising 2,129 birds. Kirkconnell tallied 74 flocks, including all those in Ciego de Ávila ($n=26$) and Pinar del Río provinces ($n=2$). Hamel and colleagues counted 156 flocks in Matanzas province. Mean flock size was 9.3 ± 0.4 birds (range 2–31) of 5.4 ± 0.2 species (range 1–14).

Flocks were observed during all daylight hours and all months. Flock size did not vary according to time of day (Fig. 2; Kruskal-Wallis test for number of species, $\chi^2=12.9$, 11 d.f., $P=0.30$; Kruskal-Wallis test for number of birds/flock, $\chi^2=7.9$, 11 d.f., $P=0.72$).

Flock composition

T. fernandinae was the most abundant and most frequent species encountered, with 537 individuals encountered in 167 (82%) of 204 flocks observed in its range, and a mean 3.2 ± 0.13 birds per flock (range 1–10). *T. fornsi* could only have been encountered in 26 flocks tallied within the species' range, at Cayo Coco, Ciego de Ávila province, where 28 individuals were observed in 11 flocks (42%), with a mean 2.5 ± 0.45 birds per flock (range 1–6). The combined occurrence of *Teretistris* spp. included 565 individuals in 178 (77%) of 230 flocks (Fig. 3). The mean number of *Teretistris* spp. was 3.1 ± 0.12 birds per flock when present. The proportion of all individuals observed in flocks that were either of these two species was 0.27.

On average, flocks included 6.8 ± 0.34 individuals of 4.6 ± 0.19 species other than *Teretistris* spp. Wood warblers are a major component of the migrant avifauna on Cuba, and 26 species appear in our dataset. Excluding *T. fernandinae* and *T. fornsi* (the only warbler species in 18 flocks), at least one wood warbler species was found in each of 210 of the 230 mixed-species flocks

recorded. On average, those 210 flocks included 4.7 ± 0.27 warblers of 3.0 ± 0.12 species other than *Teretistris* spp.

Participation by resident and migrant species in flocks

Resident birds were observed in 219 flocks (95%). The mean number of residents was 4.4 ± 0.18 per flock, of 2.2 ± 0.08 species including *Teretistris* spp. Thus the average flock included 1.5 individuals of a single resident species additional to *Teretistris* spp.

Table 3. Comparison of species occurrence in flocks with occurrence on point counts at Los Sábalos, Matanzas province, Cuba. Species are included for which a combined total of 19 individuals was recorded on 34 point counts and 34 randomly selected flocks¹.

Species	χ^2_1	$P > \chi^2_1$
Group A. Species equally frequent in flocks and in point counts		
<i>Dumetella carolinensis</i>	3.06	0.08
<i>Poliptila caerulea</i>	2.43	0.12
<i>Dendroica magnolia</i>	0.03	0.87
<i>Dendroica virens</i>	0.98	0.32
<i>Dendroica dominica</i>	0.22	0.64
<i>Setophaga ruticilla</i>	2.62	0.11
<i>Seiurus aurocapillus</i>	0.80	0.37
<i>Melopyrrha nigra</i>	0.03	0.86
<i>Tiaris olivacea</i>	2.81	0.09
Unidentified woodpecker	2.36	0.12
Group B. Species more frequent in flocks than in counts		
<i>Parula americana</i>	21.38	0.000
<i>Dendroica caerulescens</i>	5.50	0.02
<i>Dendroica discolor</i>	6.80	0.01
<i>Mniotilta varia</i>	13.98	0.000
<i>Teretistris fernandinae</i>	13.89	0.000
Group C. Species more frequent in counts than in flocks		
<i>Glaucidium siju</i>	54.42	0.000
<i>Todus multicolor</i>	30.53	0.000
<i>Priotelus temnurus</i>	22.95	0.000
<i>Chlorostilbon ricordii</i>	18.54	0.000
<i>Xiphidiopicus percussus</i>	3.85	0.05
<i>Sphyrapicus varius</i>	5.83	0.02
<i>Contopus caribaeus</i>	44.33	0.000
<i>Tyrannus melancholicus</i>	25.07	0.000
<i>Myiarchus sagrae</i>	36.45	0.000
<i>Turdus plumbeus</i>	45.17	0.000
<i>Vireo gundlachi</i>	8.91	0.003
<i>Dendroica palmarum</i>	6.87	0.01
<i>Geothlypis trichas</i>	8.64	0.003
<i>Spindalis zena</i>	3.85	0.05
<i>Icterus dominicensis</i>	9.15	0.002

¹ Species uniquely found on point counts include *Fulica americana*, *Falco sparverius*, *Buteo platypterus*, *Bubulcus ibis*, *Columbina passerina*, *Gallinula chloropus* and *Dives atrovioleacea*.

Species uniquely found in flocks include *Dendroica tigrina*, *Wilsonia citrina* and *Helmitheros vermivorum*.

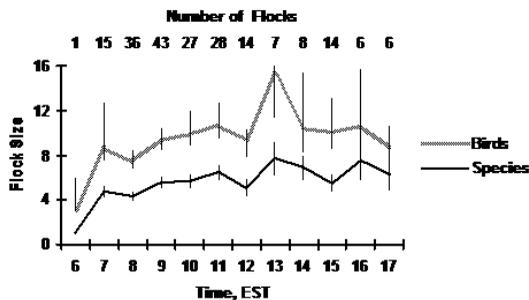


Figure 2. Occurrence of mixed-species flocks in Cuban habitats, by time of day.

Migrants were observed in 215 flocks (91%). The mean number of migrants was 5.4 ± 0.30 individuals per flock, of 3.5 ± 0.14 species.

Occurrence of individual species in flocks

Product-moment correlation and χ^2 contingency table analysis of the occurrence and abundance of 31 species that occurred in at least ten of 230 fully inventoried flocks indicated a number of strong associations between species. The number of associations where $P < 0.05$ (97 of 357 pairwise comparisons of frequency; 88 of 465 pairwise comparisons of abundance) is far larger than that expected by chance, indicating that at least some species associate with each other in flocks (Table 2). Very few associations were negative. Frequency of occurrence of *T. fernandinae* and *D. palmarum* did indicate a significant disassociation (Table 2).

Occurrence of species in flocks was compared to that on point counts made in the same habitat at Los Sábalos, Matanzas province¹¹. Sufficient data (19 occurrences on points/flocks) were available to compare frequencies of occurrence for 29 species. Of

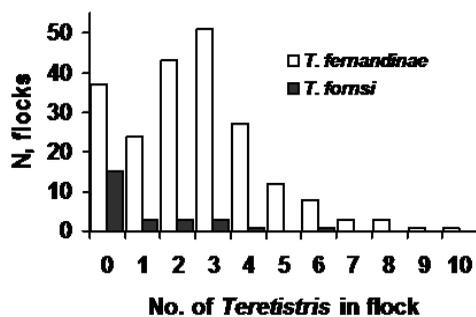


Figure 3. Frequency of group sizes of *Teretistris* spp. in mixed-species flocks observed in Cuba. In addition to sample of 230 mixed-species flocks, the occurrence of eight observations of unaccompanied single *T. fernandinae* is included.

these, 15 species occurred more frequently on point counts than in flocks, five species occurred more frequently in flocks than on point counts, and nine species occurred at indistinguishable frequency in flocks and on point counts (Table 3). Three species of Nearctic breeding migrants occurred only in the dataset from flocks, *Dendroica tigrina*, *Helmitheros vermivorum* and *Wilsonia citrina*. Seven other species were found only on point counts (Table 3). Species more likely to be found, or only found in flocks numbered seven migrant and one resident species, whilst residents outnumbered migrants 12 to 3 amongst birds more often recorded on point counts.

Discussion

Clearly, *Teretistris* spp. are important participants in mixed-species flocks in Cuba. Most flocks in native forest habitats included at least one individual of one of these two species. Garrido⁹ noted that they forage in a variety of ways. In this respect, as well as their flocking behaviour, they are reminiscent of mainland species of Paridae¹. *T. fernandinae* is perhaps a more prominent member of mixed-species flocks than is *T. fornsi*. However, the small sample of flocks observed in the range of the latter species invites additional study of flocks of *T. fornsi*.

Cuban mixed-species flocks appear to be composed primarily of migrant birds in association with one or more individuals of *Teretistris* spp. Ewert & Askins⁷ also noted that migrants comprised 91% of birds in 28 flocks they described in the US Virgin Islands. The much greater frequency of predators (*Glaucidium siju*) in point counts than in the vicinity of flocks suggests that flocks and their predators do not occur together. Ground-foraging birds, such as resident *Turdus plumbeus* and migratory *Seiurus* spp., are not common in flocks in Cuba, although they are in Puerto Rico (F. Vilella pers. comm.). *Seiurus aurocapillus* does associate with *Limnothlypis swainsonii*, another ground-foraging migrant¹⁷. Study of marked birds would assist in clarifying the question of the function of flocking in Cuban birds.

Resident species appear not to participate in mixed-species flocks to the same extent as migrants. Even such frequent flock associates as *Contopus caribaeus* and *Vireo gundlachii* occurred significantly more frequently on point counts than in flocks. The combination of these findings suggests to us that anti-predator functions may be a partial explanation for the formation of flocks by temporary residents^{8,22}, birds presumably less familiar with the locations and behaviour of predators in the winter grounds than are the permanent residents. Detection of predators is a difficult task, however (O. Garrido pers. comm.), reinforcing Chipley's³ contention that predation

need not be conspicuous to be important. Without additional data on food resources and foraging behaviours of birds in and out of flocks, it is impossible to eliminate alternative explanations^{12,14,23,25,27}.

Our work is a first step to understanding the significance of mixed-species flocks in the Cuban avifauna. Mixed-species flocks, because they so prominently include migrants, are probably of great importance to the non-breeding biology of migrants in Cuba, particularly parulids. Further work on habitat associations, patterns of movements of flocks, changes in flock composition during different parts of the winter season, and differences in flock behaviour in the presence of various predators and predator abundance would be valuable.

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Breeding period of Araripe Manakin *Antilophia bokermanni* inferred from vocalisation activity

Weber Girão and Antonio Souto

Cotinga 24 (2005): 35–37

O presente estudo objetivou estimar o período reprodutivo de *Antilophia bokermanni* através da quantidade mensal de emissões sonoras de machos adultos. Foram coletadas amostras de canto de *A. bokermanni* entre os períodos de junho de 2002 a maio de 2003, em floresta úmida na Chapada do Araripe, Brasil. A maior atividade vocal ocorreu entre os meses de agosto e janeiro com um pico entre setembro e outubro. Baseando-se, principalmente, na vocalização da ave observada e os dados existentes para *Antilophia galeata* sugerimos que o período reprodutivo de *A. bokermanni* começa em agosto, atinge o seu ápice entre setembro e outubro, e termina em fevereiro. A postura dos ovos ocorreria entre os meses de setembro e dezembro.

Araripe Manakin *Antilophia bokermanni* is a recently described and Critically Endangered species known from a few localities in the foothills of the Chapada do Araripe, in southern Ceará, Brazil^{2,4,6}. Few data are available concerning its ecology, and its overall population is estimated as being fewer than 50 individuals⁴. We aimed to determine the species' breeding period, by evaluating the months with greatest vocal activity in adult males, which is of key importance in formulating an efficient conservation plan for the manakin, as censusing territorial males is probably the most cost-effective method for monitoring its population trends.

Methods

Araripe Manakin occurs in the humid forest that covers the north-east slope of the Chapada do Araripe, at elevations of 600–800 m^{2,4,6}. The Chapada do Araripe is an enclave of cerrado (dry savanna) surrounded by semi-arid areas covered in caatinga (thorn forest) at lower elevations, with humid forest along part of its slope, due to the presence of abundant watercourses¹⁴ (294 springs representing 85% of the region's water resources⁸). These forests extend for c.200 km along the slope of the Chapada and are similar to the Atlantic Forest, consisting of 8–15-m-high trees, of an estimated 100+ species¹. In this region, mean annual rainfall is 1,033 mm⁸.

Field work was undertaken monthly from June 2002 to May 2003, at two localities: (1) Nascente do Sítio Melo (07°18'S 39°23'W), municipality of Barbalha; and (2) Nascente da AABEC (07°15'S 39°29'W), municipality of Crato. Forests at the study sites are threatened by agricultural development, and there is evidence of selective logging and small dams being constructed.

Sample effort encompassed 288 hours of observation between dawn (05h30) and dusk (18h00), and localities were sampled equally¹¹. Song and calls were discriminated and organised according to their number per hour. Months with

greater vocal activity were interpreted as corresponding to the species' breeding period⁵. To estimate the number of males during periods with greater vocal activity, the number of individuals singing simultaneously or at intervals of up to five seconds was differentiated. A Spearman Rank Correlation¹³ was used to compare vocal activity and rainfall, with a significance level set at $P \leq 0.05$ (two-tailed).

Results

Some 8,858 songs of probably nine males (five at Nascente do Sítio Melo and four at Nascente da AABEC) were recorded. Vocal activity and rainfall were negatively correlated (Fig. 1). Greatest vocal activity was in September–October, and lowest activity in March–May. Vocalisation occurred during the entire day but peaks were noted between 12h00 and 13h00 and 14h00 and 16h00 (Fig. 2). The geographical coordinates of the two sites in this study correspond to the north-westernmost points for Araripe Manakin. Although previously cited as a new north-west limit for the species by Azevedo Júnior *et al.*², those authors repeated (for the municipality of Crato) the geographical coordinates of the type locality, Nascente do Farias, in Barbalha (07°19'S 39°24'W). The geographical coordinates of Fazenda Bebida Nova are 07°14'S 39°29'W.

Discussion

According to Marini¹¹, in Helmeted Manakin highest vocal activity occurs in August–November (peaking August), with the breeding season lasting from July to December, and brood patches noted in August–January. Additionally, two females were found nesting in late September and October¹¹. Ihering¹⁰ considered October to be the laying period of Helmeted Manakin.

Highest vocal activity recorded for the Araripe Manakin was in August–January (one month longer than in Helmeted Manakin), with a peak in September–October. Given the similarities between

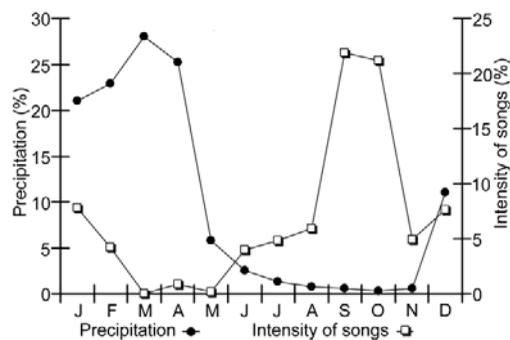


Figure 1. Comparison between rainfall and song intensity in Araripe Manakin *Antilophia bokermanni* in the Chapada do Araripe. Source (rainfall from June 2002 to May 2003): Instituto Nacional de Meteorologia. Statistics: N=12; $r_s = -0.608$; $P < 0.05$.

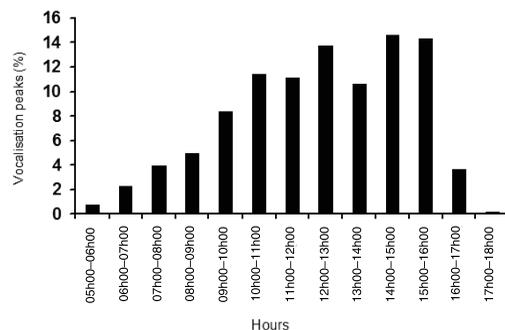


Figure 2. Vocalisation peaks in Araripe Manakin *Antilophia bokermanni* during daytime.

the species, and the observation of two female Araripe Manakins with the initial stage of a brood patch in late July², the Araripe Manakin's reproductive period probably commences in August, peaks in September–October, and ends in February, with females laying eggs probably in September–December.

Significant negative correlation between vocal activity and rainfall presumably reflects the end of the Araripe Manakin's breeding season, which coincides with the rainfall peak in March. At this time, nestlings would require more food and fructification is also higher in the Chapada do Araripe. During the wet season (January–April) c.76% of cerrado tree species bordering gallery forests occupied by Araripe Manakin are fruiting⁷.

Efficient population monitoring of a threatened species is crucial for its conservation³. Annual censuses between 10h00 and 14h00 (when vocalisations peaked) in September–October would permit

males to be counted per stream, and an estimation of females and young could be arrived at using sex and age ratios for similar species: according to Sick¹², the sex ratio in Helmeted Manakin is 1:1.

Surveys of other patches of suitable forest along streams on the slopes of the Chapada do Araripe, especially in September, are needed in order to search for new meta-populations or subpopulations, as these could still evolve through colonisation by young forced to leave already-occupied territories⁹.

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Field identification and new site records of Chapada Flycatcher *Suiriri islerorum*

Leonardo Esteves Lopes

Cotinga 24 (2005): 38–41

Suiriri islerorum (suiriri-da-Chapada) é um Tyrannidae descrito em 2001, tendo sido até então confundido com *S. affinis* (suiriri-do-cerrado). Neste trabalho são apresentadas, pela primeira vez, fotos ilustrando os caracteres diagnósticos de ambas as espécies. Após a análise dos espécimes depositados em diversas coleções científicas, bem como de registros de campo, são apresentadas nove novas localidades de ocorrência para esta espécie, que deve ser considerada endêmica do Cerrado. A sua distribuição geográfica conhecida foi consideravelmente ampliada no sudeste e sudoeste do Brasil, alcançado agora, respectivamente, o centro do estado de Minas Gerais e leste do Mato Grosso do Sul. *S. islerorum* mostrou-se significativamente mais raro que *S. affinis*, sendo necessárias investigações mais profundas sobre o status de conservação desta espécie.

Chapada Flycatcher *Suiriri islerorum* is a recently described species, specimens of which had been overlooked as Campo Suiriri *S. affinis*, to which it bears a strong morphological resemblance¹⁴. The conservation status of *S. islerorum* is unknown, it being presently known from just 12 localities across the Brazilian cerrado, reaching southern Amazonia and the east bank of the rio Madeira¹⁴. The only record outside of Brazil is from dpto. Santa Cruz, in eastern Bolivia¹⁴. Here I present new site records of *S. islerorum*, discussing the inherent conservation implications. To assist ornithologists and birdwatchers in identifying the species, I also present, for the first time, photographs depicting the diagnostic characters of *S. islerorum* and *S. affinis*.

Methods

I examined material in several Brazilian ornithological collections not listed in the type description of *S. islerorum*¹⁴: the Coleção Ornitológica do Departamento de Zoologia da Universidade Federal de Minas Gerais, Belo Horizonte (DZUFMG); Museu Nacional, Rio de Janeiro (MNRJ); Fundação Museu de Ornitologia, Goiânia (FMO); Coleção Ornitológica da Reserva Ecológica do Instituto Brasileiro de Geografia e Estatística, Brasília (IBGE); and the Coleção Ornitológica Marcelo Bagno da Universidade de Brasília, Brasília (COMB). Data concerning specimens housed in the Museu de Zoologia da Universidade de São Paulo, São Paulo (MZUSP), and Museum of Comparative Zoology, Harvard, (MCZ), were provided by Lemuel O. Leite and Floyd E. Hayes respectively.

The ranges of *S. islerorum* and *S. affinis* are largely restricted to the cerrado¹⁴. Thus, we might expect that the number of specimens in the museums mentioned above would express, at last broadly, the relative abundance of each taxon. To investigate the hypothesis that *S. islerorum* and *S. affinis* are not equally abundant in the cerrado, I searched for differences in the number of available

specimens of each species and the number of expected individuals if the probability of collection was the same using a Chi-square test¹³, adopting a significance level of 5%. The form *bahiae*, which could be confused with either *islerorum* or *affinis*, was not included in my analysis because its range is allopatric with the other taxa, it being restricted to the caatinga of north-east Brazil¹⁴. Because most specimens were shot, I assumed that any differences in behaviour between the species were insufficient to influence their probability of collection.

Between August 2002 and January 2004, 11 pairs of *S. islerorum* and 14 pairs of *S. affinis* were systematically studied in the Estação Ecológica de Águas Emendadas, Planaltina, Distrito Federal, Brazil. During this period I studied several attributes of the species' breeding biology, territory, habitat use, foraging behaviour and diet⁶. During the field work, I observed several morphological and behavioural traits that appear helpful in the identification of both species.

Results

New site records of *S. islerorum*

I discovered nine new localities for *S. islerorum* (Table 1), including one in Minas Gerais and two in Mato Grosso do Sul, both states from where the species was previously unknown, and one for Distrito Federal, where it was only recently recorded⁷. Parker & Rocha¹⁰, in describing the behaviour of a supposed *S. affinis* pair, stated that the birds 'occasionally lifted their wings and wagged their tails while vocalizing'. This description almost certainly refers to the wing-lifting display of *S. islerorum* and was considered as the second record of *S. islerorum* in Bolivia⁶. *S. islerorum* proved to be significantly rarer than *S. affinis* (Table 2; $\chi^2 = 37.79$; d.f. = 1; $p < 0.001$).

Table 1. New site records of *Suiriri islerorum* (localities listed from north to south).

Locality	Coordinates	Source
Aldeia do Ponto, Maranhão, Brazil	06°07'S 45°09'W	MZUSP-38172, MZUSP-38173
Cerro San Simón, dpto. Beni, Bolivia	13°36'S 62°15'W	Parker & Rocha ⁸
Fazenda Cachoeira, Flores de Goiás, Goiás, Brazil	14°18'S 46°59'W	J. B. Pinho (pers. comm.)
Planaltina, Distrito Federal, Brazil	15°32'S 47°37'W	Lopes et al. ⁵ , MNRJ-13879
Aragarças, Goiás, Brazil	15°55'S 52°15'W	MNRJ-(H?)2626 (No. partially illegible)
Fazenda Recreio, Mato Grosso do Sul, Brazil	18°30'S 54°45'W	MCZ-198598
Lagoa Santa, Minas Gerais, Brazil	19°37'S 43°55'W	MNRJ-22031, MNRJ-23309
Arapuá, Mato Grosso do Sul, Brazil	20°48'S 52°04'W	MCZ-69318
Retiro da Telha, Mato Grosso*, Brazil	Not traced	MZUSP-64110, MZUSP-64111

*Specimens collected in 1964, prior to the state partitioning into Mato Grosso and Mato Grosso do Sul.

Species identification

The easiest means of identifying both species is by vocalisations¹⁴, which are highly typical (duets of both species in digital format are available on request). The wing display during the duet, diagnostic of *S. islerorum*, is also extremely helpful as a field mark¹⁴. After early morning, *S. islerorum* is typically silent, making identification through morphological characters necessary. The small bill of *S. islerorum*, in comparison to that of *S. affinis*¹⁴, as well as the greater contrast between the ocular stripe and white chin and throat of *S. islerorum*, are generally the best field marks (Figs. 1a,b). The pale terminal fringe to the tail is broader in *S. islerorum* (Fig. 1c), but absent in *S. affinis* (Fig. 1d)¹⁴. Nevertheless, this character can be difficult to observe in the field, depending in large part on lighting conditions. Both species periodically wag their tail downward in a very diagnostic fashion, particularly on changing perch¹⁴. Such behaviour is also very helpful in distinguishing the genus *Suiriri* from similar-sized tyrant-flycatchers such as *Elaenia*, permitting identification even in poor light conditions or at long distance.

With practice, it is also possible to identify both species solely on behaviour. Whilst foraging, *S. affinis* constantly moves its head, carefully scanning adjacent foliage. *S. islerorum* generally is

static, waiting for prey, or moves in small hops, its tail slightly raised, in a very characteristic manner. My observations contrast with those presented elsewhere¹⁴, which found *S. islerorum* 'more constantly in motion' and 'more agile and acrobatic in pursuing prey'. Details concerning the foraging behaviour of both species are presented elsewhere⁶.

Discussion

All known sites for *S. islerorum* are located within the cerrado¹, corroborating its endemic status¹¹. The degree of sensitivity of *S. islerorum* to habitat disturbance is unknown, but its absence from urban areas of Brasília, where *S. affinis* is common⁶, suggests a greater sensitivity than the latter. Despite its vast range the rarity of *S. islerorum* in ornithological collections suggests that it is only locally distributed in the cerrado, which could mean that the species is of conservation concern. Given that the cerrado is among the most threatened biomes in the world, with more than 80% of its primary vegetation converted to crops and pastures^{8,9,11}, detailed investigations into the distribution, abundance and sensitivity of *S. islerorum* are imperative.

In addition to *S. islerorum*, several other cryptic species have recently been described from the Neotropics (e.g. *Cercomacra laeta*³, *C. parkeri*⁵ and *Micrastur mintoni*¹²). Just as *S. islerorum* remained undiscovered, until now, in the Distrito Federal, that part of the cerrado with the best-studied avifauna², *Cercomacra laeta* went unrecognised in the Manaus area, one of the best-sampled parts of Amazonia³. Impressive is that both *S. affinis* and *S. islerorum* were collected in Planaltina, Distrito Federal, in 1927, by the ornithologist Emilie Snethlage. Herbert Berla also collected both species, in 1942, in the Lagoa Santa region of Minas Gerais, where recently, in August 2004, rediscovered by G. M. Kirwan (pers. comm.). All these specimens are deposited in MNRJ. This fact reinforces the expectation that our knowledge of

Table 2. Number of individuals of each form of *Suiriri* in ornithological collections covered by this study.

Collection	Number of individuals			
	<i>affinis</i>	<i>islerorum</i>	<i>suiriri</i>	'bahiae'
MNRJ	16	4	11	0
COMB	10	0	0	1
DZUFMG	2	0	0	0
FMNH*	12	1	77	1
IBGE	7	0	0	0
FMO	4	0	0	0
Totals	51	5	88	2

*Data from individuals deposited in the Field Museum of Natural History, Chicago, visited by K. J. Zimmer for the description of *S. islerorum*, were obtained via FMNH⁴.

cryptic biodiversity has only reached the tip of an immense iceberg awaiting discovery³.

Acknowledgements

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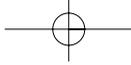
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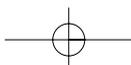
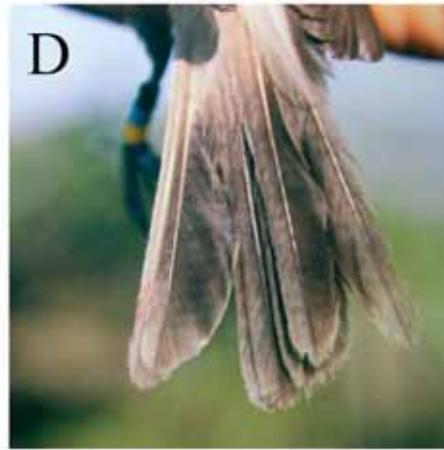
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Figure 1. Diagnostic characters of *Suiriri islerorum* (a, c and e) and *S. affinis* (b and d). Note the smaller bill of *S. islerorum*, as well as the presence of a pale terminal fringe to the tail (Leonardo Esteves Lopes)



Cotinga 24

Field identification and new site records of Chapada Flycatcher



Fishing by two Furnariidae: Pacific Hornero *Furnarius [leucopus] cinnamomeus* and Surf Cinclodes *Cinclodes taczanowskii*

Javier Barrio and Juan Valqui

Cotinga 24 (2005): 42–44

Se reportan y describen las primeras observaciones de Furnariidae alimentándose de peces. Las dos especies observadas pescando fueron *Furnarius [leucopus] cinnamomeus* y *Cinclodes taczanowskii*. *F. [leucopus] cinnamomeus* fue observado en el bosque seco pescando desde el borde de pozas de agua de poca profundidad a *Lebiasina bimaculata*, un pez de aguas continentales. *Cinclodes taczanowskii* fue observado en la bahía de Pucusana, pescando en las rocas de zonas intermareales a *Tomicodon chilensis*, un pez que se adhiere a las rocas. Los comportamientos de ambas especies de aves serían ocasionales o aprendidos. Los datos sobre *F. [leucopus] cinnamomeus* son adicionalmente los primeros del género *Furnarius* alimentándose de vertebrados.

Furnariidae usually feed exclusively on arthropods, but also take other invertebrates such as molluscs, crustaceans and earthworms, and some vegetable material such as seeds^{2–4,6–10,12,13}. However, the feeding and foraging accounts by Skutch¹⁰ and a review by Remsen⁷ for the whole family, include, aside from the expected invertebrates, a large scope of food items from berries and drupes to frogs and lizards. The latter vertebrates are frequent food items for treehunters *Thripadectes*^{7,10}. Also, Surf Cinclodes *Cinclodes taczanowskii*—a sedentary Furnariidae that lives by the ocean—opportunistically includes small fish in its diet, some of them taken from regurgitates of Inca Terns *Larosterna inca*¹.

Species of *Cinclodes* eat mostly invertebrates, but also take seeds, carrion, molluscs, and even steal butter and cooked meat^{7,10,12,13}. Research on Seaside Cinclodes *C. nigrofumosus* in Chile, the sister species of Peruvian *C. taczanowskii*, showed that over 90% of its diet comprised crustaceans and molluscs, the remainder being insects⁹. On the other hand, *Furnarius* species have only been observed feeding on insects, their larvae, and earthworms^{7,10}.

Pacific Hornero *Furnarius [leucopus] cinnamomeus*

Pacific Hornero is a common and conspicuous species from west Ecuador to north-west Peru¹¹. Observations of fishing by the hornero were made at El Angolo dry forest, where there is a long dry period in April–November, and a short rainy season in December–March. The following observations were made in October 1994 at an altitude of 600 m around a large shallow pool beside a creek. In a five-day period, the pool was monitored for a total of 3h20m over three different days, all mid morning to 13h00.

At least two individuals—of seven Pacific Horneros around the pool—were observed by JB feeding on the fish *Lebiasina bimaculata* (Lebiasinidae). Eighteen fishing attempts were

observed, but only five were successful, including one fish that escaped after capture. Their strategy involved patrolling the margins of the pool pecking insects from cattle manure while watching fish that approached the sides or that tried to cross between a series of stepping stones in very shallow water (less than 1 cm deep). Two catches were made from the stepping stones, including the fish that subsequently escaped. The other three fish were caught beside the pool. They included a very small fish which was swallowed whole, a large one that was caught, pecked and carried away from the area, and two small ones taken first to the nearby land and then eaten. The fish that escaped was a very large one for the Pacific Hornero, apparently c.6–7 cm long.

No measures of food availability for Pacific Hornero, i.e. invertebrate abundance, at the site were made. However, there appeared to be abundant food given the numerous insects associated with cattle manure. Pacific Horneros were common and conspicuous in the El Angolo lowlands, but very few were observed fishing, suggesting that such behaviour was probably not enforced by food shortage. Pacific Hornero is considered less dependent on water than *F. [leucopus] leucopus*⁴, but was definitely taking advantage of the shallow waterholes during the dry season to expand or supplement its diet.

Surf Cinclodes *Cinclodes taczanowskii*

Surf Cinclodes is a common species restricted to rocky areas of the central and southern Peruvian coastline^{1,5,11}. Fishing observations were made along the rocky shoreline of Pucusana Bay, a coastal fishing resort 60 km south of Lima, in December 2003–February 2004, whilst conducting research on Marine Otter *Lontra felina*.

Surf Cinclodes was frequently observed by JV feeding on *Tomicodon chilensis* clingfishes (Gobiesocidae), which live adhered to inter-tidal rocks. This feeding behaviour was observed from

the shoreline and from a kayak. Fishing by the cinclodes occurred in almost all observation periods from the shoreline—three hours twice a day—and in almost all kayak trips around the bay. Clingfishes caught by the cinclodes measured 2 cm to c.6 cm (i.e. up to three times the bird's bill length). Fishes were captured at the waterline and carried to nearby rocks, sometimes away from the waves, and then ingested.

No measures of food availability for Surf Cinclodes, i.e. abundance of molluscs and crustaceans, were made at the study site. However, both groups appeared numerous on accessible rocks. *Cinclodes* species are strongly related to water^{2,10}, but the only feeding data including fish involved Surf Cinclodes that were observed eating Inca Tern regurgitates, although unidentified fish remains have been recorded as stomach contents¹. Other published data on feeding behaviour of this species and Seaside Cinclodes⁸ in Chile—with which *C. taczanowskii* forms a superspecies⁸—only mentioned marine animals in general⁵, and molluscs and crustaceans^{6,9} as food items.

Discussion

The Furnariidae is rich in species associated with water-edge habitats, perhaps more so than any other family among the Passeriformes⁷. Thus, if any passerines might be expected to take fishes occasionally, species of Furnariidae would rank high in the list of candidates (J. V. Remsen pers. comm.). Fish-eating in Passeriformes has been documented for just a few species (e.g., *Pitangus* flycatchers and *Quiscalus* grackles), so our observations are distinctly unusual (J. V. Remsen pers. comm.).

Furnarius and *Cinclodes* species are not capable of swimming, and unable to catch fish on the water surface from the air, restricting their fishing strategy to the edge of waterbodies. Pacific Hornero may only fish in shallow waterholes, which only appear during dry seasons, and rivers that are probably best when they are shallow. Surf Cinclodes has a broader chance to fish in areas along the coastline where rocks with even surfaces—where clingfishes adhere—are present.

Published data on behaviour and feeding habits in *Furnarius* and *Cinclodes* species do not include fishing or feeding on live vertebrates^{1,3,4,6–10,12,13}. It is unlikely that such behaviour was overlooked by previous authors, as any fishing activity would be easily observed or discovered by examining stomach contents. We also assume that considerable observation time has accumulated on these species, mostly by birdwatchers. Moreover, previous data on feeding habits were based both on stomach contents^{1,6,9,12,13} and on direct observations^{1,2–4,8,10}.

Thus, the observations described above (which were also photographed) might illustrate either an occasional or a learnt behaviour specific to the populations concerned. Pacific Hornero fishing behaviour appears to be restricted to a few individuals. However, the entire Surf Cinclodes population at Pucusana Bay seems to indulge in such behaviour.

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Cotinga 24

Fishing by two Furnariidae: Pacific Hornero and Surf Cinclodes



Pacific Hornero *Fuarnarius [leucopus] cinnamomeus*, fishing, El Angolo dry forest, Peru, October 1994 (Javier Barrio)



Surf Cinclodes *Cinclodes taczanowskii*, fishing, Pucusana Bay, Peru (Juan Valqui)

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Avifauna of the Serra das Lontras–Javi montane complex, Bahia, Brazil

Luís Fábio Silveira, Pedro Ferreira Develey, José Fernando Pacheco and Bret M. Whitney

Cotinga 24 (2005): 45–54

As regiões montanhosas costeiras do sul do estado da Bahia, Brasil, nunca foram objeto de maiores estudos ornitológicos até o início da década passada. A descoberta de uma comunidade única de aves nestas montanhas tem atraído a atenção de diversos pesquisadores, e novas espécies foram descritas ou redescobertas nestas serras litorâneas. Apesar de serem extremamente interessantes do ponto de vista biogeográfico, estas áreas são ainda muito pouco conhecidas e sofrem uma constante pressão antrópica. Dados sobre a avifauna das Serras das Lontras e do Javi foram obtidos em visitas esporádicas desde 1988, e uma visita mais longa foi realizada entre janeiro e fevereiro de 2001. Duas localidades em cada uma das serras foram amostradas e 295 espécies de aves foram registradas. Entre estas, dez espécies são enquadradas na categoria de ameaçadas, nove são vulneráveis e outras dez são consideradas como quase-ameaçadas. Nestas serras também ocorrem outras duas espécies ainda não descritas de Suboscines. A criação de Unidades de Conservação que possam proteger adequadamente esta importante e ainda razoavelmente bem preservada área de Floresta Atlântica é recomendada.

The Atlantic Forest harbours a rich and diverse bird community of c.700 species, 200 of which are endemic to this biome and, of these, 140 are passerines^{7,21}. In Brazil, the Atlantic Forest region and its subtypes originally extended from the coast of Rio Grande do Norte south to northern Rio Grande do Sul, in southernmost Brazil.

As early as the dawn of the 19th century, the prominent Austrian ornithologists Wied and Spix initiated research in the north-east Atlantic Forest, in southern Bahia, yet even today this vast state is poorly known ornithologically. The few subsequent inventories of lowland localities have, for the most part, never been published. The montane ranges of interior southern Bahia were virtually unknown until Gonzaga *et al.*¹⁰ documented the avifauna of the Serra de Ouricana, near Boa Nova, highlighting the importance and singularity of the area. Since then, new species have been described or rediscovered from this and other upland areas of southern Bahia^{9,17}, and one centred in the lowlands¹⁸. Indeed, Bahia is one of the most complex and diverse states in Brazil with respect to its avifauna¹⁶, harbouring two areas of endemism for passerines, central Bahia and coastal Bahia²¹.

The Serra das Lontras and Serra do Javi have an altitudinal gradient ranging from sea level to more than 1,000 m, c.35 km inland of the southern Bahian coast (Fig. 1). These areas have received little attention from the conservation community, which has concentrated its efforts in the lowlands, where some federal reserves and national parks already exist (e.g. the Reserva Biológica de Una, Parque Nacional do Monte Pascoal, Estação Veracruz and Parque Nacional do Descobrimento), despite the call for action by Pacheco *et al.*¹⁸ following their discovery of *Acroatornis fonsecai* almost a decade ago. The principal objectives of the

present study were to gather all available information concerning the avifauna of the Serra das Lontras–Javi complex, based on our own research and data from colleagues, and to aid conservation strategies to be implemented by BirdLife International in collaboration with other conservation bodies. In addition, a feasibility study was conducted by the Instituto de Estudos Sócio-ambientais do Sul da Bahia (IESB), the first result of which was the purchase, in 2003, of 460 ha by IESB and BirdLife, to create a private nature reserve (RPPN). Following this, a project to produce organic cacao in farms surrounding the reserve is being implemented. Such environmental friendly land use will create a buffer around the protected

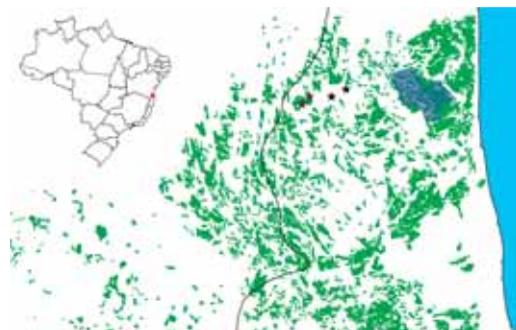


Figure 1. Map of southern Bahia showing forest remnants and sampled localities (see text for coordinates): red stars = Serra das Lontras; black stars = Serra do Javi, from left to right: Fazenda Elza, Fazenda Orion, Fazenda Palmeiras and Fazenda Monte São. The shaded area is the Reserva Biológica de Una, in the lowlands. Black line = BR 101 highway. Scale: 1 cm = 50 km.

area, and may provide a sustainable income for the reserve's management in coming years.

Material and methods

The region was first visited, in February 1988, by BMW. Visits in 1994 and 1995 by JFP and BMW, with Paulo Sérgio M. da Fonseca, Claudia Bauer and Robert H. Barth, formed the basis for a working knowledge of the avifauna of these serras, from the surrounding lowlands to near their highest elevations, and a further visit by BMW and LFS, which covered the complete elevational range, in 1999, augmented earlier data. With support from BirdLife International, more intensive surveys were conducted by LFS and PFD in January–February 2001, with the objective of recording all species at selected sites. Sites to inventory were chosen based on available maps and the previous experience of the Instituto de Estudos Sócio-ambientais do Sul da Bahia (IESB) in the region. Criteria for site selection included forest state, altitude (above 400 m) and accessibility (roads, trails, etc.). Commencing with the first visits, birds were identified and tape-recorded using Sony TCD-D10 Pro II DAT and TCM-5000 cassette tape-recorders and Sennheiser ME80, ME66 and ME67 microphones. Copies of most of recordings have been deposited at the Arquivo Sonoro Elias Coelho (ASEC, Universidade Federal do Rio de Janeiro, RJ). GPS readings were taken for each sampled locality. Several specimens were collected and deposited at the Museu de Zoologia da Universidade de São Paulo (MZUSP).

During the 2001 survey, observations were conducted from 06h00 to c.20h00, and twice (once each in Serra do Javi and Serra das Lontras) we extended observations until 01h00 to record nocturnal species. We conducted c.400 hours of field observations. Birds were classified according to their global threat level³. Reports from other authors^{4,13} are also included here.

Characterisation of the sampled localities

Based on the classification of Ab'Saber¹, the study region lies in the Atlantic Tropical Forest Domain, which encompasses the area paralleling the coast between the states of Rio Grande do Norte and Rio Grande do Sul. Predominant vegetation is evergreen Atlantic tropical rainforest¹. The areas sampled pertain to the montane complex of Serra das Lontras and Serra do Javi, which parallels the BR 101 highway, near the municipality of Arataca, with elevations ranging from 400 m to the crests of ridges at nearly 1,000 m, and occupying an area of c.300 ha.

The region has been subject to continual human influence for more than 250 years. Timber and cocoa, the latter imported from Amazonia and planted under the *cabruca* system whereby natural

canopy is thinned (or, increasingly, introduced tree species planted) to provide optimal sunlight and shade, were the most important assets to colonists. However, due to the recent epidemic of *vassoura da bruxa* (Witch's Broom Fungus), in concert with falling cocoa prices on the global market, several large properties have been abandoned. As a result of centuries of exploitation, the region has been heavily degraded and today consists of a mosaic of *cabrucas*, second growth, plantations and pastures; almost no intact native forest remains below c.550 m. Descriptions of the surveyed localities follow Araújo & Santos².

Serra do Javi

Fazenda Palmeiras (15°11'S 39°20'W): at 400–800 m *cabrucas* and rubber trees predominate, with a manioc plantation near a small house, all surrounded by second growth. Most natural vegetation has been lost, with the best forested patches above 700 m, where several large trees (taller than 30 m) with abundant epiphytes, mostly large bromeliads, persist. Understorey is sparse, and lacks bamboo. Higher, above 900 m, forest structure changes dramatically: trees are stunted (10–15 m high) and covered with small bromeliads and heavy bryophyte and lichen growth. Understorey is dense and dominated by *Geonoma* palms and bamboo (*Chusquea* spp.). Once common, heart-of-palm *Euterpe edulis* trees have been intensively harvested throughout, and large individuals are now extremely rare.

Fazenda Monte São (15°10'S 39°18'W), 400–800 m: among inventoried sites in the Serra do Javi, this was the best conserved. There are large trees (c.40 m high), with many bromeliads and a dense understorey with much bamboo (*Merostachys* spp.). Forest is surrounded by second growth at various stages of regeneration.

Serra das Lontras

Fazenda Orion (15°11'S 39°23'W), 550–900 m: consists of forest in good condition, second growth and *cabrucas*. Although selectively logged, large trees (c.40 m high) still occur and forest is generally better preserved than in Serra do Javi. Epiphytes, mostly Cyclanthaceae and Araceae, are abundant, along with varied bromeliad species. Above 800 m forest becomes stunted and structure is similar to that in Serra do Javi. Understorey is dominated by a species of Marantaceae ('caeté'). There is much bamboo (*Merostachys* spp.), and in the second growth another genus of bamboo is found (*Guadua* spp.). Some large heart-of-palm trees persist.

Fazenda Elza (15°12'S 39°24'W), 600–750 m: within this property there are large areas of altered habitat, with extensive areas of the second growth and *cabrucas*, and few forested areas. The largest forest patch is in the highest part (above 800 m).

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Table 1. Globally threatened bird species found in the Serra das Lontras–Javi complex, Bahia, Brazil. EN: Endangered; V: Vulnerable; NT: Near Threatened.

<i>Tinamus solitarius</i>	NT	<i>Myrmotherula urostricta</i>	EN
<i>Leucopternis lacernulatus</i>	V	<i>Dysithamnus stictothorax</i>	NT
<i>Leucopternis polionotus</i>	NT	<i>Drymophila ochropyga</i>	NT
<i>Harpia harpyja</i>	NT	<i>Scytalopus</i> sp.	EN
<i>Aratinga auricapillus</i>	NT	<i>Phylloscartes oustaleti</i>	NT
<i>Pyrrhura cruentata</i>	V	<i>Phylloscartes beckeri</i>	EN
<i>Pionopsitta pileata</i> (Fig. 2)	NT	<i>Phylloscartes sylviolus</i>	NT
<i>Touit surdus</i>	N	<i>Carpornis melanocephala</i>	V
<i>Amazona rhodocorytha</i>	V	<i>Xipholena atropurpurea</i>	EN
<i>Synallaxis cinerea</i>	EN	<i>Lipaugus lanioides</i>	V
<i>Heliobletus</i> sp.	EN	<i>Procnias nudicollis</i>	NT
<i>Thripophaga macroura</i> (Fig. 3)	EN	<i>Iodopleura pipra</i> (Fig. 4)	EN
<i>Hylophilus aff. thoracicus</i>	EN	<i>Sporophila falcirostris</i>	V
<i>Acrobatornis fonsecai</i>	V	<i>Sporophila frontalis</i>	V
<i>Myrmotherula minor</i>	V		

Here, the vegetation represents a type of transition between tall forest, found originally at lower elevations, and montane forests typical of higher areas. There is no single block of continuous forest, although ridgelines are largely undisturbed. The landscape consists of fragments of well-preserved forests within a matrix of *cabruca*s, second growth and rubber tree plantations.

Results and discussion

Our survey and those of Cordeiro⁴ and Lambert¹³ produced a minimum 295 bird species (Appendix 1), ten of which are considered Endangered³ (Table 1). Four, *Acrobatornis fonsecai*, a new species of *Heliobletus*, a new species of *Scytalopus* and *Phylloscartes beckeri*, are restricted to either *cabruca* plantations¹⁸ or montane areas in the north-east. In addition, nine species are considered Vulnerable and ten Near Threatened (Table 1). Due to their restricted distribution within a fragmented area, the two undescribed species of passerine birds are considered here as Endangered, following the criteria adopted by BirdLife International³.

Comparing the avian communities of the two serras, we observed that the composition is very similar, with only 15 species recorded exclusively in the Serra do Javi and 72 species recorded only in the Serra das Lontras (Appendix 1). However, given their close proximity and very similar ecological attributes, we predict that additional survey work will reveal that very few, if any forest species are restricted to only one of the serras.

Mixed-species flocks

Mixed-species flocks in tropical forests can be characterised according to the vertical distribution of their members in different vegetational layers. Thus, it is possible to distinguish between canopy

and understorey mixed-species flocks¹⁵. In fragmented areas in the Amazon, Stotz²² observed that understorey flocks disappeared from forest fragments following a period of five years isolation of the fragment. Stouffer & Bierregaard²³ also verified that understorey mixed-species flocks fail to persist in fragmented areas, because flocks generally avoid forest edges (common in small forest fragments) due to a higher risk of predation. Even in continuous forest, understorey mixed-species flocks strongly avoid open areas, and are unwilling to cross even narrow roads⁵. Furthermore, in selectively logged areas, populations of mixed-species flocks may decline by up to 50%²⁵.

The high sensitivity of understorey mixed-species flocks to environmental changes was also evident in our study area, where, in contrast to canopy flocks, understorey flocks were relatively rare. In the few flocks recorded, *Thamnomanes caesi* appeared to be the nuclear species, fulfilling the same role it plays in Amazonian mixed-species flocks¹².

Canopy flocks, principally comprising *Picumnus exilis* (Fig. 5), *Tachyphonus cristatus*, *Tangara seledon*, *T. cyanocephala*, *Dacnis cayana*, *Chlorophanes spiza* and *Cyanerpes cyaneus*, were common in the different habitats sampled, including *cabruca*s. Indeed, canopy birds use *cabruca* plantations much as they use undisturbed forests. Even second growth, where rich in Myrtaceae and Melastomataceae fruits, attracts small frugivores such as those in canopy mixed-species flocks. The mosaic landscape of the region, especially the widespread planting of cocoa, which requires complete clearance of the understorey, has been disastrous for populations of understorey species characteristic of the forest interior (pers. obs). In fact, according to Laps¹⁴, *cabruca*s represent a continuum of the forest environment to canopy species, but a clear break to understorey birds.

Montane avifauna and altitudinal gradient

Gonzaga *et al.*¹⁰ studied birds in the Serra de Ouricana near Boa Nova (c.100 km north-west of the Serra das Lontras–Javi complex), highlighting the area's importance for montane avifauna, including several species previously unknown from Bahia. A total 43 of 74 species considered by Gonzaga *et al.*¹⁰ to be 'montane' in the Boa Nova area (although some also occur at lower altitudes in south-east Brazil) were found in Serra das Lontras–Javi (Table 2). The limited extent and fragmented condition of montane forest in the Boa Nova area is not conducive to the long-term preservation of the avifauna, without implementation of protection measures which, to date, have been wholly lacking despite the calls of Gonzaga *et al.*¹⁰ and Whitney²⁶ for specific attention to this

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2



5



3



4

Figure 2. Pileated Parrot *Pionopsitta pileata* (Edson Endrigo)

Figure 3. Striated Softtail *Thripophaga macroura* (Edson Endrigo)

Figure 4. Buff-throated Purpleletuft *Iodopleura pipra* (Edson Endrigo)

Figure 5. Golden-spangled Piculet *Picumnus exilis* (Edson Endrigo)

Table 2. Montane birds (following the classification proposed by Gonzaga *et al.*¹⁰) recorded in the Serra das Lontras–Javi.

<i>Crypturellus obsoletus</i>	<i>Cichlocolaptes leucophrus</i>
<i>Leucopternis polionotus</i>	<i>Lochmias nematura</i>
<i>Patagioenas plumbea</i>	<i>Heliobletus</i> sp.
<i>Pyrrhura frontalis</i>	<i>Sittasomus griseicapillus</i>
<i>Pionopsitta pileata</i>	<i>Lepidocolaptes squamatus</i>
<i>Phaethornis eurynome</i>	<i>Dendrocolaptes platyrostris</i>
<i>Trogon surrucura</i>	<i>Phylloscopus burmeisteri</i>
<i>Scytalopus</i> sp.	<i>Phylloscopus oustaleti</i>
<i>Hypodaedalus guttatus</i>	<i>Phylloscopus beckeri</i>
<i>Mackenziaena severa</i>	<i>Hemitriccus diops</i>
<i>Dysithamnus stictothorax</i>	<i>Todirostrum poliocephalum</i>
<i>Dysithamnus mentalis</i>	<i>Chiroxiphia caudate</i>
<i>Drymophila ferruginea</i>	<i>Ilicura militaris</i>
<i>Drymophila ochropyga</i>	<i>Lipaugus lanioides</i>
<i>Chamaeza campanisona</i>	<i>Oxyruncus cristatus</i>
<i>Chamaeza meruloides</i>	<i>Platycichla flavipes</i>
<i>Grallaria varia</i>	<i>Hypophilus</i> aff. <i>Thoracicus</i>
<i>Coponophaga lineata</i>	<i>Thraupis ornata</i>
<i>Synallaxis cinerea</i>	<i>Tangara cyanocephala</i>
<i>Anabazenops fuscus</i>	<i>Saltator fuliginosus</i>
<i>Philydor lichtensteini</i>	<i>Saltator similis</i>
<i>Philydor rufum</i>	

problem, further strengthening the importance of protecting remaining forests in Serra das Lontras–Javi.

There were no clear differences in avifaunal composition between 400 m and 800 m elevations. Above 800 m, however, coincident with a marked change in vegetation structure, we noted the restricted occurrence of a few species, e.g. *Heliobletus* sp. and *Drymophila ochropyga*. In the Serra do Mar, in the south-east Atlantic Forest, avian communities along an elevational gradient are more varied, with some species restricted to certain elevations⁸. In montane central-southern Bahia, according to Gonzaga *et al.*¹⁰, some species may replace each other altitudinally with, e.g., *Lipaugus vociferans* being restricted to lower elevations, whilst *L. lanioides* is typical of higher elevations. However, at the crest of the Serra do Javi, both species were tape-recorded (15°10'S 39°20'W). Other species characteristic of lowland forests, recorded at higher elevations in the study area, were *Piculus flavigula*, *Carpornis melanocephalus*¹⁰, *Formicarius colma* and *Drymophila squamata*.

Species either restricted to montane Bahia or species that, in this area, occur at higher elevations, and closely related species segregated elsewhere but which occur syntopically in these mountains reveal the presence of different elevational patterns compared to montane south-east Brazil. Such patterns can only be a consequence of extensive deforestation in neighbouring lowland forest,

driving species typically found at lower altitudes to the best-conserved forest in the serras, where they are clearly less abundant. Thus, montane central-southern Bahia is important, not only from the conservation standpoint, but from an ecological perspective as well, as the region possesses a unique avifauna.

Large raptors

Large raptors were frequently recorded during the study period. A *Harpia harpyja* was recorded by BMW and LFS in March 2000, along the slopes of the Serra das Lontras, and was videotaped carrying nesting material. Galetti *et al.*⁶ suggested the presence of a resident population of the species between northern Espírito Santo and southern Bahia. Similarly, the other large raptors recorded (*Spizastur melanoleucus*, *Spizaetus tyrannus*, *Leucopternis polionotus* and *L. lacernulatus*) almost certainly use these mountains for feeding and nesting. Their presence in fair numbers suggests that, despite the mosaic of different habitats, there is still sufficient suitable forest available, and that these mountains are important for local populations of these raptors.

Illegal hunting and pet trade

Large gamebirds such as Cracidae, Tinamidae and Odontophoridae either disappear or become extremely rare in hunted areas²⁴. Cordeiro⁴ and Lambert¹³ recorded cracids, but, as suggested by local residents, guans and curassows are now very rare. *Crax blumenbachii* was recognised only by persons older than 15 years of age, which suggests, together with the widespread destruction of closed forest in the lowlands, that this species is probably extirpated in the region.

Two species highly prized by hunters, *Tinamus solitarius* and *Odontophorus capueira*, were recorded at just three sites, one in the Serra do Javi, and two in the Serra das Lontras, being commonest at Fazenda Orion. These records were remarkable, as hunters were encountered several times, gunshots were commonly heard and several small traps were found in the forests.

In addition to hunting for consumption, fauna has also suffered from capture for the illegal pet trade. Bird species most commonly captured are of the families Psittacidae, Cotingidae and Emberizidae. For example, *Procnias nudicollis* was commonly observed in cages in local houses, but recorded only once in the field. Residents confirmed that the species is often captured for trade. Parrots are frequently sold in local markets and even along main highways in southern Bahia. Emberizidae have probably suffered a reduction in numbers as well, as *Oryzoborus angolensis* was also recorded only once in the field.

New and recently described taxa

Another reflection of the importance of the Serra das Lontras–Javi complex in the contexts of both conservation and science is the presence of new species of birds discovered only recently. One species described and another rediscovered in the Serra de Ouricana near Boa Nova^{9,17}, *Phylloscartes beckeri* and *Synallaxis cinerea*²⁷, are also quite common in the Serra das Lontras–Javi. *Acrobatornis fonsecai* was described from the Serra das Lontras region¹⁸, where it is still common in the canopy of *cabruças* below c.550 m. Both Serra das Lontras and Serra do Javi harbour at least two more birds new to science (a *Heliobletus* and *Scytalopus*), which are currently in the process of being described by BMW, JFP and LFS *et al.* These findings stress the importance of urgently protecting these forests, as they are important from an avian biogeographic perspective (a hidden refuge²⁰), and certainly for other fauna and flora as well.

Closing remarks

These unique mountains have been poorly explored from a scientific perspective and have received even less attention in terms of conservation: reserves and parks in southern Bahia are located in forested coastal areas or on offshore islands. The imminent threat of habitat loss confers on these mountains an even more urgent need for their protection. Trucks loaded with timber were observed both in Arataca and along the BR 101 highway. Apparently, trees are being cut from former *cabruças*, which are being replanted as coffee plantations or left for pastures. Recently opened clearings were observed in both serras, where residents practice subsistence agriculture after setting fire to the felled trees. This system rapidly depletes the soil, necessitating the clearance of new areas for plantations. Such areas, once abandoned, take a very long time to regenerate, as we observed in parts of the Serra do Javi.

This study clearly revealed the overall importance of the Serra das Lontras–Javi complex. The establishment of a reserve with an integrated system of protection for these forests, including remaining *cabruças* and secondary growth, is crucial to maintain the integrity of the region's unique avifauna.

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Appendix I. List of bird species recorded in the Serra das Lontras–Javi montane complex, Bahia. Obs.: C: records made exclusively by P. Cordeiro⁴ (17 species); L: records made exclusively by F. Lambert¹³ (five species). Status (following BirdLife International 2004): EN: endangered; VU: vulnerable; NT: Near Threatened. Taxonomy follows Remsen *et al.*¹⁹.

FAMILY / SUBFAMILY Species	English name	Status	S. das Lontras	
			S	Javi
TINAMIDAE				
<i>Tinamus solitarius</i>	Solitary Tinamou	NT	X	X
<i>Crypturellus soui</i>	Little Tinamou		X	X
<i>Crypturellus variegatus</i>	Variiegated Tinamou			X
<i>Crypturellus obsoletus</i>	Brown Tinamou		X	X
ARDEIDAE				
<i>Butorides striata</i>	Striated Heron			X
<i>Bubulcus ibis</i>	Cattle Egret		X	
CATHARTIDAE				
<i>Sarcorampus papa</i>	King Vulture		X	X
<i>Coragyps atratus</i>	Black Vulture		X	X
<i>Cathartes aura</i>	Turkey Vulture		X	X
<i>Cathartes burrovianus</i>	Lesser Yellow-headed Vulture			X
ACCIPITRIDAE				
<i>Leptodon cayanensis</i>	Grey-headed Kite			X
<i>Buteo albicaudatus</i>	White-tailed Hawk			X
<i>Buteo brachyurus</i>	Short-tailed Hawk			X
<i>Buteo albonotatus</i>	Zone-tailed Hawk		X	X
<i>Rupornis magnirostris</i>	Roadside Hawk		X	X
<i>Leucopternis polionotus</i>	Mantled Hawk	NT	X	X
<i>Leucopternis lacernulatus</i>	White-necked Hawk	VU	X	X
<i>Harpia harpyja</i>	Harpy Eagle		X	
<i>Spizastrur melanoleucus</i>	Black-and-white Hawk-eagle		X	
<i>Spizaetus tyrannus</i>	Black Hawk-eagle		X	X
FALCONIDAE				
<i>Herpetotheres cachinnans</i>	Laughing Falcon			X

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<i>Micrastur ruficollis</i>	Barred Forest-falcon	X	X	<i>Cypseloides fumigatus</i>	Sooty Swift		L
<i>Milvaga chimachima</i>	Yellow-headed Caracara	X	X				
<i>Caracara plancus</i>	Southern Caracara	X					
CRACIDAE				TROCHILIDAE			
<i>Penelope supercilii</i>	Rusty-margined Guan		C	<i>Glaucis hirsutus</i>	Rufous-breasted Hermit	X	X
PHASIANIDAE				<i>Phaethornis squalidus</i>	Dusky-throated Hermit	X	
<i>Odontophorus capueira</i>	Spot-winged Wood-quail	X	X	<i>Phaethornis eurynome</i>	Scale-throated Hermit	X	X
RALLIDAE				<i>Phaethornis ruber</i>	Reddish Hermit	X	X
<i>Aramides cajanea</i>	Grey-necked Wood-rail			<i>Eupetomena macroura</i>	Swallow-tailed Hummingbird	X	X
<i>Amaurilmnas concolor</i>	Uniform Crake	C	X	<i>Florisuga fusca</i>	Black Jacobin	X	
<i>Porzana albicollis</i>	Ash-throated Crake		X	<i>Anthracothorax nigricollis</i>	Black-throated Mango	X	X
JACANIDAE				<i>Lophornis magnificus</i>	Friiled Coquette	X	
<i>Jacana jacana</i>	Wattled Jacana		C	<i>Discosura langsdorffi</i>	Black-bellied Thorntail	X	X
CHARADRIIDAE				<i>Discosura longicauda</i>	Racket-tailed Coquette	X	X
<i>Vanellus chilensis</i>	Southern Lapwing		C	<i>Chlorestes notata</i>	Blue-chinned Sapphire	X	X
COLUMBIDAE				<i>Chlorostilbon aureoventris</i>	Glittering-bellied Emerald	X	
<i>Patagioenas cayennensis</i>	Pale-vented Pigeon		C	<i>Thalurenia watertonii</i>	Long-tailed Woodnymph	NT	C
<i>Patagioenas plumbea</i>	Plumbeous Pigeon	X	X	<i>Thalurenia glaucopsis</i>	Violet-capped Woodnymph	X	X
<i>Columbina talpacoti</i>	Ruddy Ground-dove	X		<i>Hylocharis sapphirina</i>	Rufous-throated Sapphire	X	
<i>Claravis pretiosa</i>	Blue Ground-dove	X		<i>Hylocharis cyanus</i>	White-chinned Sapphire	X	X
<i>Leptotila verreauxi</i>	White-tipped Dove	X	X	<i>Amazilia versicolor</i>	Versicoloured Emerald	X	
<i>Leptotila rufaxilla</i>	Grey-fronted Dove	X		<i>Amazilia fimbriata</i>	Glittering-throated Emerald		X
<i>Geotrygon montana</i>	Ruddy Quail-dove	X		<i>Aphantochroa cirrhochloris</i>	Sombre Hummingbird	X	X
PSITTACIDAE				<i>Cyrtolaema rubricauda</i>	Brazilian Ruby	X	X
<i>Aratinga leucophthalma</i>	White-eyed Parakeet		X	<i>Heliothryx auritus</i>	Black-eared Fairy	X	X
<i>Aratinga auricapillus</i>	Golden-capped Parakeet	NT	X	<i>Calliphlox amethystina</i>	Amethyst Woodstar	X	
<i>Aratinga aurea</i>	Peach-fronted Parakeet		C	TROGONIDAE			
<i>Pyrrhura cruentata</i>	Blue-throated Parakeet	VU	X	<i>Trogon viridis</i>	White-tailed Trogon	X	X
<i>Pyrrhura frontalis</i>	Maroon-bellied Parakeet	X	X	<i>Trogon rufus</i>	Black-throated Trogon	X	X
<i>Forpus xanthopterygius</i>	Blue-winged Parrotlet	X	X	<i>Trogon surrucura</i>	Surucua Trogon	X	X
<i>Brotogeris tirica</i>	Plain Parakeet	X	X	ALCEDINIDAE			
<i>Touit melanonotus</i>	Brown-backed Parrotlet	EN	X	<i>Chloroceryle americana</i>	Green Kingfisher		X
<i>Touit surdus</i>	Golden-tailed Parrotlet	VU	X	GALBULIDAE			
<i>Pionopsitta pileata</i>	Pileated Parrot	X	X	<i>Galbula ruficauda</i>	Rufous-tailed Jacamar	X	X
<i>Amazona rhodocorytha</i>	Red-browed Parrot	EN	C	BUCCONIDAE			
<i>Amazona amazonica</i>	Orange-winged Parrot		C	<i>Notharchus swainsoni</i>	White-necked Puffbird		X
CUCULIDAE				<i>Monasa morphoeus</i>	White-fronted Nunbird	C	
<i>Piaya cayana</i>	Squirrel Cuckoo	X	X	<i>Malacoptila striata</i>	Crescent-chested Puffbird	X	
<i>Crotophaga ani</i>	Smooth-billed Ani	X	X	<i>Chelidoptera tenebrosa</i>	Swallow-wing		X
<i>Guira guira</i>	Guira Cuckoo		X	RAMPHASTIDAE			
<i>Tapera naevia</i>	Striped Cuckoo		X	<i>Pteroglossus aracari</i>	Black-necked Aracari	X	X
STRIGIDAE				<i>Selenidera maculirostris</i>	Spot-billed Toucanet	X	X
<i>Megascops atricapilla</i>	Variable Screech-owl	X	X	<i>Ramphastos vitellinus</i>	Channel-billed Toucan	X	X
<i>Megascops choliba</i>	Tropical Screech-owl	X		PICIDAE			
<i>Pulsatrix koenigswaldiana</i>	Tawny-browed Owl	X		<i>Picumnus exilis</i>	Golden-spangled Piculet	X	X
<i>Glaucidium brasilianum</i>	Ferruginous Pygmy-owl	X	X	<i>Picumnus cirratus</i>	White-barred Piculet	X	
<i>Glaucidium minutissimum</i>	Least Pygmy-owl	X	X	<i>Piculus flavigula</i>	Yellow-throated Woodpecker	X	X
NYCTIBIIDAE				<i>Celeus flavescens</i>	Blond-crested Woodpecker	L	
<i>Nyctibius griseus</i>	Common Potoo		X	<i>Dryocopus lineatus</i>	Lineated Woodpecker	X	X
CAPRIMULGIDAE				<i>Melanerpes flavifrons</i>	Yellow-fronted Woodpecker	X	X
<i>Lurocalis semitorquatus</i>	Short-tailed Nighthawk	X	X	<i>Veniliornis affinis</i>	Red-stained Woodpecker	X	X
<i>Nyctiphrynus ocellatus</i>	Ocellated Poorwill	X		RHINOCRYPTIDAE			
<i>Nyctidromus albigollis</i>	Pauraque	X	X	<i>Rhinocryptus sp.</i>	tapaculo	X	X
APODIDAE				THAMNOPHILIDAE			
<i>Streptoprocne zonaris</i>	White-collared Swift	X		<i>Hypodaleus guttatus</i>	Spot-backed Antshrike	X	X
<i>Chaetura spinicaudus</i>	Band-rumped Swift	X		<i>Mackenziaena severa</i>	Tufted Antshrike	X	X
<i>Chaetura cinereiventris</i>	Grey-rumped Swift	X	X	<i>Thamnophilus palliatus</i>	Chestnut-backed Antshrike	X	X
<i>Chaetura meridionalis</i>	Sick's Swift	X	X	<i>Thamnophilus ambiguus</i>	Sooretama Slaty-antshrike	X	X
				<i>Dysithamnus stictothorax</i>	Spot-breasted Antvireo	NT	X
				<i>Dysithamnus mentalis</i>	Plain Antvireo	X	X
				<i>Thamnomanes caesius</i>	Cinereous Antshrike	X	X
				<i>Myrmotherula axillaris</i>	White-flanked Antwren	X	
				<i>Myrmotherula gularis</i>	Star-throated Antwren	X	X

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<i>Myrmotherula minor</i>	Salvadori's Antwren		X	<i>Capsiempis flaveola</i>	Yellow Tyrannulet		X
<i>Myrmotherula urosticta</i>	Band-tailed Antwren	VU	X X	<i>Hemitriccus diops</i>	Drab-breasted Bamboo-tyrant		X X
<i>Terenera maculata</i>	Streak-capped Antwren		X X	<i>Todirostrum poliocephalum</i>	Yellow-lored Tody-flycatcher		X X
<i>Herpsilochmus rufimarginatus</i>	Rufous-winged Antwren		X X	<i>Todirostrum cinereum</i>	Common Tody-flycatcher		X X
<i>Formicivora grisea</i>	White-fringed Antwren		X X	<i>Rhynchocyclus olivaceus</i>	Olivaceous Flatbill		C
<i>Drymophila ferruginea</i>	Ferruginous Antbird		X X	<i>Tolmomyias sulphurescens</i>	Yellow-olive Flycatcher		X X
<i>Drymophila ochropyga</i>	Ochre-rumped Antbird	NT	X X	<i>Tolmomyias flaviventris</i>	Yellow-breasted Flycatcher		X X
<i>Drymophila squamata</i>	Scaled Antbird		X X	<i>Platyrinchus mystaceus</i>	White-throated Spadebill		X X
<i>Pyriglena leucoptera</i>	White-shouldered Fire-eye		X X	<i>Myiophobus fasciatus</i>	Bran-coloured Flycatcher		X X
<i>Myrmeciza loricata</i>	White-bibbed Antbird		X	<i>Contopus cinereus</i>	Tropical Pewee		X X
FORMICARIIDAE				<i>Lathrotriccus euleri</i>	Euler's Flycatcher		X
<i>Chamaeza campanisona</i>	Short-tailed Antthrush		X X	<i>Fluvicola nengeta</i>	Masked Water-tyrant		X X
<i>Chamaeza meruloides</i>	Such's Antthrush		X X	<i>Colonia colonus</i>	Long-tailed Tyrant		X X
<i>Formicarius colma</i>	Rufous-capped Antthrush		X X	<i>Hirundinea ferruginea</i>	Cliff Flycatcher		X X
<i>Grallaria varia</i>	Variegated Antpitta		X X	<i>Machetornis rixosa</i>	Cattle Tyrant		X
CONOPOPHAGIDAE				<i>Attila rufus</i>	Grey-hooded Attila		X X
<i>Conopophaga lineata</i>	Rufous Gnateater		X X	<i>Attila spadiceus</i>	Bright-rumped Attila		C
<i>Conopophaga melanops</i>	Black-cheeked Gnateater		X	<i>Rhytipterna simplex</i>	Greyish Mourner		X X
FURNARIIDAE				<i>Laniocera hypopyrra</i>	Cinereous Mourner		C
<i>Furnarius figulus</i>	Wing-banded Hornero		X	<i>Sirystes sibilator</i>	Sirystes		X
<i>Furnarius rufus</i>	Rufous Hornero		X X	<i>Myiarchus ferox</i>	Short-crested Flycatcher		X X
<i>Synallaxis cinerea</i>	Bahia Spinetail	VU	X	<i>Myiodinastes maculatus</i>	Streaked Flycatcher		L
<i>Synallaxis frontalis</i>	Sooty-fronted Spinetail		X X	<i>Pitangus sulphuratus</i>	Great Kiskadee		X X
<i>Synallaxis spixi</i>	Spix's Spinetail		X	<i>Megarynchus pitangua</i>	Boat-billed Flycatcher		X X
<i>Cranioleuca pallida</i>	Pallid Spinetail		X	<i>Myiozetetes similis</i>	Social Flycatcher		X X
<i>Certhiaxis cinnamomeus</i>	Yellow-chinned Spinetail		X	<i>Conopias trivirgatus</i>	Three-striped Flycatcher		X X
<i>Phacellodomus rufifrons</i>	Common Thornbird		X X	<i>Legatus leucophaeus</i>	Piratic Flycatcher		X X
<i>Acrobatomis fonsecai</i>	Pink-legged Graveteiro	VU	X X	<i>Empidonomus varius</i>	Variegated Flycatcher		X X
<i>Anabazenops fuscus</i>	White-collared Foliage-gleaner		X X	<i>Tyrannus melancholicus</i>	White-throated Kingbird		X X
<i>Philydor lichtensteini</i>	Ochre-breasted Foliage-gleaner		X X	<i>Pachyrhamphus polychopterus</i>	White-winged Becard		X
<i>Philydor atricapillus</i>	Black-capped Foliage-gleaner		X	<i>Pachyrhamphus viridis</i>	Green-backed Becard		X X
<i>Philydor rufum</i>	Buff-fronted Foliage-gleaner		X	<i>Pachyrhamphus castaneus</i>	Chestnut-crowned Becard		X X
<i>Automolus leucophthalmus</i>	White-eyed Foliage-gleaner		X X	<i>Pachyrhamphus marginatus</i>	Black-capped Becard		X X
<i>Thriphophaga macroura</i>	Striated Softtail	VU	X	<i>Pachyrhamphus validus</i>	Crested Becard		X
<i>Cichlocolaptes leucophrus</i>	Pale-browed Treehunter		X X	<i>Tityra cayana</i>	Black-tailed Tityra		X
<i>Heliobletus sp.</i>	treehunter sp.		X X	PIPRIDAE			
<i>Xenops minutus</i>	Plain Xenops		X X	<i>Dixiphia pipra</i>	White-crowned Manakin		X X
<i>Xenops rutilans</i>	Streaked Xenops		X X	<i>Pipra rubrocapilla</i>	Red-headed Manakin		X
<i>Lochneria nematura</i>	Sharp-tailed Streamcreeper		X X	<i>Chiroxiphia caudata</i>	Blue Manakin		X X
DENDROCOLAPTIDAE				<i>Illicura militaris</i>	Pin-tailed Manakin		X X
<i>Dendrocincla turdina</i>	Thrush-like Woodcreeper		X X	<i>Manacus manacus</i>	White-bearded Manakin		X X
<i>Sittasomus griseicapillus</i>	Olivaceous Woodcreeper		X	<i>Machaeropterus regulus</i>	Striped Manakin		X X
<i>Glyphorhynchus spirurus</i>	Wedge-billed Woodcreeper		X	<i>Schiffornis turdina</i>	Thrush-like Schiffornis		X X
<i>Xiphocolaptes albicollis</i>	White-throated Woodcreeper		X X	COTINGIDAE			
<i>Dendrocolaptes platyrostris</i>	Planalto Woodcreeper		X X	<i>Carpornis melanocephala</i>	Black-headed Berryeater	VU	X X
<i>Lepidocolaptes squamatus</i>	Scaled Woodcreeper		X	<i>Xipholena atropurpurea</i>	White-winged Cotinga	EN	X
<i>Xiphorhynchus guttatus</i>	Buff-throated Woodcreeper		C	<i>Iodopleura pipra</i>	Buff-throated Purpleuft	NT	X
<i>Xiphorhynchus fuscus</i>	Lesser Woodcreeper		X X	<i>Laniusoma elegans</i>	Shrike-like Cotinga		X
<i>Campylorhamphus falcularius</i>	Black-billed Scythebill		X	<i>Lipaugus vociferans</i>	Screaming Piha		X X
TYRANNIDAE				<i>Lipaugus lanioides</i>	Cinnamon-vented Piha	NT	X X
<i>Phylloscartes fasciatus</i>	Planalto Tyrannulet		X	<i>Procnias nudicollis</i>	Bare-throated Bellbird	VU	X
<i>Phylloscartes burmeisteri</i>	Rough-legged Tyrannulet		X X	<i>Oxyruncus cristatus</i>	Sharpbill		X X
<i>Campptostoma obsoletum</i>	Southern Beardless-tyrannulet		X	HIRUNDINIDAE			
<i>Myiopagis caniceps</i>	Grey Elaenia		X X	<i>Progne tapera</i>	Brown-chested Martin		X
<i>Elaenia flavogaster</i>	Yellow-bellied Elaenia		X X	<i>Progne chalybea</i>	Grey-breasted Martin		X X
<i>Elaenia spectabilis</i>	Large Elaenia		L	<i>Pygochelidon cyanoleuca</i>	Blue-and-white Swallow		X X
<i>Serpophaga subcristata</i>	White-crested Tyrannulet		X	<i>Stelgidopteryx ruficollis</i>	Southern Rough-winged Swallow		X X
<i>Leptopogon amaurocephalus</i>	Sepia-capped Flycatcher		X X	TROGLODYTIDAE			
<i>Mionectes oleagineus</i>	Ochre-bellied Flycatcher		X	<i>Campylorhynchus turdinus</i>	Thrush-like Wren		X X
<i>Myiobius barbatus</i>	Sulphur-rumped Flycatcher		X	<i>Donacobius atricapilla</i>	Donacobius		C
<i>Myiornis auricularis</i>	Eared Pygmy-tyrant		X	<i>Thryothorus genibarbis</i>	Moustached Wren		X
<i>Phylloscartes sylviolus</i>	Bay-ringed Tyrannulet	NT	X	<i>Thryothorus longirostris</i>	Long-billed Wren		C
<i>Phylloscartes beckeri</i>	Bahia Tyrannulet	EN	X X	<i>Troglodytes musculus</i>	Southern House-wren		X X
<i>Phylloscartes oustaleti</i>	Oustalet's Tyrannulet	NT	X				

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MUSCICAPIDAE/SYLVIINAE

<i>Ramphocaelus melanurus</i>	Long-billed Gnatwren	X	X
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TURDINAE

<i>Platycichla flavipes</i>	Yellow-legged Thrush	X	X
<i>Cichlopsis leucogenys</i>	Rufous-brown Solitaire	X	X
<i>Turdus rufiventris</i>	Rufous-bellied Thrush	X	X
<i>Turdus leucomelas</i>	Pale-breasted Thrush	X	X
<i>Turdus albicollis</i>	White-necked Thrush	X	X

VIREONIDAE

<i>Cyclarhis gujanensis</i>	Rufous-browed Peppershrike	X	X
<i>Vireo olivaceus</i>	Red-eyed Vireo	X	X
<i>Hylophilus aff. thoracicus</i>	Lemon-chested Greenlet	X	X

EMBERIZIDAE / PARULINAE

<i>Parula pitayumi</i>	Tropical Parula	X	X
<i>Geothlypis aequinoctialis</i>	Masked Yellowthroat	X	X
<i>Phaethlypis rivularis</i>	Neotropical River Warbler	X	X

COEREBINAE

<i>Coereba flaveola</i>	Bananaquit	X	X
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THRAUPINAE

<i>Hemithraupis flavicollis</i>	Yellow-backed Tanager	X	X
<i>Hemithraupis ruficapilla</i>	Rufous-headed Tanager	X	
<i>Nemosia pileata</i>	Hooded Tanager	X	X
<i>Tachyphonus cristatus</i>	Flame-crested Tanager	X	X
<i>Tachyphonus rufus</i>	White-lined Tanager	X	X
<i>Habia rubica</i>	Red-crowned Ant-tanager	X	X
<i>Ramphocelus bresilius</i>	Brazilian Tanager	X	X
<i>Thraupis sayaca</i>	Sayaca Tanager	X	X
<i>Thraupis ornata</i>	Golden-chevroned Tanager	X	X
<i>Thraupis palmarum</i>	Palm Tanager	X	X
<i>Chlorophonia cyanea</i>	Blue-naped Tanager	X	
<i>Euphonia chlorotica</i>	Purple-throated Euphonia	X	
<i>Euphonia violacea</i>	Violaceous Euphonia	X	X
<i>Euphonia xanthogaster</i>	Orange-bellied Euphonia	X	X
<i>Euphonia pectoralis</i>	Chestnut-bellied Euphonia	X	X
<i>Tangara seledon</i>	Green-headed Tanager	X	X
<i>Tangara cayana</i>	Burnished-buff Tanager	X	

<i>Tangara cyanocephala</i>	Red-necked Tanager	X	X
<i>Tangara mexicana</i>	White-bellied Tanager	X	X
<i>Tangara velia</i>	Silvery-breasted Tanager	X	X
<i>Dacnis cayana</i>	Blue Dacnis	X	X
<i>Chlorophanes spiza</i>	Green Honeycreeper	X	X
<i>Cyanerpes cyaneus</i>	Red-legged Honeycreeper	X	X
<i>Conirostrum speciosum</i>	Chestnut-vented Conebill		X

EMBERIZINAE

<i>Ammodramus humeralis</i>	Grassland Sparrow		L
<i>Sicalis flaveola</i>	Saffron Finch		X
<i>Emberizoides herbicola</i>	Wedge-tailed Grass-finch		X
<i>Volatinia jacarina</i>	Blue-black Grassquit		X
<i>Sporophila frontalis</i>	Buffy-fronted Seedeater		X
<i>Sporophila falcirostris</i>	Temminck's Seedeater		X
<i>Sporophila leucoptera</i>	White-bellied Seedeater		X X
<i>Sporophila lineola</i>	Lined Seedeater		X
<i>Sporophila nigricollis</i>	Yellow-bellied Seedeater		X X
<i>Sporophila caerulescens</i>	Double-collared Seedeater		X X
<i>Oryzoborus angolensis</i>	Chestnut-bellied Seed-finch		X
<i>Tiaris fuliginosus</i>	Sooty Grassquit		X
<i>Arremon taciturnus</i>	Pectoral Sparrow		X X

CARDINALINAE

<i>Caryothraustes canadensis</i>	Yellow-green Grosbeak		X X
<i>Saltator fuliginosus</i>	Black-throated Grosbeak		X X
<i>Saltator maximus</i>	Buff-throated Saltator		X X
<i>Saltator similis</i>	Green-winged Saltator		X X

ICTERINAE

<i>Psarocolius decumanus</i>	Crested Oropendola		X
<i>Cacicus haemorrhous</i>	Red-rumped Cacique		X X
<i>Cacicus cela</i>	Yellow-rumped Cacique		C
<i>Molothrus bonariensis</i>	Shiny Cowbird		X X

Petrels, skuas and other migrant seabirds in a coastal bay in Santa Catarina state, southern Brazil

Vitor de Queiroz Piacentini, Leonardo Liberali Wedekin and Fábio Gonçalves Daura-Jorge

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O estudo de aves marinhas em Santa Catarina, especialmente de espécies pelágicas, ainda é bastante escasso. Dentro deste panorama, de janeiro de 2001 a janeiro de 2004 foram registradas as espécies de aves que utilizam a Baía Norte, a qual separa a Ilha de Santa Catarina—em sua porção mais setentrional—do continente. A presença de espécies pelágicas e algumas outras espécies migrantes foi constante ao longo de todo o estudo. Destacam-se os registros de *Macronectes giganteus*, *Fulmarus glacialisoides*, *Pachyptila* sp., *Catharacta maccormiki*—o primeiro registro para o estado—, *Catharacta chilensis* e *Stercorarius parasiticus*. Todos estes registros são aqui circunstanciados. Os Procellariiformes parecem utilizar a Baía Norte de forma esporádica, ao passo que os Stercorariidae são visitantes regulares do local. Por fim, *Sterna maxima*, espécie migratória ameaçada no Brasil e tida como rara em Santa Catarina, foi registrada regularmente ao longo de todo o estudo.

The avifauna of Santa Catarina is still poorly known, although it has received more attention during the last decade^{8,15}. Nevertheless, seabirds, especially pelagic species, have been neglected, enabling recent works to steadily add new species to the state's list. Rosário¹⁵ cited 16 Procellariiformes for Santa Catarina but at least two species were overlooked, namely White-headed Petrel *Pterodroma lessoni*, found once on a beach on Santa Catarina Island, the only documented record in Brazil^{1,2,18}, and Antarctic Prion *Pachyptila desolata*^{1,8}. A few additional pelagics have been recorded in Santa Catarina more recently, including Northern Royal Albatross *Diomedea sanfordi*¹², Light-mantled Sooty Albatross

*Phoebetria palpebrata*¹⁴ and, in recent years, several *Catharacta* and *Stercorarius*^{10,19}.

Almost all records of Procellariiformes and Stercorariidae in Santa Catarina are of specimens found on beaches or birds observed offshore. Here we present data on some of these seabirds recorded in coastal waters of Santa Catarina. In addition, we also comment on the presence of Sphenisciformes and Laridae in the state.

Methods

Baía Norte is in southern Brazil, between Santa Catarina Island and the mainland (27°30'S 48°35'W; Fig. 1). It is a typical shallow sea inlet with a surface area of c.250 km², and water depth rarely

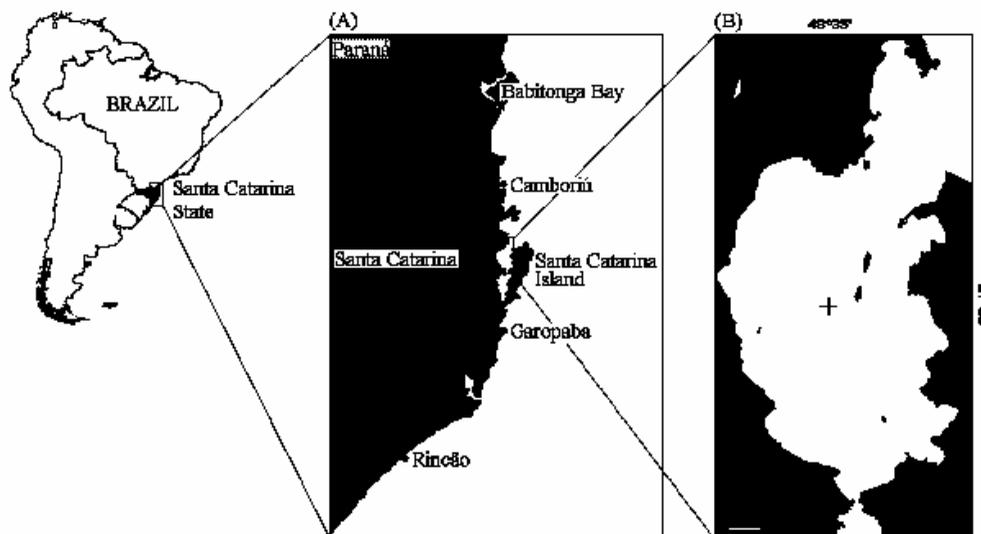


Figure 1. Map showing the location of the study area in Santa Catarina, southern Brazil, with details of: (A) the coast of Santa Catarina; (B) Baía Norte, between Santa Catarina Island and the mainland.

exceeds 5 m³. Baía Norte is highly modified and influenced by human activities, such as embankment, deforestation and urbanisation of the coast, sewage pollution, fishing and boat transit.

Between January 2001 and September 2003 we made 76 cruises to study cetaceans and seabirds. These were undertaken aboard a 5-m yacht equipped with an outboard motor. Departure was always between 07h00 and 09h00, and the voyages ended prior to 17h00. The departure point was in the eastern part of the Baía Norte, and from there we always travelled counter-clockwise until reaching the western coast. The route was interrupted each time we encountered dolphins, which we would follow in order to collect data. We also registered numbers and species of seabirds observed on these cruises. Other, opportunistic records are also included here, as well as data from a cruise in January 2004. Taxonomy adopted is that followed by Bencke².

Results

Four Procellariiformes and three Stercorariidae were recorded in the Baía Norte. Details of these are presented below.

Black-browed Albatross *Thalassarche melanophrys*
A juvenile was photographed, on 29 July 2002, by A. Blankenstein north of Santa Catarina Island, between the Baía Norte and open sea. The species is the commonest albatross over shelf waters in Santa Catarina^{8,15}, especially frequent in the austral winter¹, and most individuals encountered in Brazil are juveniles, as waters over the Brazilian shelf are an important feeding ground for youngsters dispersing from Falklands colonies^{9,11}.

Southern Giant Petrel *Macronectes giganteus*
Two photographed in Baía Norte on 9 September 2002, were both first-year, blackish birds (Fig. 2). During the same period, a dark bird was rescued by the animal recovery centre (CETRAS) on Santa Catarina Island, and the finding of a Southern Giant Petrel at Camboriú, in northern coastal Santa Catarina, was reported in local newspapers. The first record for Santa Catarina was of a banded bird recovered at Garopaba on 25 August 1962 (Sladen *et al.* 1968 *apud* Olmos¹¹). There are two other published state records, one from Rincão, southern coastal Santa Catarina, in 1988, and one on Santa Catarina Island, in 1991^{8,15}. More recently, another dark young bird was photographed by C. H. S. Oliveira, at Moçambique beach, on the east coast of Santa Catarina Island, on 17 August 2003 (Fig. 3). These records suggest that giant petrels are fairly common in Santa Catarina in colder months; indeed, they are noted daily offshore around the P-14 oil platform, near the border with Paraná (J. Soto *in litt.* 2003).

Southern Fulmar *Fulmarus glacialisoides*

On 29 April 2002, one was found at Saco Grande, on the west coast of Santa Catarina Island (Fig. 4). The bird was very bold and easily photographed. It appeared poorly nourished, as it pecked at floating debris in easy reach (e.g. leaves, wood fragments, seeds and other material; Fig. 5). There are several previous records from Santa Catarina Island⁸.

Prion *Pachyptila* sp.

One seen on 29 April 2002 in zigzag flight, c.8 m from our research vessel. Two species are known in Santa Catarina, *P. desolata* and *P. belcheri*. Sick¹⁸ stated that both species are only recorded close inshore during wrecks (see also Martuscelli *et al.*⁵). We are unaware of any storm or mortality event for other seabirds concurrent with this observation, making the record somewhat unexpected. However, it was observed the same day that we registered *Fulmarus glacialisoides*, suggesting that the presence of these Procellariiformes was related to poor weather conditions.

South Polar Skua *Catharacta maccormicki*

On 1 September 2000 a skua was photographed in the Baía Norte (Fig. 6). The bird had dark underwing-coverts, no capped effect and a slender bill, permitting identification as *C. maccormicki* (following Malling Olsen & Larsson⁴). This appears to be the first record for Santa Catarina.

Chilean Skua *Catharacta chilensis*

Our first record was in 2001 (date unrecorded), when a bird with a ferruginous breast and dark cap was photographed. Thereafter, we photographed the species on three occasions: on 23 November 2002, 29 July 2003 and 23 September 2003. The two latter observations involved two individuals, but in each only one was certainly identified. The first record in Santa Catarina was of a female now in the Natural History Museum, Tring (Saunders & Salvin 1896 *apud* Silva e Silva *et al.*¹⁹). We agree with Silva e Silva *et al.*¹⁹ that this female must be the source for the citation by Pinto¹³ of *C. chilensis* in Santa Catarina. More recently, a bird was photographed in 1994 (these photographs are stored at the Museu Oceanográfico do Vale do Itajaí [MOVI 16708]), and another was photographed in July 2001 in offshore waters of Santa Catarina¹⁹.

Arctic Skua *Stercorarius parasiticus*

From November 2002 to September 2003 we had several records of *Stercorarius* skuas on ten cruises, with two records from land in January and April 2003, and another on a cruise in January 2004. The records are summarised in Table 1. Only on 16 April 2003 were we able to identify the species involved, although based on their kleptoparasitic behaviour, the apparently all-dark bills and the size

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Petrels, skuas and other migrant seabirds in Santa Catarina state, southern Brazil

Table 1. Summary of records of *Stercorarius* sp. in Baía Norte, Santa Catarina.

	Date		No. of birds
<i>Stercorarius</i> cf. <i>parasiticus</i>	16	November 2002	3
<i>Stercorarius</i> cf. <i>parasiticus</i>	23	November 2002	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	13	December 2002	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	27	December 2002	2
<i>Stercorarius</i> cf. <i>parasiticus</i>	10	January 2003	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	13	January 2003	22
<i>Stercorarius parasiticus</i>	16	April 2003	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	19	April 2003	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	21	June 2003	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	29	July 2003	3
<i>Stercorarius</i> cf. <i>parasiticus</i>	19	September 2003	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	23	September 2003	1
<i>Stercorarius</i> cf. <i>parasiticus</i>	20	January 2004	4

and structural similarities to the one positively identified bird, we consider that all records were of *S. parasiticus*. We recorded both dark and pale morphs, dark birds being commoner (80.5%). A first-winter pale-morph (*vide* Malling Olsen & Larsson⁴) was recorded once. The first state record of a *Stercorarius* was made by Schiefler & Soares¹⁷, but the bird could not be identified to species level. On 25–30 March 1995, Olmos¹⁰ photographed 53 Pomarine Skuas *Stercorarius pomarinus*, 17 *S. parasiticus* and one Long-tailed Skua *S. longicaudus* following trawlers in shelf waters off Santa Catarina. On 1 October 2003, the recovery in northern coastal Santa Catarina of a *S. parasiticus* banded in Sweden was reported in local newspapers.

Discussion

In addition to those Procellariiformes mentioned above, a Light-mantled Sooty Albatross *Phoebastria palpebrata* was found in the channel between the Baía Norte and open sea¹⁴, and Rosário¹⁵ included a record of a Sooty Shearwater *Puffinus griseus* in 1988, also from the Baía Norte. Albatrosses and petrels appear to use the Baía Norte mostly on passage or during post-breeding dispersal, and their occurrence is further influenced by weather systems bringing them closer to the mainland.

On the other hand, *Stercorarius* skuas occur regularly. Although Rosário¹⁵ reported three records of skuas in Santa Catarina, only one is attributable to species, as she treated all skua taxa under *C. skua*, a common usage in Brazil until recently. The record of July 1963, also mentioned by Sick¹⁸, refers to *C. antarctica lonnbergi*¹¹. We also observed unidentified skuas on several occasions. One of these records was made in the Baía de Babetonga, in the north of the state, on 10 August

2002, whereas the others are from the Baía Norte. All but one of our records of *Catharacta* spp., as well as those cited by Rosário¹⁵, were made in April–September (Fig. 7). The paucity of records in October–March, despite equal field effort during this period, accords with the breeding season of southern skuas, as adults are on the breeding grounds in Antarctica and southernmost South America⁴.

The presence of *Stercorarius* in Baía Norte also follows the breeding phenologies of these species. Most of our records, including that involving the largest number of individuals (Table 1), were made in November–April, when birds would be expected in the southern Atlantic along the coast of South America⁴. Interestingly, it is possible that spatial segregation between *S. parasiticus* and *S. pomarinus* exists: the former is much rarer over deeper waters far from land¹⁰, but thus far is the only *Stercorarius* recorded close to mainland Santa Catarina. Such apparent segregation must be viewed critically: *S. pomarinus* is recorded from the coast of Rio Grande do Sul², thus a lack of such records in Santa Catarina may merely reflect an observational lacuna. Tern abundance in Baía Norte appears to be the reason for the presence of *Stercorarius parasiticus* there. We have witnessed many instances of kleptoparasitism of terns by skuas, as well as skuas following flocks of terns. We also observed a Magnificent Frigatebird *Fregata magnificens* harassing a skua, after the latter had stolen prey from a tern.

In winter we also recorded Magellanic Penguin *Spheniscus magellanicus* in Baía Norte. The species is common in colder months on the coast of Santa Catarina, where large numbers, mostly recently fledged immatures, are washed-up dead on beaches. It is unclear whether those that survive return to Patagonian Argentina¹⁵.

Another species frequently recorded during our studies in Baía Norte was Royal Tern *Sterna maxima*, considered Vulnerable in Brazil due to the country's small breeding population⁶. This tern is very common in winter and is observed year-round, although it is always less numerous than Cayenne

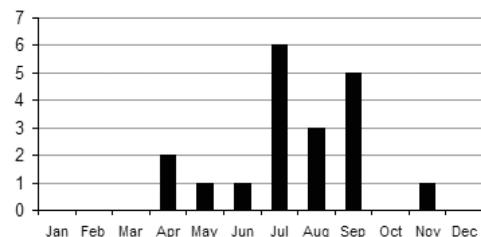


Figure 7. Number of records of *Catharacta* spp. in coastal Santa Catarina.

Tern *S. sandvicensis eurygnatha*. In Baía Norte, Royal is commoner than South American Tern *S. hirundinacea*, which is considered the commonest tern in coastal Santa Catarina¹⁵. Known from only four localities in the state^{7,15}, we consider *S. maxima* to have been merely overlooked, and to be commoner than previously known. Recently, Rosário¹⁶ found a similar pattern for Royal Tern in Baía Sul, just south of Baía Norte.

Acknowledgements

We thank J. Soto, A. Blankenstein and C. H. S. Oliveira for sharing valuable information. Our work greatly benefited from discussions with F. Olmos concerning seabirds in Baía Norte. Mercury Motores Náuticos do Brasil provided an outboard motor; LLW was partially funded by Socioambiental Consultores; and FGDJ was supported by CNPq with an undergraduate scholarship for one year.

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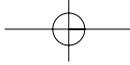
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Figure 2. Southern Giant Petrel *Macronectes giganteus* in Baía Norte, Santa Catarina (L. L. Wedekin)



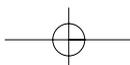
Figure 3. Southern Giant Petrel *Macronectes giganteus* at Moçambique beach, Santa Catarina Island (C. H. S. Oliveira)



Figures 4–5. Southern Fulmar *Fulmarus glacialis* Saco Grande, Santa Catarina Island (L. L. Wedekin)



Figure 6. South Polar Skua *Catharacta maccormicki* in Baía Norte, Santa Catarina; note the slender bill, dark underwing-coverts and absence of a cap (L. L. Wedekin)



A new locality and records of Cherry-throated Tanager *Nemosia rourei* in Espírito Santo, south-east Brazil, with fresh natural history data for the species

Ana Cristina Venturini, Pedro Rogério de Paz and Guy M. Kirwan

Cotinga 24 (2005): 60–70

São relatadas aqui novas observações sobre a Saíra-apunhalada *Nemosia rourei*, espécie endêmica do Brasil e globalmente ameaçada de extinção, cuja ocorrência atual conhecida era somente de uma localidade no Espírito Santo descoberta em 1998. Foi descoberta uma segunda área com ocorrência regular para a espécie chamada Caetés. Dois registros adicionais para a Reserva Biológica Augusto Ruschi foram feitos. São comentados detalhes destes locais e providas novas perspectivas sobre a conservação da espécie, população e informações da história natural, bem como detalhes sobre procura pela espécie, em outras localidades no Espírito Santo e também nos estados de Minas Gerais e Rio de Janeiro.

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The avifauna of the Atlantic Forest, although relatively well known, continues to produce significant surprises, despite widespread habitat destruction throughout the biome. In the state of Espírito Santo we have studied various important remnant forests, most of them conserved through private initiatives by their owners, and in many cases not previously subject to ornithological investigation. In one of these we recently located a population of Cherry-throated Tanager *Nemosia rourei*, only the second currently known for the species.

Cherry-throated Tanager is endemic to a tiny area of south-east Brazil and is considered Critically Endangered globally^{6,7}. The species was described in 1870, on the basis of a specimen reputedly collected at Muriaé, in Minas Gerais, and held in the Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin, although Pacheco¹⁶ suggested that the type locality might actually be Macaé de Cima, in Rio de Janeiro. However, all subsequent records are from Espírito Santo (Fig. 1). In August 1941, Sick²³ observed a group of eight birds in the municipality of Itarana, at Jatiboca (900 m) and, in October 1995, Scott²⁰ observed one, apparently of this species, within a mixed-species flock at Augusto Ruschi Biological Reserve, above Santa Teresa (700–900 m). In February 1998, six Brazilian researchers (among them ACV and PRP) discovered Cherry-throated Tanager at Fazenda Pindobas IV, in the municipality of Conceição do Castelo^{1–3,15}, where subsequently it has been observed frequently down to the present.

Prior to the species' rediscovery in the late 1990s, those authors^{5,9,10,13,18,22,24–26,31} reviewing the status and distribution of Cherry-throated Tanager have possessed very few data on which to base their

remarks. Sick & Teixeira²⁵ noted that the single known locality, in Itarana (previously Itaguaçu) municipality, had been largely deforested and given the lack of subsequent records some authors^{9,10,18,21} voiced the opinion that the species might prove to

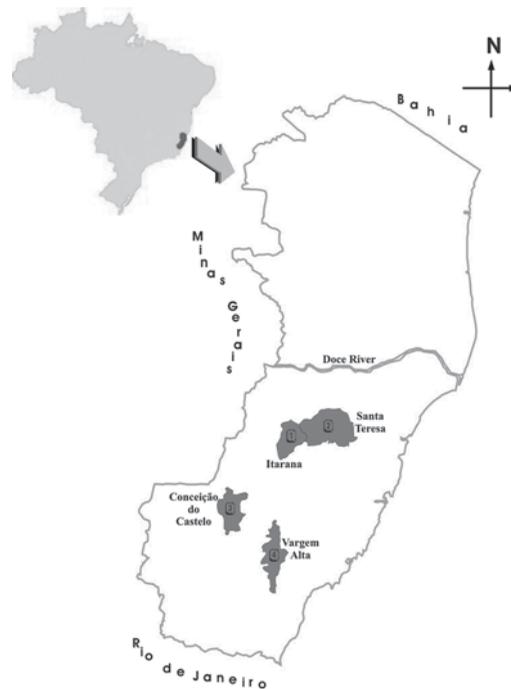


Figure 1. Map showing the municipalities in the state of Espírito Santo with previous records of Cherry-throated Tanager *Nemosia rourei* (1–3) and the new locality (4). 1 = Itarana; 2 = Santa Teresa; 3 = Conceição do Castelo; and 4 = Vargem Alta.

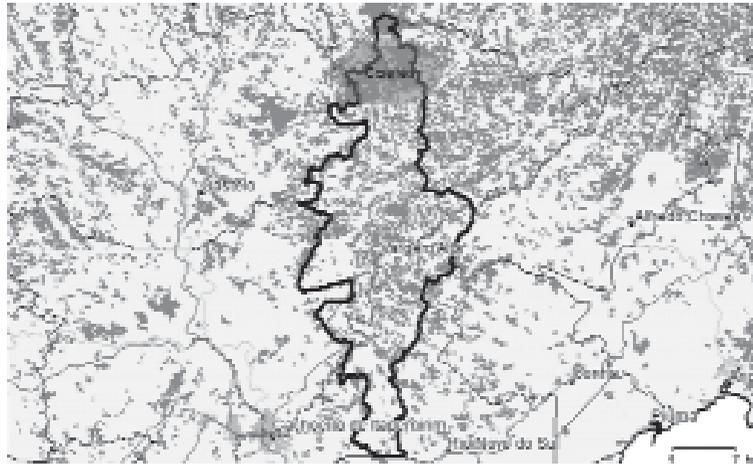


Figure 2. Forest cover in the municipality of Vargem Alta: the forested area in the north corresponds, in large part, to that known as Caetés (Fundação SOS Mata Atlântica/INPE [after the *Atlas dos remanescentes florestais da Mata Atlântica período 1995–2000*]).

be extinct. Nonetheless, surveys undertaken by Originalis Natura (now Faunativa) in 1998–2000 demonstrated that Itarana and Santa Maria de Jetibá municipalities still held many remnant forests, albeit highly fragmented, wherein they found more than 250 bird species (and 19 of mammals)^{17,27–29}, of which 70 are endemic to the Atlantic Forest, leading to the region being listed by BirdLife International as an Important Bird Area⁴.

Since the rediscovery in 1998, our work has centred on obtaining more complete data for *N. rourei*, particularly endeavouring to locate new sites for the species and devise actions for its conservation. We have been assisted by various colleagues, principally at Pindobas IV. Various information concerning morphology, feeding, life history, vocalisations and breeding have been published^{3,30}. Our studies have focused on the montane region of Espírito Santo between Muniz Freire, in the west, and Santa Teresa, in the east, but other field work, executed by Faunativa, has investigated fragmented forests in the montane centre of Rio de Janeiro state and eastern Minas Gerais. The present contribution aims to collate all unpublished information concerning the species gathered since 1998, to announce the discovery of a new locality for the species and to discuss the present state of our knowledge of *N. rourei*.

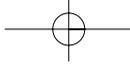
New records

New site: Caetés

The forest of Caetés lies within Vargem Alta municipality (Figs.1–4), in southern Espírito Santo (20°30'S 41°00'W), at 1,100–1,250 m, and is c.30 km south-east of Pindobas IV. The property where *N. rourei* has been found covers 240.5 ha, of which

most is forested. However, this area forms only a part of a much larger forested block, belonging to several owners (of which the two largest are Aoki Empreendimentos Comércio e Participações Ltda and Brasif S.A.), totalling over 3,000 ha. The region receives heavy rainfall and mild temperatures for practically the entire year. Most of Caetés comprises Atlantic Dense Ombrophylous Forest, with tall trees, heavily covered in epiphytes, abundant palms (including *Euterpe edulis*) and other species characteristic of such forest in montane regions¹⁴. A narrow, unpolluted stream flows through the property, of which small parts are cultivated, principally avocado, corn and beans.

In addition to *N. rourei*, we have recorded more than 200 bird species in Caetés, among them many Atlantic Forest endemics and globally threatened species (threat status in parentheses: Vulnerable = VU, Near Threatened = NT): White-necked Hawk *Leucopternis lacernulatus* (VU), Reddish-bellied Parakeet *Pyrrhura frontalis*, Golden-tailed Parrotlet *Touit surdus* (VU), Tawny-browed Owl *Pulsatrix koeniswaldiana*, Long-trained Nightjar *Macropsalis forcipata*, Scale-throated Hermit *Phaethornis eurynome*, Dusky-throated Hermit *P. squalidus*, Violet-capped Woodnymph *Thalurania glaucopis*, Surucua Trogon *Trogon surrucura*, Saffron Toucanet *Bailloni bailloni* (NT), Red-breasted Toucan *Ramphastos dicolorus*, Yellow-browed Woodpecker *Piculus aurulentus*, Yellow-eared Woodpecker *Veniliornis maculifrons*, Mouse-coloured Tapaculo *Scytalopus speluncae*, Spotted Bamboowren *Psilorhamphus guttatus* (NT), Tufted Antshrike *Mackenziaena severa*, Spot-breasted Antwren *Dysithamnus stictothorax* (NT), Star-throated Antwren *Myrmotherula gularis*, Ferruginous Antbird *Drymophila ferruginea*,



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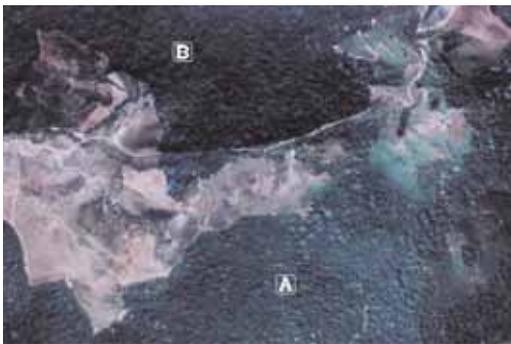
A new locality and records of Cherry-throated Tanager in south-east Brazil



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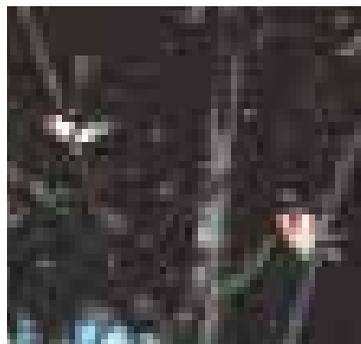
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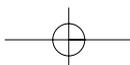
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Ochre-rumped Antbird *D. ochropyga* (NT), Streak-capped Antwren *Terenura maculata*, White-bibbed Antbird *Myrmeciza loricata*, Such's Anthrush *Chamaeza meruloides*, Rufous Gnateater *Conopophaga lineata*, Pallid Spinetail *Cranioleuca pallida*, White-collared Foliage-gleaner *Anabazenops fuscus*, White-browed Foliage-gleaner *Anabacerthia amaurotis* (NT), Pale-browed Treehunter *Cichlocaptus leucophrus*, Oustalet's Tyrannulet *Phylloscartes oustaleti* (NT), Pin-tailed Manakin *Ilicura militaris*, Hooded Berryeater *Carpornis cucullata* (NT), Chestnut-vented Piha *Lipaugus lanioides*, Bare-throated Bellbird *Procnias nudicollis* (VU), Elegant Mourner *Laniisoma elegans* (NT) and Brown Tanager *Orchesticus abeillei* (NT). Most of these have been documented with sound-recordings or photographs. We have also recorded the following primates: Buffy-headed Marmoset *Callithrix flaviceps*, Masked Titi *Callicebus personatus*, Black Tufted Capuchin *Cebus nigritus* and Northern Muriqui *Brachyteles hypoxanthus* (Critically Endangered).

On 12 September 2003, at 11h20, while leading a group of birdwatchers, one of us (PRP) heard the distinctive vocalisations of several *N. rourei*, and immediately used playback in order to bring the birds into view. Initially, two birds were visible, but subsequently PRP, ACV and the entire group observed eight birds, perched together on two branches in the crown of the same tree (the largest single group of birds recorded since Sick's observation in 1941^{23,24}).

Thereafter, until July 2004, groups of *N. rourei* have been observed a further five times at the same site, usually along the same 200 m of trail. On 5 October 2003, all three of us, together with a group of birdwatchers, observed five individuals at

10h50, apparently unassociated with a mixed-species flock or at least somewhat separated from one. At 06h30 on 10 October 2003, PRP, ACV and another group of birdwatchers again observed five birds, this time closely following behind a mixed flock led by *Syristes sibilator*. On the morning of 2 November 2003, PRP alone observed a group of at least three birds. On 20 March 2004, in the same place the first two authors briefly heard and saw (without playback) a single Cherry-throated Tanager. Finally, on 26 July 2004 PRP and ACV heard various individuals slightly distant from the usual area during the course of the morning.

These records confirm our previously held suspicion that the species occurred at Caetés, although we had been unable to document previous sightings (at the boundary of Fazenda Forno Grande da Brasif S.A. and in the same area as the new occurrences). Such confirmation, only gained since 1998, further demonstrates the apparently genuine rarity of the species, which appears to require comparatively large feeding territories and is difficult to locate unless its vocalisations are known and playback is used.

Other possible sites

Another four possible encounters with *N. rourei* in private land north of Caetés and Pindobas IV are being further investigated. These comprise a brief vocalisation (an even smaller part of which was recorded), two very brief sightings, both involving single birds (for which we prefer to await more complete observations) and a possibly heard vocalisation. However, the habitat in one of the areas (at Santa Maria de Jetibá) for which a sight record was available, has subsequently been substantially modified by the landowner (see below).

Recent records in Augusto Ruschi

The Augusto Ruschi Biological Reserve (previously Nova Lombardia Biological Reserve) is a well-known area amongst ornithologists and birdwatchers, and was the site of Scott's²⁰ 1995 observation which, it is worth re-emphasising, we consider could only plausibly refer to *N. rourei*. Despite Scott's prompt publication of this record, but perhaps due to his understandable caution over reporting such a momentous observation, few field workers that have visited the area since appear to have either actively searched for the species (its vocalisation is presented on at least two commercially available recordings) or to have held any expectation of finding it there again. Clearly, the single observation, despite many years of ornithological work in the reserve, offers a degree of further evidence of *Nemosia's* natural rarity (see Bauer *et al.*³ and below), although it might equally be noted that, whilst Augusto Ruschi is comparatively well worked for a Brazilian location,

Captions to plates on opposite page

Figure 3. The interior of Caetés forest (Faunativa)

Figure 4. General view of Caetés forest (Faunativa)

Figure 5. Aerial view of the Pingadeira complex (fragments A and B), Pindobas IV (Faunativa)

Figure 6. View of Atlantic Dense Ombrophylous Montane Forest in the Pingadeira complex (Faunativa).

Figure 7. A *Nemosia rourei* with the red of the lower throat in the form of a comma (Faunativa)

Figures 8 and 10. Different patterns of red on the throat shown by *Nemosia rourei* (Faunativa)

Figure 9. A *Nemosia rourei* with the 'typical' pattern in which the red forms a small point on the lower throat (Faunativa)

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compared to birdwatching activity in many areas of Western Europe, such field work is, practically, miniscule.

GMK has been visiting the reserve at least annually since 1998 and, equipped with recordings of the species' vocalisations, using playback to search for *N. rourei*. On 10 October 2002, while working a huge mixed-species flock along one of the principal dirt roads through the reserve GMK heard the immediately recognisable sharp calls of probably two *Nemosia* and, alerting the other four observers present, immediately commenced playback. Unfortunately, it proved impossible to locate either of the birds within the enormous flock of perhaps 100+ individuals of tanagers, woodcreepers, tyrant-flycatchers and furnariids, and the *N. rourei* rather swiftly ceased to call. During further field work in the same area, on 20 January 2003, GMK again heard the diagnostic and easily identified vocalisations of *Nemosia*, and this time observed briefly but conclusively at least one, and probably two, individuals in tall canopy trees within a mixed-species flock. These new observations demonstrate the, at least intermittent, presence of a, perhaps tiny, population within the Augusto Ruschi area and demonstrate the importance of observers visiting the site being alert for the species and learning its vocalisations.

Knowledge of the species**Other recent sightings**

Since the species' rediscovery, on 22 February 1998, and late-July 2004, we have collectively made observations of *N. rourei* on 52 days (the vast majority at Pindobas IV) and totalling 64 contacts, with records in all months and at various times of day from 06h30 to c.17h20. At Caetés the six records (on different days) are insufficient for pertinent analysis, but all were made during morning hours.

On 21 February 1997 (one day prior to the species' rediscovery at Pindobas IV) PRP observed, at the border of a forest fragment, a bird with a similar appearance to *Cissopis leverianus* but with red, rather than black, on the throat. This was probably the first modern encounter with *N. rourei* and occurred some distance from the so-called 'Pingadeira complex', from where all subsequent sightings at Pindobas IV have come. The locality has not been subject to detailed investigation since. Additionally, during the same period, the species was probably heard in another forest fragment just east of the 'Pingadeira complex' (J. F. Pacheco pers. comm.).

Table 1. List of species recorded in mixed flocks with Cherry-throated Tanager *Nemosia rourei*.

Scientific name	English name
PICIFORMES	
Picidae	
<i>Piculus aurulentus</i>	Yellow-browed Woodpecker
<i>Veniliornis maculifrons</i>	Yellow-eared Woodpecker
PASSERIFORMES	
Thamnophilidae	
<i>Dysithamnus stictothorax</i>	Spot-breasted Antwreio
Furnariidae	
<i>Philydor lichtensteini</i>	Ochre-breasted Foliage-gleaner
<i>Philydor rufum</i>	Buff-fronted Foliage-gleaner
<i>Xenops rutilans</i>	Streaked Xenops
Dendrocolaptidae	
<i>Sittasomus griseicapillus</i>	Olivaceous Woodcreeper
<i>Xiphocolaptes albicollis</i>	White-throated Woodcreeper
<i>Dendrocolaptes platyrostris</i>	Planalto Woodcreeper
<i>Lepidocolaptes squamatus</i>	Scaled Woodcreeper
<i>Campylorhamphus falcularius</i>	Black-billed Scythebill
Tyrannidae	
<i>Phylloscopus burmeisteri</i>	Rough-legged Tyrannulet
<i>Phylloscopus virescens</i>	Greenish Tyrannulet
<i>Phylloscopus ventralis</i>	Mottle-cheeked Tyrannulet
<i>Sirystes sibilator</i>	Sirystes
<i>Myiarchus swainsonii</i>	Swainson's Flycatcher
<i>Pachyrhamphus castaneus</i>	Chestnut-crowned Becard
<i>Tityra cayana</i>	Black-tailed Tityra
Cotingidae	
<i>Carpornis cucullata</i>	Hooded Berryeater
<i>Piprites chloris</i>	Wing-barred Piprites
<i>Oxyruncus cristatus</i>	Sharpbill
Vireonidae	
<i>Cyclarhis gujanensis</i>	Rufous-browed Peppershrike
Emberizidae	
<i>Dendroica cf. striata</i>	Blackpoll Warbler
<i>Orchesticus abeillei</i>	Brown Tanager
<i>Hemithraupis ruficapilla</i>	Rufous-headed Tanager
<i>Thraupis ornata</i>	Golden-chevroned Tanager
<i>Euphonia pectoralis</i>	Chestnut-bellied Euphonia
<i>Chlorophonia cyanea</i>	Blue-naped Chlorophonia
<i>Tangara cyanocephala</i>	Red-necked Tanager
<i>Tangara desmaresti</i>	Brassy-breasted Tanager
<i>Tangara cyanoventris</i>	Gilt-edged Tanager
<i>Dacnis cayana</i>	Blue Dacnis

Longevity

With the aim of studying the species' behaviour and territory use, as well as gathering biometric and other data, it was decided to band at least one of the *N. rourei* at Pindobas IV, given the birds responsiveness to playback (sometimes descending very low in the trees). In July 1998, together with L. A. P. Gonzaga and G. Castiglioni, PRP and ACV made an

unsuccessful attempt to mist-net the species. Thereafter, on 4 September 1998, GC, M. P. Rehen and ACV returned to the site and were successful in capturing one bird in the 'Pingadeira complex' (hereafter referred to as fragment B). Although two birds approached closely in response to playback, only was captured in the mist-net, c.2 m above the ground, the other bird narrowly evading being caught but vocalising intensely for several minutes in the close vicinity before departing. A metal band, no. 511 (H. Sick collection), was placed on the left tarsus, with two plastic bands, one black and one pale blue, being fitted on the right tarsus. Biometric data for this individual were already presented by Bauer *et al.*³. In the hand it was also possible to verify certain details of the species' plumage, but we did not find any ectoparasites or note any evidence of moult. The absence of a brood-patch suggests that the bird was not breeding (the only nesting datum is the observation of nest building in November³⁰). A final effort, again unsuccessful, was made to capture and band *N. rourei* in October 2000, by Faunativa, C. Bauer, J. F. Pacheco and B. M. Whitney.

Since capture, the banded bird has been observed on several occasions, always within mixed-species flocks and with other *N. rourei* (in groups of 2–6 birds), in October 1998, February 1999, April 2000, May 2000, June 2000, October 2002, November 2002 and October 2004. Thus, this individual, which was perhaps already adult in September 1998, survived at least six years one month.

Intra-specific interactions

Within a group, on many occasions we have observed that, prior to the entire party commencing vocalising, one bird maintains a more elevated perch and vocalises more than the other individuals. Such behaviour was frequently observed in the banded bird (suggesting that it was a flock leader), but other individuals have also been noted assuming this role. In addition, presumed adults have been observed directly feeding birds of similar plumage, assumed to be juvenile, as such behaviour did not take the manner of courtship feeding. Interactions during nest building were described by Venturini *et al.*³⁰. In October 2000, GMK *et al.* observed an apparent pair of *N. rourei* engaged in a type of display, during which one bird (assumed to be male) faced the other, on a high branch, while holding the wings half-open, perpendicular to the body, and slightly fluttering them, simultaneously slightly raising the head and calling rather quietly (calls as described in Bauer *et al.*³). GMK has witnessed similar, apparent courtship behaviour in Hooded Tanager *N. pileata*, the species' only conspecific.

Inter-specific interactions

During our observations, *N. rourei* has been observed within mixed-species flocks on 23 occasions (35% of all contacts). It is possible that on other occasions birds were associated with a nearby mixed flock, but this was not obviously apparent. Venturini *et al.*³⁰ noted that the nest-building birds, in November 1998, were not directly associated with a mixed flock. Sick²³ noted that the eight birds he observed, in August 1941, were unassociated with other birds (this observation was made prior to the species' voice being known) and, given that they were flocking together, not breeding.

Mixed flocks in which we recorded *Nemosia rourei* were usually led by *Sirystes sibilator*. Other species that were always present (or, at least, most easily detected) within these groups were Chestnut-crowned Becard *Pachyramphus castaneus* and Rufous-headed Tanager *Hemithraupis ruficapilla*. Larger flocks always contained other tanagers, as well as woodpeckers, woodcreepers, furnariids, tyrant-flycatchers and cotingids. A list of all those species recorded in mixed flocks with *N. rourei* is presented in Table 1.

Two agonistic interactions were noted, one with a Golden-chevrons Tanager *Thraupis ornata*, which pursued a *N. rourei* that had a large Lepidoptera in its bill (see Feeding). On another occasion, a Black-necked Aracari *Pteroglossus aracari* that was constantly vocalising close to three *N. rourei* appeared to attack one of the *N. rourei*, which only just avoided the toucan, before both birds disappeared from view and ACV and PRP were unable to observe any further interactions between them.

Ectoparasites

In October 2002, one individual that remained perched on the same high branch for several minutes was observed through binoculars to remove an ectoparasite, apparently a female Ixodidae, from the left side of the throat. The bird appeared calm and was not heard to vocalise.

Feeding

Besides those prey items, namely caterpillars, an ant and small arthropods, already noted³, we have seen a bird with a large butterfly (Lepidoptera) in its mandible. It is impossible to know if the *N. rourei* consumed this prey, as the individual was immediately pursued from view by a *Thraupis ornata*; when we relocated the bird the butterfly was gone. On another occasion, several birds were observed foraging within the flowers of a *Eucalyptus* sp., but it was impossible to be sure whether they were searching for nectar or associated insects.

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For now, only two groups of *N. rourei* are definitely known, a population of at least six individuals at Pindobas IV and the other of at least eight at Caetés, although there are also now further observations from Augusto Ruschi, suggesting the presence of a low-density population in that reserve.

At Pindobas IV we initially observed up to five individuals in one fragment (hereafter A) and five in another (B), but, in May 2000 up to six were present in the latter area, including the banded individual, with five still present in A, where we have never observed the banded *N. rourei*. Both fragments are within the 'Pingadeira complex', which occupies two hills whose slopes practically meet in a narrow valley with less dense vegetation (Figs. 5–6). Given that Faunativa has, on more than one occasion, observed groups apparently moving between the two fragments, it is possible that the estimate of ten birds³ in Pingadeira is incorrect, and that just six are present. As mentioned above, at Caetés we have observed up to eight individuals simultaneously. Thus, the presently known population consists of a minimum of 14 individuals.

All observations have involved 1–8 individuals, with most contacts being of 2–3 birds (17 observations) or four birds (11 observations), but on at least some occasions perhaps not all of those present were counted. At Caetés, since the initial observation of eight birds, we have observed groups of three and five individuals, and it appears possible that these birds were of the same group, which had (temporarily) disbanded.

Despite the larger area of possible occurrence, elsewhere in Espírito Santo, as well as in Rio de Janeiro and Minas Gerais, it may be premature to suggest that the species numbers as many as 50–249 individuals (albeit 'in decline')⁶. Nonetheless, we continue to search for new populations and localities for the species in the region.

Territoriality

There are still no precise data concerning territory size of *N. rourei* due to several factors: our relative inability to find the species in certain seasons using playback, despite it being easily encountered in the same areas at other times; and its apparent propensity for relatively long flights and ability to utilise plantations of coffee, *Pinus* and *Eucalyptus* spp. between forest patches, although the species' demonstrably high responsiveness to playback makes us believe that the same group is using an extensive area, perhaps the entire 'Pingadeira complex', an area of probably more than 400 ha. Nonetheless, it is now apparent that, in Pindobas IV, the species has become somewhat less

responsive to playback, a factor that to some extent mitigates further study.

At Pindobas IV we have noted at different seasons and in the two fragments comprising the 'Pingadeira complex' that groups follow a regular 'circuit' during the course of the day, thus we observed in fragment A along certain sections of trail birds always arriving from the same direction at the same time of day, and, on several occasions, in fragment B we have observed the group moving through the same valley within the forest or, in other periods, regularly traversing the same forest border with a coffee plantation. It has been impossible to determine what factors are influencing such behaviour, but we do know that external factors can, apparently, modify it (see Threats).

Plumage variation

The existence of individuals, possibly young birds, with throat colour different to the usual bright red, has already been reported³; these had a brownish or yellowish-brown cast to the throat patch. One lone bird (apparently a *N. rourei*), which was very briefly observed on 10 November 2001 (during the supposed breeding period), had an entirely dark crown and vent with the red patch much smaller, and on the breast (not reaching the throat), forming a concave line immediately below the black. Further, unlike previously described plumages, but also undocumented photographically, we have observed variation in the crown colour (between white and grey) and the red of the throat patch (in its size and shape), which appears to vary individually and, in many cases, according to light conditions, rather than genuine morphological variation (Figs. 7–10). One individual appeared to have the red patch a sharp-pointed comma shape, whilst another was observed with a trace of red extending beyond the throat.

Habitat

Until now, *N. rourei* has only been recorded at 850–1,250 m in Atlantic Dense Ombrophylous Montane Forest (following MME¹⁴), and there is no evidence, as yet, to indicate that the species occurs in Open Ombrophylous Forest (as at Pindobas IV), which exists in the region. Occurrence in coffee plantations and those of *Eucalyptus* sp. and *Pinus* spp. are sporadic and relate to movements between forest fragments through these corridors of otherwise unsuitable habitat.

Surveys outside Espírito Santo

Through a grant awarded by NBC/Field Guides, during the year 2000 Originalis Natura (now Faunativa) undertook three short surveys of areas in Minas Gerais and Rio de Janeiro for *N. rourei*.

On 22–24 February we visited the area around Muriaé in Minas Gerais. We were unable to locate suitable habitat for the species, based on our current knowledge of its requirements, on the north bank of the rio Paraíba do Sul, which area appears generally too low for *N. rourei*, despite the, until recently, widely held opinion that this area represents the type locality^{3,16} (see introduction). We were assisted by various local residents, who indicated the highest points within the district of Pirapanema (610 m), and visited a number of properties, but found only second growth, unworthy of further attention. Subsequently we moved to the district of Belisário where the Pico do Itajuru, at c.1,600 m, marks the highest point in the municipality of Muriaé^{8,11}. Here, the area that held most interest was Fazenda Iracambi (Rosário de Limeira municipality). Access is reasonable, but in order to reach the best forest at higher altitudes (1,130 m) it is necessary to traverse a stream, which proved impossible during our visit due to high water levels caused by heavy rainfall. During our short visit we employed playback unsuccessfully for *N. rourei*.

Thereafter, on 13–17 September, Faunativa visited Rio de Janeiro/Minas Gerais, working the so-called 'Centro-Serrana' of Rio de Janeiro, starting at Macaé de Cima (22°25'S 42°31'W, 1,065 m), in Nova Friburgo municipality. This area apparently holds high potential for the species, given the habitat, altitude and extensive area of largely continuous forest, now partially incorporated within the Parque Estadual dos Três Picos (46,350 ha), created in 2002 and situated within the municipalities of Teresópolis, Nova Friburgo, Guapimirim, Silva Jardim and Cachoeiras de Macacu¹⁹. Again, we used playback at various localities, but without success. This same region was identified by Pacheco¹⁶ as possibly being the true type locality of *N. rourei*. We continued towards Petrópolis and Teresópolis, within the same part of Rio de Janeiro state. We conducted field work in higher parts of the Parque Nacional da Serra dos Órgãos, another region which appears highly suitable for *N. rourei*, although it has been relatively well worked previously by ornithologists and birdwatchers, and the large area of suitable habitat, much of it relatively inaccessible, makes location of a low-density species, such as *N. rourei*, extremely difficult, as has proved the case with *Calyptura cristata*. Thereafter we proceeded towards Pirapetinga, in Minas Gerais, from where there is a possible sighting of the species, by E. P. Brettas in 1994³, having previously confirmed the coordinates of the locality concerned with the observer. We found altitude at the site to be 230 m, rather than the c.150 m previously cited³, in either case somewhat lower than elevations from which the species is currently known. Since Brettas' report, no further sightings have been made,

despite visits to the area in August 1994, June 1995 and July 1996³, and our search, on 17 September 2000, was also unsuccessful, when the site was apparently being explored for its granitic deposits.

The other trip was made to easternmost Minas Gerais, close to the border with Espírito Santo, in the region of Lajinha (at c.470 m), but we were unable to locate any suitable habitat, as forest destruction in this region has been almost complete.

Other surveyed areas in Espírito Santo

The entire region around Pindobas IV and Caetés, including the municipalities of Conceição do Castelo, Muniz Freire, Brejetuba, Venda Nova do Imigrante and Vargem Alta, has been investigated for new populations of *N. rourei*. Further north, our field work has centred (principally in 1998–2000) on the environs of Itarana, based on Sick²³. Through the assistance of various members of the local population, we have accessed many interesting forest fragments in this region, including that worked by Sick in 1941–42. We have also made widespread searches through Santa Maria de Jetibá, again finding diverse potential forest fragments. In both these municipalities we have gained interesting data on birds and mammals, among them the discovery that Northern Muriqui was quite well known to some local people¹⁷. Elsewhere, we have worked in the municipality Santa Teresa, in the Reserva Biológica Augusto Ruschi (see above), but also in other important forest fragments. More recently (since early 2004) we have searched for potential localities between the two largest blocks of forest (Pindobas IV/Caetés and Santa Teresa/Santa Maria de Jetibá), in the municipalities of Domingos Martins and Marechal Floriano, at altitudes above 700 m. In all of these areas there are forests that demand further and more intensive field work: at Itarana, Barra Encoberta/Alto Jatibocas, Alto Santa Maria and Alto Santa Joana; around Santa Maria de Jetibá, the localities of Plantojo, Simão, Sabino, Cristal, Garrafão and remnant forests near the rio Bonito dam; around Domingos Martins, Chapéu and Paraju; at Marechal Floriano the region around the rio Fundo; whilst around Brejetuba/Muniz Freire there is a considerable area meritorious of future investigation. With the exception of Itarana and Santa Maria de Jetibá, where our work has been most intensive and has produced three records requiring verification, the areas above have only been identified as potential localities to search for *N. rourei*, but it has not been possible to properly survey them.

Threats and future perspectives

Given available information, we believe that *N. rourei* is a naturally rare species, which occurs at

low densities and, in the present day, is restricted to montane Espírito Santo.

The major threat to *N. rourei* is destruction and exploitation of the little that remains of its habitat: removal of granite, limestone and marble, illegal palm extraction, small-scale logging for firewood, and expansion of existing coffee plantations. Timber extraction is still a significant problem, including that for the production of charcoal. In 2000 a landowner neighbouring Pindobas IV (abutting the 'Pingadeira complex') felled an area in order to expand his coffee plantations (prior to our holding discussions with him), and in late 2002 a company commenced exploration of a private area of pasture and coffee just below fragment A in Pindobas IV (where nest building was noted in November 1998) for marble and granite, with explosives being used to partially extract these rocks. IBAMA (the federal environment agency) and the environmental police took action, and the research was apparently suspended for an unknown period. In April 2004, the same landowner mentioned above 'threatened' to suspend access to his property in 'reprisal' for the order concerning granite extraction. The impacts of such work would be significant, both directly (in terms of habitat destruction) and indirectly, as we noted an apparent reduction in activity by many bird species in the area, including *N. rourei*, during the period when detonations were made.

In general, we should note that most of the properties visited in Itarana and Santa Maria de Jetibá are held by a rather closed community of small, rather poor landowners, cultivating vegetables and without plans to substantially increase or otherwise develop their holdings, e.g. by deforesting large areas to plant coffee. Nonetheless, it is probable that sporadic and low-intensity timber extraction for firewood continues in some parts of these regions. Recently, however, ACV and PRP returned to the area within Santa Maria de Jetibá municipality wherein they had made a possible sighting of *N. rourei* to discover that one landowner had felled most of the forest (17 ha) on his property in early 2004; his action had been clandestine (although known to certain other residents) as it would have been subject to various fines. Caetés and Pindobas IV are both large fazendas (of more than 800 ha) of which the major parts are still forested and possess corridors of silviculture connecting forest blocks, but most neighbouring landowners are smallholders (of 10–50 ha), exploiting their properties diversely, and are generally rather poor.

We have observed human use of the species' habitat to have an obvious effect on its behaviour, and the birds once appeared to disappear from fragment A at Pindobas IV during the 'Enduro da

Polenta', an annual event, in October, marking the 'Festa da Polenta' in the municipality adjoining Venda Nova do Imigrante. Without the knowledge or consent of the landowners, the organisers decreed that the event should traverse Pindobas IV, via the same trail from which *N. rourei* is most frequently observed. Related to this, on the same day more than 90 vehicles passed through the area between 09h00 and 15h00. Evidence of the event (remains of maps, deep tyre tracks in certain sections, and the borders of the property damaged by the heavy traffic) was very obvious. We have observed the pressures and results (namely the invasion of private land, without official consent and with no respect for the ability of an area to withstand such usage) of similar events elsewhere in Espírito Santo, e.g. at Reserva Biológica de Duas Bocas, Cariacica.

More positively, it is apparent that plantations of *Eucalyptus* sp. and *Pinus* spp. separating different forest blocks (as at Pindobas IV) function well as corridors permitting forest species (including *N. rourei*) to move between areas.

Action is urgently required to secure the species' future, which for now is principally and rather perilously bound with the conservation of just two privately owned areas in southern Espírito Santo. Creating a Reserva Particular do Patrimônio Natural (RPPN) in Pindobas IV, a conservation category of some security but which does not affect its ownership, will be a major step forward. It is also necessary to continue the searches for the species in new areas initiated in 1998. As noted above, several potential areas have been identified, principally in Espírito Santo, but also in Minas Gerais and Rio de Janeiro, and these require more thorough investigation than has yet been possible. For such work financial resources are needed. The recently agreed partnership between the BirdLife International–Brasil Program and Faunativa is studying the viability of developing conservation action for *N. rourei* in both currently known major sites, and in this are being presently supported from the Critical Ecosystem Partnership Fund (CEPF), but additional resources will be required in the future.

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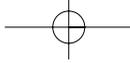


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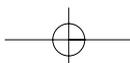
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New records of Brazilian Merganser *Mergus octosetaceus* in the rio das Pedras, Chapada dos Veadeiros, Brazil

Carlos A. Bianchi, Sérgio Brant, Reuber A. Brandão and Bernardo F. Brito

Cotinga 24 (2005): 72–74

Este trabalho apresenta novos registros do Pato-mergulhão *Mergus octosetaceus*, espécie criticamente ameaçada de extinção, para o rio das Pedras na região da Chapada dos Veadeiros. O período de muda ou a existência de filhotes são discutidos considerando a diferença dos comportamentos das aves durante as observações. A ocorrência de *Mergus* na bacia do rio das Pedras indica a existência de ambientes muito preservados e justifica sua inclusão nos novos limites do Parque Nacional da Chapada dos Veadeiros.

Brazilian Merganser *Mergus octosetaceus* is Critically Endangered at both national and global levels^{3,14}, and its world population is presently estimated at just 250 individuals^{7,8}. The species currently occurs in Argentina and Brazil (in the states of Minas Gerais, São Paulo, Goiás, Tocantins, Paraná and Santa Catarina, and historically in Rio de Janeiro¹⁵), and is almost always associated with fast-flowing, clear-water rivers with falls and rapids^{2,6,16,19}. Habitat loss and destruction, through deforestation, construction of hydroelectric dams and river pollution are considered the main threats to the species^{3,7,8}. Brazilian Merganser was recently observed on the rio Novo, Tocantins⁶, and rediscovered in Argentina⁵. Despite studies in Serra da Canastra National Park^{1,12,19} its biology is poorly known. In October 2002, the second meeting of the Brazilian Merganser Recovery Team, held in Brasília, aimed to establish conservation strategies for the species via an action plan¹¹, which recommends surveys of 'new' areas and those of historical occurrence (Y. Barros pers. comm.).

The first record of Brazilian Merganser in Goiás was of two specimens held in a private collection¹³, which lack precise details of where they were collected. Another specimen is known from the rio das Pedras, municipality of Nova Roma, that was sent to the Museu Nacional do Rio de Janeiro by Rudolf Pfrimer in 1950¹⁸, although it is possible that all of these individuals were collected in the 1920s and 1930s (J. F. Pacheco pers. comm.). More recent records were made by Yamashita & Valle²⁰, who observed several pairs on the rio Preto within Chapada dos Veadeiros National Park (CVNP), by Leeuwenberg⁷ at the same location, and in Emas National Park⁸. Here we report new sightings on the rio das Pedras, near CVNP.

Study area and observations

Chapada dos Veadeiros National Park (CVNP) and environs are on a montane plateau with isolated mountains, rocky outcrops, several waterfalls and different types of cerrado habitat¹⁰. The hundreds of springs in the area form rivers with clean waters

that flow to the lowlands with many rapids and falls.

We worked in CVNP on 27 August–1 September 2003 and on 14–21 May 2004, with the aim of reviewing and evaluating the new boundaries proposed for the park's enlargement (Fig. 1). During these periods, we undertook both ground-based surveys, using a 4WD vehicle, and aerial transects over the entire area by helicopter. Our goals were to check for potential problems and conflicts concerning land use at the proposed boundaries, and to evaluate levels of human occupancy and disturbance at the current limits of the park. Among areas we sampled was the rio das Pedras basin, where we performed three aerial surveys, on two days in 2003 and once in 2004, all

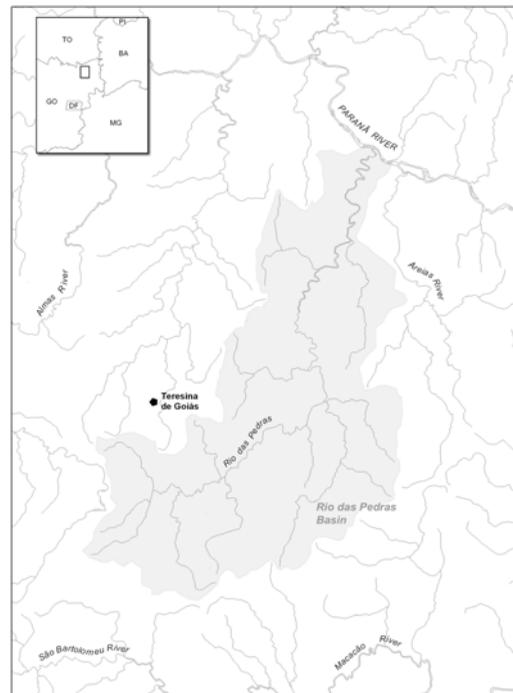


Figure 1. Map of the rio das Pedras basin.

commencing in the morning and made under partially cloudy conditions.

Our first record of *M. octosetaceus* was on 31 August 2003, at 12h40, when we observed two individuals swimming together and a third c.30 m away. By the time we turned the helicopter the lone bird had disappeared. We spent ten minutes following the two mergansers (Fig. 2). The birds swam quickly up and downstream, diving and searching for cover along the riverbank. The second sighting was made next day (1 September 2003) whilst undertaking another survey of the rio das Pedras basin, starting at the headwaters and again flying 20–30 m above ground, mainly over the river. On this occasion, only a pair was observed (at 09h50), in the same area as the preceding day. We again followed them for several minutes as the mergansers sought cover along the riverbank.

On 16 May 2004, at 14h35, during a flight over the rio das Pedras, we found a pair of mergansers c.8–9 km upstream of our sightings in September 2003. We flew above the birds for several minutes, although as we initially approached the pair flew off upriver for c.3 km, before seeking cover in vegetation along the riverbank, where they were lost to view.

Discussion

We consider the pair observed in 2004 to be the same as in 2003, considering the distance between the sightings and knowledge of the species' territory size¹⁹. Behaviour in September 2003 clearly differed from that in 2004. That the birds only dived and swam as we hovered over them in 2003 may suggest that they were moulting as neither individual attempted to fly, unlike in May 2004 when, at the first approach of the helicopter, the pair immediately took flight. Another hypothesis is that those in 2003 were young birds, unable to fly, or adults with unseen young nearby, given that September is the known breeding season (L. F. Silveira pers. comm.).

The rio das Pedras (Fig. 1) is an important tributary of the rio Paraná and floods torrentially, as do most rivers in the central Brazilian cerrado. During the dry season (June–October) the river is at low water, with just small pools of calm water in deeper sections along its course (as described by Silveira & Bartmann¹⁹ for the Serra da Canastra). The rio das Pedras is an oligotrophic river with clear waters, rapids and small waterfalls in some stretches, a varied depth and width, and a bed that alternates from rocky to stony or sandy soil. The headwaters are at c.1,200 m, and after 96 km the river flows into the rio Paraná, at c.350 m. Vegetation where we recorded the mergansers was typical cerrado and *campo rupestre*¹⁰, with sparse shrubs, low to mid-height trees and many rocky outcrops. The river was enclosed by a steep valley,

not within a canyon of exposed cliffs, but similar to that described by Yamashita & Valle²⁰. From the valley's head towards the riverbank vegetation was denser but did not form gallery forest. Given our observations, and notwithstanding that mergansers occur on rivers fringed by gallery forests elsewhere in the range¹⁹, we consider that forest width and continuity are not important factors governing the species' occurrence, as has been previously observed^{6,19,20}. Habitat beside the rio das Pedras appears to possess suitable breeding sites for *Mergus*, based on descriptions by Partridge¹⁶ and Lamas & Santos¹².

Habitat loss and degradation are considered critical threats to the species^{2,3,7,8}, especially through silting of rivers and water pollution⁵. Our surveys revealed significant habitat degradation in the rio das Pedras basin, both in the headwaters and the cerrado along the lower course of the river. Large deforested areas were observed on several farms, where natural vegetation has recently been converted to pasture. Silting is initiated by deforestation, and subsequent erosion was observed on tributaries upstream of the 2003 merganser observation, the water appearing muddied and dark. Agriculture and charcoal production were also noted on a smaller scale.

Habitat composition and the species' shy behaviour require close consideration in determining strategies for *Mergus* conservation. Yamashita & Valle²⁰ suggested that Brazilian Merganser habitat is typically linear, disjointed and scarce. We believe that due to its fragile nature such habitat may be drastically changed, either by cattle grazing and agriculture (which may result from large-scale deforestation), and even through lower impact activities such as ecotourism. Thus, the most effective action to protect mergansers is the creation of reserves in key areas for the species. Recommendations are already in place concerning the legal protection of Brazilian Merganser and its habitat⁷.

According to the proposed CVNP expansion, the rio das Pedras basin is the main area to be included within the new boundaries as it lies in the Pouso Alto region, which is considered of extremely high biological importance and a priority for conservation in the cerrado biome⁹. Beyond the importance of the rio das Pedras as a tributary of the Paraná, the varied vegetation types in its basin differ from those within the current park limits and apparently benefit a broader diversity of species. Our records of *M. octosetaceus* are a further indication of habitat quality and the area's conservation importance. Given the observations of Yamashita & Valle²⁰ and other recent data⁷, the Brazilian Merganser population in north-east Goiás appears to be among the largest in the world, after Serra da Canastra¹⁹ and western Bahia¹⁷. Our



Figure 2. Pair of Brazilian Mergansers *Mergus octosetaceus* on the rio das Pedras, Goiás, Brazil, September 2003 (Carlos A. Bianchi)

sightings of *M. octosetaceus* represent a strong reason to expand the boundaries of CVNP, thus protecting the species, its habitat and the overall biodiversity of the rio das Pedras basin.

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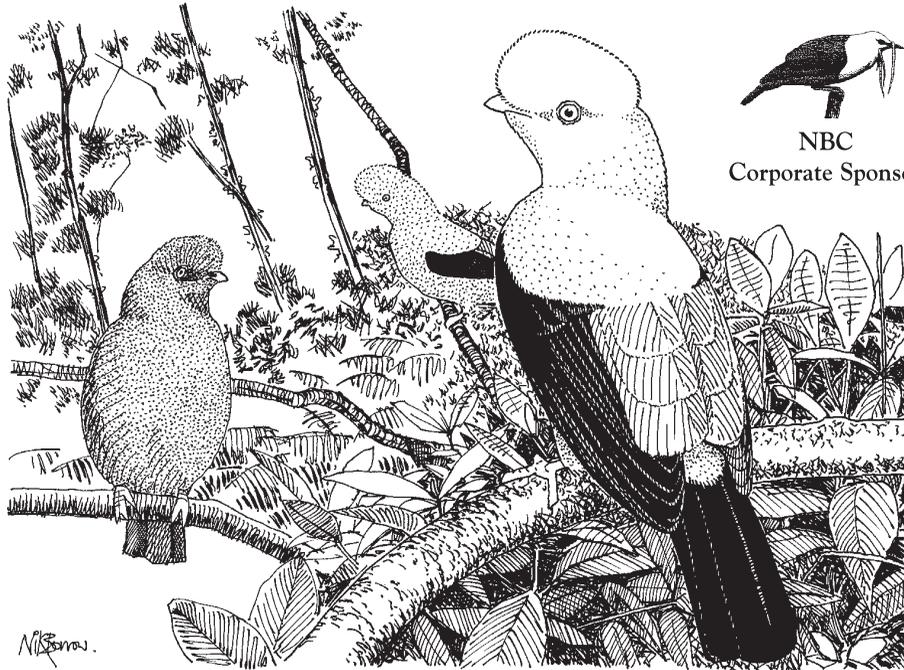
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Grey-breasted Conure *Pyrrhura griseipectus*, an overlooked endangered species

Fábio Olmos, Weber A. G. Silva and Ciro Albano

Cotinga 24 (2005): 77–83

Pyrrhura griseipectus, também conhecida como *P. leucotis griseipectus* and *P. anaca*, é considerada ameaçada no Brasil, embora a confusa situação taxonômica do grupo a tenha tornado invisível para a comunidade conservacionista internacional. A espécie é endêmica das florestas úmidas de alguns poucos brejos de altitude no Ceará e Pernambuco, existindo possíveis registros visuais em duas áreas de Alagoas. Sua ecologia é muito pouco conhecida, mas sabe-se que pode utilizar cafezais sombreados e florestas secundárias. Embora sua situação na natureza seja grave, a espécie se reproduz bem em cativeiro e há uma significativa população cativa.

The systematics of the *Pyrrhura leucotis*–*picta* complex is one of the major taxonomic conundrums within Neotropical Psittacines. Recent work^{7,8,13} has suggested that many taxa formerly considered subspecies are best treated as species, thus reverting to former arrangements, and dramatically increasing the number of recognised species. Of seven taxa formerly lumped within *Pyrrhura leucotis*, five are now accorded specific status. Two of these (*P. caeruleiceps* and *P. emma*) are restricted to rain and cloud forests in northern Venezuela^{1,7,11,15}, whilst three others are endemic to Brazil, isolated from the others by thousands of km that are occupied by the several taxa of the related *Pyrrhura picta* species-group^{7,8,13}.

The three endemic Brazilian taxa are: White-eared Conure *Pyrrhura leucotis*, a bird of lowland and foothill forests (below 500 m) east of the Brazilian coastal range from southern Bahia (c.14°S), to Sepetiba, just south of the city of Rio de Janeiro; Pfrimer's Conure *P. pfrimeri*, an endemic of dry, deciduous forests on a narrow band of limestone-derived soils west of the Serra Geral massif in Goiás and southern Tocantins, and Grey-breasted Conure *P. griseipectus*¹³. All three possess distinctive morphology, habitats and ecology, wholly allopatric ranges and complete lack of intermediates or contact zones, and can be considered species under any concept available^{7,13}.

The coloration of *Pyrrhura griseipectus*, especially the breast, resembles two widely disjunct taxa, *P. caeruleiceps* of Venezuela and *P. eisenmanni* from Panama, the latter formerly included in *P. picta*⁷. Nevertheless, *P. griseipectus* differs from *caeruleiceps* and *eisenmanni* in its all-brown pileum (fore- and hindcrown blue in *caeruleiceps*, forecrown dull red in *eisenmanni*), maroon cheeks (dull red in *caeruleiceps* and *eisenmanni*) and red shoulders (green in *eisenmanni*)⁸.

Grey-breasted Conure was described as *Pyrrhura griseipectus* by Salvadori in 1900 based on a cagebird of unknown origin. Seven specimens collected in the Serra do Baturité, Ceará, permitted

Hellmayr⁶ to pinpoint the taxon to north-east Brazil. Following then-current trends, Hellmayr⁶ considered *griseipectus* a subspecies of *leucotis*. Subsequently, it was suggested that *P. anaca* (Gmelin, 1788) has priority over *griseipectus*²³. This arrangement has not been widely accepted, although *P. anaca* is included in the Brazilian threatened species list (as Critically Endangered)¹² and national bird species list⁴. The illustration representing the type of *anaca* differs from Grey-breasted Conure in its breast pattern and apparently represents a different species within the *leucotis* group (L. Joseph *in litt.* 2004), an issue that is currently being studied by L. F. Silveira and J. F. Pacheco (*in litt.* 2004). Thus, in this paper, we choose the widely used *griseipectus* in order to avoid further confusing an already complex issue.

The status and natural history of *Pyrrhura griseipectus* are poorly known, despite the species belonging to a charismatic group of birds well known to aviculturists both in Brazil and abroad. Here we bring together available information on its taxonomic status, habitat and conservation.

Taxonomic considerations

Pyrrhura griseipectus, *P. pfrimeri* and *P. leucotis* have completely allopatric distributions, being effectively isolated from each other by thousands of km. *P. pfrimeri* is both the most disjunct and occupies the most distinctive habitat compared to all other taxa in the group, being the only species restricted to dry forests and to occur outside the Atlantic Forest. *P. pfrimeri* and *P. leucotis* are similar in size, with no significant differences in wing length, culmen length and mandible depth, but differ in coloration, the most striking character in *pfrimeri* being the complete absence of the white to pale buff auricular patch of *leucotis* and *griseipectus*, and the contrasting dark red face and pale blue forehead, crown, occiput and nape, this colour spreading to the neck- and throat-sides, and grading to green on the breast. In contrast, *leucotis* has blue only on the forehead (sometimes also just

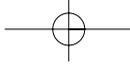


Figure 1. Grey-breasted Conure *Pyrrhura griseipectus*, Guarimiranga, Serra do Baturité, Brazil (Ciro Albano)

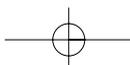




Figure 2. Ventral (top left) and lateral (above right) views of *Pyrrhura leucotis* (left and bottom), *P. griseipectus* (middle) and *P. pfrimeri* (right and top) showing differences in colour pattern. Note the large whitish ear-patch of *anaca* and its mostly grey breast compared to the other birds. Specimens from the Museu de Zoologia da Universidade de São Paulo. *Pyrrhura leucotis*: Itaúnias, Espírito Santo (MZUSP 34495), *P. griseipectus*: Serra do Baturité (MZUSP 41515), *P. pfrimeri*: Nova Roma, Goiás (MZUSP 15769) (Luis Fabio Silveira)

Figure 3. Close-up of a captive *Pyrrhura griseipectus*, showing the diagnostic cap, ear-patch and breast colour pattern. The eye-ring, usually whitish, becomes darker when the bird is excited (Ciro Albano).



Figure 4. Satellite images of northern Ceará showing the forested massifs (green) within the otherwise dry landscape. Shown are four of the known localities for *P. griseipectus* (left), and Quixadá municipality. On the right a closer view of the Serra do Aratanha, with a view of the small Serra Negra (inset) at the same scale for a size comparison.

above the eyes), the crown and nape being buff or grey. *P. pfrimeri* is thus one of the most distinctive taxa in the *picta-leucotis* species group⁷ (see Fig. 2).

Although both Atlantic Forest taxa might appear to be closely related, based on their geographical proximity^{6,19}, *P. griseipectus* seems to be more divergent from *P. leucotis* than *P. pfrimeri*. Both are distinguished by differences in the periorbital ring (dark blue in *leucotis* and *pfrimeri*, whitish to slaty in *griseipectus*), auricular patch (cream to yellowish in *leucotis*, often with a buff tinge; pure white or cream in *griseipectus*, and notably larger in the latter), head colour (front, nape and neck-sides suffused blue in *leucotis*; no blue in *griseipectus*) and breast feathers (green with a blue suffusion, more intense near the neck, and with a broad pale grey or buff subterminal band and narrow blackish terminal one in *leucotis*; dusky grey with a broad cream to pale buff terminal band in *griseipectus*)¹³ (see Figs. 1–2). *P. griseipectus* is the same size as *leucotis* in wing length, but an important difference is the significantly longer bill of *griseipectus* and its deeper mandible^{6,13}. *P. griseipectus* is proportionally larger headed than other Brazilian taxa, which should be visible in skull comparisons and make skeletal remains diagnosable¹¹, but there is no difference in bill width between *griseipectus* and *leucotis*¹³. As in *P. pfrimeri*, the even more marked morphological differences, the geographical isolation and very different habitat are sufficient to accord species status to *P. griseipectus*, as proposed by several authors^{7,13,21}. The degree of morphological differentiation of the three is at least comparable to that between accepted species taxa such as *P. frontalis*, *P. devillei* and *P. molinae*. It should be pointed out that some recent illustrations of the Brazilian taxa bear little resemblance to the birds in life⁹, another factor that has delayed their acceptance as species.

Distribution and habitat

Pyrrhura griseipectus has been documented from just three areas: the Serra do Baturité, the eastern slope of the Serra de Ibiapaba, both in Ceará, and the tiny Serra Negra (38°00'S 08°40'S), in Pernambuco²⁶. Specimens of *griseipectus* are from the Serra Negra²⁶, Ipú in the Ibiapaba range (04°20'S 40°42'W), Quixadá (04°58'S 39°01'W), just south of the Baturité range, and Guaramiranga (04°15'S, 38°56'W), atop Baturité^{7,16}. The Quixadá specimens at the American Museum of Natural History (New York)⁷ may appear anomalous, as the area lies wholly within the xeric caatinga. Nevertheless, the Baturité range is just to the north, and three small ranges reaching 500–1,000 m (the serras do Machado [04°30'S 39°35'W], Céu [04°30'S 39°45'W] and Estevão [04°54'S 39°08'W],

the last about 45 km from Baturité) dot the area. Now largely denuded, these ranges formerly supported lushier vegetation, as documented by earlier visitors²², and are the probable source of the specimens (the old monastery at Serra do Estevão was an obligatory stop for travellers heading to Quixadá²²), as the birds would have been capable of overflying the 15-km dry stretch between the serras do Machado and do Céu, where Quixadá lies.

Additionally, the often overlooked work of Antonio Bezerra Meneses¹⁰ describes a *P. griseipectus* he was given at Tianguá (03°40'S 40°57'W), c.70 km north of Ipú and also in the eastern Serra de Ibiapaba, although the specimen has subsequently been lost. Also, based on sight records, the species has been reported from Murici²⁵, a montane forest tract in Alagoas (c.09°15'S 35°50'W), but not from nearby lowland forest¹⁷. It is interesting that the coordinates provided by Teixeira *et al.*²⁵ for Murici (09°47'S 36°50'W) actually lie near Palmeira dos Índios, close to the well-known Pedra Talhada Biological Reserve.

Several small massifs in northern Ceará may hold (or held until recently) populations of *P. griseipectus*. Local people in the Serra de Aratanha (03°58'S 38°39'W) have reported to WS the presence of a 'wholly dirty' or 'painted' parakeet, whilst similar descriptions were made by inhabitants of the Serra do Machado. Interviews made by CA in the Serra de Maranguape (formerly Serra do Castelo; 03°52'S 38°43'W) resulted in detailed descriptions agreeing with *P. griseipectus*. The birds were described by elders, who informed CA that the most recent sightings were 15–20 years ago. Of course such reports are unproven.

The confirmed localities are montane (above 500 m) humid forest enclaves in the otherwise semi-arid north-east Brazil. These wet areas are known in the Brazilian literature as 'brejos' or 'brejos de altitude'. Brejos receive orographic rains because of their altitude and situation relative to the prevailing moisture-laden winds, and are clad in humid forests within areas facing the winds. These grade into semi-deciduous forest and eventually into dry, xeric caatingas in lower areas. The Serra de Ibiapaba is a sandstone plateau averaging 750 m, where rainfall is 1,400–2,000 mm/p.a., depending on the locality. Serra do Baturité, peaking at 1,114 m, is a granite massif where annual rainfall is c.1,500–1,700 mm, approximately three times that at lower altitudes. The humid forests atop the Baturité massif form a continuous canopy c.20 m tall, with some emergents. Common tree species in less disturbed areas are *Myrcia multiflora*, *Byrsonima sericea*, *Clusia nemorosa*, *Casearia guianensis* and *Stryphnodendron purpureum*³.

The brejos of Ceará harbour several invertebrate, reptile and bird taxa with both Atlantic and Amazonian affinities², including many endemics, and can be considered part of the Amazonian–Atlantic forest crossroads in north-east Brazil and a remnant of a larger forested area in former periods. *P. griseipectus*, being close to *P. picta* of northern Brazil and Guianas, is one testament to such exchange.

The Serra Negra is a relict sedimentary plateau 800 m wide and 3 km long and 800–1,036 m high. The top of the plateau is covered in dense forest with emergents reaching 35 m. Conspicuous tree species are the large *Manilkara salzmanii* (Sapotaceae), *Trichilia emarginata* (Meliaceae), *Albizia polycephala* (Mimosaceae), *Gallesia integrifolia* (Phytolaccaceae), *Myrcia falax*, *M. multiflora* (Myrtaceae) and *Terminalia brasiliensis* (Combretaceae). Myrtaceae bearing fruit eaten by birds are common. There is low similarity between forest atop the plateau and semi-deciduous forests of lower areas²⁰.

Threats

There is no estimate of the original forest coverage in the mountains that *P. griseipectus* inhabits. Data on current forest cover are also scarce, with estimates of just 13% of original forest cover remaining in the Baturité massif in the early 1990s⁵.

All forested massifs in Ceará have seen their forests cut for shade-coffee plantations and this is the most traditional activity in areas like Baturité, where the coffee is shaded mainly by fast-growing *Inga* trees. Sugarcane was formerly an important culture, but has declined, as has cultivation of fruit trees. In 1972–74, the Brazilian Coffee Institute attempted to eradicate shade coffee plantations and turn them into sun coffee. The coffee varieties imported to the region failed to adapt and the programme was abandoned causing an economic crisis, but not before increased deforestation had swept the area⁵.

P. griseipectus has long been kept by aviculturists, as evidenced by the type being a cagebird. Crates of wild-caught birds from Baturité were commonly seen for sale at Parangaba fair in Fortaleza until ten years ago (L. W. Lima-Verde pers. comm.) and, although the species is now very rare, there is still trade in wild birds. The ubiquity of caged conures among amateur bird fanciers throughout north-east Brazil (and more serious breeders worldwide) is one of the main causes of the species' decline.

A number of protected areas have been decreed within the range of *P. griseipectus*, mostly in the Baturité massif. The state-run Serra de Baturité Environmental Protection Area (APA) was created

in 1990 covering 32,690 ha in seven municipalities. This area category is similar to IUCN category V and, in practice, has been of little use for conservation as it imposes few restrictions on land use and even urban areas are included in APAs.

Guaramiranga Ecological Park was decreed by the Ceará state government in 1979, covering 3,320 ha in Guaramiranga and Pacoti. In the small satellite mountains north of Baturité, another APA was decreed in 1998 by the state government, at Serra da Aratanha (6,448 ha), whilst Aratanha municipality decreed all areas above 100 m be included within an APA.

In the Ibiapaba massif, there is a 1,592-ha APA decreed by the federal government, and the state-run 3,485 ha APA Bica do Ipu. Additionally, Ubajara National Park (now covering some 5,000 ha) was decreed in 1959 and has been implemented. It protects some humid forest, but there is no available information on the presence of *P. griseipectus* in the park. Indeed, current evidence suggests that *P. griseipectus* may be extinct in the Ibiapaba massif. If so, Ubajara is a natural candidate area for a reintroduction project.

The very disjunct population of *P. griseipectus* in Pernambuco occurs in the Serra Negra Biological Reserve (1,100 ha), a federal protected area for over 50 years. Nevertheless there is an ever-possible threat of Serra Negra losing its protected status as the Kambiwá and Pipipã people, currently inhabiting a 27,500-ha Indian land adjacent to the reserve, consider it part of their territory with religious significance, and have demanded its inclusion within their indigenous land on several occasions. Currently, the Kambiwá have access to the reserve for specific purposes, but it is uncertain if this arrangement will persist. Also, the region is renowned for chronic violence, the result of a combination of local culture and marijuana plantations, so there is limited control over the reserve and field work there is deemed very unsafe. There are no recent records of the species in this area, although it was reportedly common in the early 1980s (A. G. Coelho pers. comm.).

As witnessed, most known sites for *P. griseipectus* are within APAs, thus conservation of habitats relies more on the will of landowners than on legal enforcement. Fortunately, the Baturité massif is strategic in the water supply of the state capital, Fortaleza, and the need to conserve water sources and that shade coffee outperforms sun coffee means there is real incentive for retaining some forest cover⁵.

Status and ecology

Based on current records, there are two confirmed areas where *P. griseipectus* still occurs (the Baturité massif and Serra Negra Biological Reserve) and at

least another three where it probably does so but for which proof is lacking (serras de Aratanha, Maranguape and Machado). There are no data on the species' current status in the Ibiapaba massif, including Ubajara National Park.

The species has not been found at Murici (Alagoas) despite monthly field work by WS throughout 2002 and 2003. J. F. Pacheco (*in litt.* 2004) reported watching a group of six *Pyrrhura* in flight there on 4 January 1991 that could have been *griseipectus*, although plumage details were not observed. This is the last such record from Murici and it is possible such birds were the result of releases of confiscated birds by environmental agencies, a common practice that has resulted both in puzzling records and range extensions throughout the country. The possibility that the species occurs at Pedra Talhada Biological Reserve also requires investigation, and a fairly large range near the Serra Negra, which appears in satellite images to be forest-covered (the Serra do Arapuá), should also be explored for *P. griseipectus* and other brejo species.

Present evidence suggests *P. griseipectus* has a relict distribution, being a genuine endemic of the brejos, the forested 'sky islands' amid the xeric caatinga of north-east Brazil and (should the Murici records ever prove to relate to indigenous birds) high-altitude forest enclaves. The disjunct population at the small Serra Negra suggests the former range was more extensive, but is now much reduced by loss of forest cover both through human agency and climate change.

The sole available information on the ecology of *P. griseipectus* comes from Baturité²⁴. The nesting season is February–May. One nest was found in April, 8 m high in a 30-cm diameter hollowed *Inga bahiensis*. The nest cavity was 31 cm deep and 12 cm wide, with a 6-cm round entrance. Clutch size is 2–4 and one egg measured 25.1 × 19.9 mm and weighed 5.4 g. Young are drabber coloured, and attain plumage similar to adults after their second year.

The conures use the higher strata of humid and semi-deciduous forests, and shade coffee plantations, but there is no information on relative use of different habitats. Reported foods are the fruit of the legume *Inga bahiensis* (a tender-seeded species with sweet pulp), seeds of the euphorb *Croton* sp., and fruits of cultivated *Byrsonima* sp., *Syzigium jambolanum* and *Eryobotria japonica*.

That *P. griseipectus* has been long considered a mere subspecies and new taxonomic treatments have been slow to gain acceptance have made its plight invisible to conservationists, and certainly prevented its study becoming a matter of import. From the limited information available, wild populations are in a dire situation and it may prove

to be among the most threatened Neotropical parrots. We still know very little concerning its precise range, populations and specific threats, and such baseline data are urgently required to plan for the species' conservation.

More positively, *P. griseipectus* breeds well in captivity and is held in some numbers both in Brazil and abroad. Thus, it is one of the few species of parrots where captive-breeding may play a significant role in restoring wild populations. Nevertheless, captive populations need to be managed in a coordinated way in order to maintain their genetic diversity and assure their long-term viability. It is hoped this paper, by revealing the conservation plight of the species, will prompt action by private aviculturists and zoological park associations.

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The birds of Parati, south-east Brazil

P.W. P. Browne

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Este estudo tem por objetivo compilar todas as informações prontamente acessíveis a respeito das aves do município de Parati, na floresta Atlântica do sudeste do Brasil, a partir de observações pessoais a dados de outros. Um total de nove fontes foi utilizado para estabelecer uma lista de 379 espécies. Cada espécie é comentada, quando adequado, de acordo com sua abundância, hábitat e altitude, *status* de ameaça ou endemismo, fontes dos registros e tipos de evidências. Os dados também foram obtidos das observações pessoais, a partir do diferencial entre a detecção de espécies florestais pelos métodos auditivos e visuais, bem como novas datas de reprodução para algumas poucas espécies. Espécies endêmicas da floresta Atlântica respondem por 31% de todas as espécies registradas em Parati e 42% de todas as espécies florestais. Nos habitats florestais, a porcentagem de espécies endêmicas aumentou conforme a altitude, sendo c.27% ao nível do mar, até c.47% nos 1.000 m. Os níveis de endemismo em Parati foram acentuadamente maiores do que os relatados na região vizinha de Ubatuba. Até o momento, a riqueza de espécies não foi adequadamente medida, mas um novo procedimento permite isto. Uma vez que c.90% das aves florestais foram detectadas através das suas vocalizações, equipamentos para gravação e arquivos sonoros apropriados são mais úteis do que instrumentos ópticos e guias de campo, em tais habitats. Aumentos de distribuição, tanto para migrantes Neárticos, quanto para espécies residentes são listados. Houve mudanças nos níveis de abundância para muitas aves desde 1941, com uma tendência de reduções relativas para as aves maiores e aumentos, talvez como resultado de um maior nível do conhecimento das vocalizações, para as espécies menores. Aproximadamente 52% da área de Parati está protegida por um parque nacional e por uma reserva ecológica, as quais, combinadas com a alta proporção de endêmicos fazem de Parati um excelente centro para a pesquisa sobre aves da floresta Atlântica.

Parati is a historic town on the coast of Brazil, c.150 km west-southwest of Rio de Janeiro, at 23°12'S 44°43'W. Here, Parati refers to the municipality and Parati town to the urban centre of that name. Numerous tourists holiday here but few ornithologists visit the area, despite the Atlantic Forest being a very popular region for birding due to the large number of endemic species found there (it is the third richest region for endemics in the Neotropics and the richest in Brazil²³). Parati has been neglected as a birding destination in favour of better known nearby sites such as Itatiaia National Park and Ubatuba because of lack of both knowledge of the avifauna and a birding infrastructure. Recent ornithological exploration of Parati, described below, reveals that the avifauna compares well with better-known areas. What is now missing is a birding infrastructure, and I hope that this paper will encourage its creation.

The study area is shown in Fig. 1. The municipality of Parati covers c.93,000 ha on the western side of Baía da Isla Grande. It contains the southernmost point in Rio de Janeiro state, which is c.10 km north of the Tropic of Capricorn. Parati has a c.100 km land border, c.80 km with São Paulo state and c.20 km with the municipality of Angra dos Reis. Coastline is very irregular and is c.200 km in length. Altitude varies between 0 and c.1,850 m and c.47% of the municipality is above 500 m. A large percentage is covered by Atlantic Forest. At lower

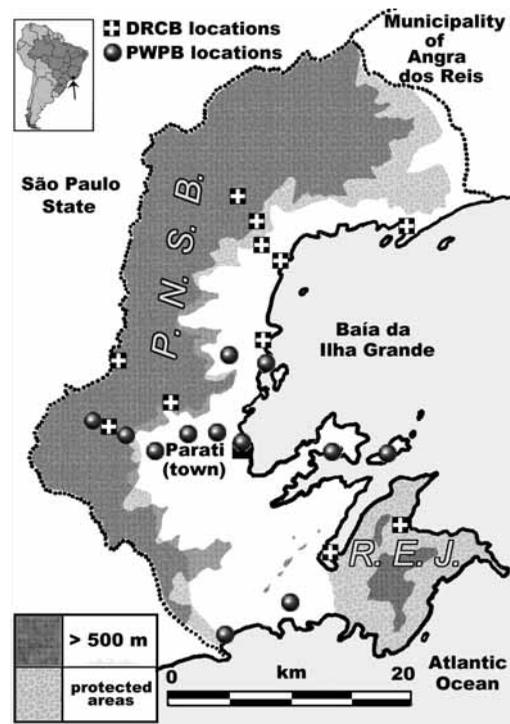


Figure 1. The municipality of Parati showing highland and protected areas and the main observation locations. The boundaries of the PNSB and the REJ are approximate.

altitudes, this is much degraded, especially near Parati town, but at higher altitudes extensive relatively undisturbed forest remains. Berla¹ described the secondary forest at Pedra Branca as being 60 years old in 1941, and Buzzetti³ the forest at most of the sites he visited in 1997 as dense tropical rain forest, but it is unknown if primary forest remains in Parati.

Approximately 40% of the municipality is within the southern part of the Serra da Bocaina National Park (PNSB) and another 12% within Joatinga Ecological Reserve (REJ). The entire REJ lies in Parati and c.34% of PNSB. Nearly all land above 500 m and all that above 1,000 m lie within these protected areas. In view of the serious threats to regional avifauna from deforestation^{4,22}, Parati, with 52% of its land area already protected, is well situated to play a leading role in the advancement of knowledge of Atlantic Forest birds.

Methods

I was present in Parati in the second half of March 1997 and January to mid-March 2001, during which periods I made 176 hours of observations in the municipality. Field work focused on localities within c.15 km of the town, accessible on foot, by bike, car, bus and boat, and usually commenced between 06h00 and 07h00, and continued c.4 hours, but I also made numerous short opportunistic observations.

Sight identification, using binoculars and telescope, was based principally on del Hoyo *et al.*¹⁰ for non-passerines and Ridgely & Tudor¹⁸ for passerines, with reference to Souza²⁴, and to Ruschi²⁰ for hummingbirds. I developed the ability to identify birds by voice in Parati area during my stay. Prior to my arrival, I was already reasonably familiar with the vocalisations of some species. From the outset, I tape-recorded unknown or uncertain vocalisations. Using field observations (some prompted by playback), cassettes of birds of south-east Brazil and the Remold CD-ROM¹⁷, I was able to learn their identity. Geographical positions were established using a Garmin GPS and altitudes also with this unit, as well as, more accurately, from 1:50,000 topographic maps (Ministério do Planejamento e Coordenação Geral, 1972) with contours at 20-m intervals, using GPS-established horizontal coordinates. I kept field notes on all birds detected and, each evening, entered the data for that day on spreadsheets.

I also obtained information from other ornithologists who had visited Parati by personal referrals, making contact through the internet and searching standard works (Collar *et al.*⁴, Paynter & Traylor¹⁶ and Sick^{21,22}). I was thus able to accumulate much additional information. These data were subjected to various statistical analyses (association between endemism and habitat, low altitude, high altitude

and threatened status; regression of endemism on altitude; regression of change in abundance ratings since 1941 on body length).

Data sources

Information on birds in Parati was obtained from nine sources. These were (in descending order of number of species recorded by each).

1. DRCB: 302 species detected during a study in February–November 1997 at 11 locations in Parati by Buzzetti³. These sites are marked in Fig. 1, and were scattered throughout forested areas in the municipality, from north to south. The study also embraced seven sites in neighbouring Angra dos Reis, but only Parati records are used here. The total number of hours of observation in both municipalities was 210 but the number in Parati is unknown (if proportional to the number of sites investigated it was c.130 hours).
2. PWPB: 206 species during 176 hours in March 1997 and January–March 2001 by myself and described in the methodology section above. The 12 main locations were all in the south of the municipality and encompassed varied habitats. They are marked in Fig. 1.
Other locations: JM, HR and DB (sources 3, 4 and 6) made most of their observations in Parati town and up to c.10 km along the Cunha road that extends west from the town (precise locations unknown). This area corresponds roughly to the six PWPB locations west of Parati town (Fig. 1). In addition, JM made observations at Patrimônio, c.10 km south of Parati town, and HR at a location near the most northerly of the PWPB sites. The localities of observations in sources 7–9 are unknown.
3. JM: 156 species detected by J. Minns (pers. comm.) during seven days in the years 1995–2003.
4. HR: 140 species detected by Remold¹⁷ (pers. comm.) during three days in 1994.
5. HFB: 107 species known from specimens collected at Pedra Branca (a montane area between and just to the north of the two DRCB sites, situated 7 and 12 km north-west of Parati town), by H. F. Berla between 1940 and 1968. Skins of 101 of these species are in the Museu Nacional do Rio de Janeiro^{1,12} and those of 28 species in the Natural History Museum of Los Angeles county (Paynter & Traylor¹⁶, K. Garrett pers. comm.).
6. DB: 74 species detected by Don & Peg Burlett (pers. comm.), with Ricardo Parrini as guide, on 15–17 April 2000.
7. JFP: 73 species recorded from Parati by J. F. Pacheco, R. Parrini, D. R. C. Buzzetti, B. M.

Whitney, C. Bauer & P. S. M. Fonseca, in addition to those listed in Buzzetti³ (50 species in Pacheco *et al.*¹² and 23 species by J. F. Pacheco pers. comm.).

8. RDB (Red Data Book)⁴: seven threatened species recorded in Parati by diverse observers up to 1992.
9. HS: five species mentioned for Parati in the English version of Sick²².

The total effort expended in the ornithological exploration of Parati by these sources probably amounts to c.500 hours or what could comfortably be devoted to such work by one observer during one year.

Results

The total number of species recorded in Parati is 379 (listed in Appendix 1). Nomenclature and taxonomy follow the Comitê Brasileiro de Registros Ornitológicos (CBRO) list (augmented with Portuguese names). Each species is annotated according to apparent abundance, habitat, altitude (except 11) and sources. Some also have indications if they are threatened or endemic, and if evidence categories are known. Annotations were determined as follows.

A. Apparent abundance

This required some consideration as so many sources of information were used. Three measures of species abundance were calculated, then weighted, averaged and scaled to acquire an overall apparent abundance index whose value (lowest abundance to highest) was 1, 2, 3, 4 or 5. The adjective 'apparent' was used, as the index is neither an absolute, nor a valid comparative indication of species density. The index was compiled from the observations of many individuals, without common methodology to estimate abundance, and some did not record commonly detected species. Recording all species encountered is important to avoid bias. However, the index does provide an indication of the relative ease with which a species may be located in Parati, within its preferred habitat and altitudinal range.

The first two of the three measures were given equal weight and were based on the data of DRCB and PWPB, who were the only observers to provide complete locality data and to record all species encountered. Location data enabled records to be tied, in most cases, to habitat and altitude, each of which has a critical effect upon species occurrence. These abundance measures were calculated based upon the preferred habitat and altitude of each species. In the case of DRCB, the measure was the percentage of localities in the preferred habitat and altitudinal range at which the species was recorded. For PWPB, it was the percentage of days

Table 1. Number of species in altitudinal ranges (of 368 for which altitude is known).

Altitudinal range	Total number of species in range	Number of species exclusively in this range
<500 m	323	167
>500 m	200	44
Both <500 m and >500 m	156	156

that the species was recorded in the preferred habitat and altitudinal range. The third measure was the number of the other sources reporting a species. Because of unquantifiable biases in this measure, arising from the non-recording of common species, this measure was given half the weight of the other two. However, it ensured that all species, even those not recorded by DRCB or PWPB, contributed to the index.

B. Habitat

In Appendix 1, the habitats in which each species was found are indicated. Mostly only one habitat is given, but when more than one is listed, they are presented in order of frequency. Habitat codes in parentheses indicate presumed habitats, when I possessed no indication of actual habitat from the source. Habitat classification is based on Parker *et al.*¹⁵, with four designations: forest, non-forest, aquatic and built-up. Each is described further in Appendix 1. Buzzetti³ provided detailed descriptions of forest habitats at his sites in Parati.

C. Altitude

Altitude exerts great influence on the avifauna of Parati, and was the main topic addressed by Buzzetti³. For all personal observations, I recorded altitude at which they were made. Such data were available for some, but not all, observations from other sources (Buzzetti³ presented sites at which each species was recorded and the altitudinal range of each site, but some of these ranges are considerable making it impossible to be precise concerning the altitude of some of his observations). However, I have determined for all but 11 species of the 379 if they were detected above or below 500 m, and this information is presented in Appendix 1. Table 1 shows the totals found in each altitudinal range.

D. Threatened species

The threat classification for each species is shown in Appendix 1, as defined in the list of globally threatened bird species on BirdLife International's website (http://www.birdlife.net/action/science/species/globally_tbu/), wherein 14 species are considered threatened and 19 near threatened.

E. Endemic species

Also indicated are species endemic to the Atlantic Forest region based on Parker *et al.*¹⁵, modified

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Table 2. Percentage of individual birds detected only by vocalisations.

Species	Total number detected	Number heard only	% heard only
Red-eyed Vireo <i>Vireo chivi</i>	67	56	84
Spot-breasted Antwren <i>Dysithamnus stictothorax</i>	39	34	87
Ferruginous Antbird <i>Drymophila ferruginea</i>	28	22	79
White-shouldered Fire-eye <i>Pyrgilena leucoptera</i>	26	22	85
Rufous-browed Peppershrike <i>Cyclarhis gujanensis</i>	17	15	88
Lemon-chested Greenlet <i>Hylophilus thoracicus</i>	16	14	88
Blue Manakin <i>Chiroxiphia caudata</i>	13	12	92

where necessary to bring taxonomy in line with the CBRO list. Endemics numbered 116, 31% of the total number of species detected in Parati. However, all endemic species are also entirely or primarily forest species (according to habitat as indicated in Appendix 1), and forest species numbered 274, making 42% of them endemic.

F. Sources

The source numbers listed above are presented in Appendix 1 for each species. The maximum number of sources reporting a species was seven (of nine). A total 86 species was recorded by only a single source.

G. Evidence categories

A description of each category is presented in Appendix 1. Categories are given for all species, except those included solely on the basis of one or more of the four literature sources (1, 7, 8 and 9), apart from a few specimens mentioned therein. Evidence categories were thus determined for c.80% of species. Categories given for a species are those reported by all sources, except that category H (vocalisation heard but not recorded) is used only when it was the sole evidence category.

Detection

During my stay in Parati (January–March 2001), I identified 308 individual birds of 54 species by vocalisation alone (i.e. heard but not seen). Table 2 shows figures for the seven commonest forest species of the 54.

Discussion**Rare species**

Of the 379 species reported in Parati, 48% (182) are classed as rare, scarce or local (apparent abundance = 1 in Appendix 1). This is unsurprising in view of Goerck's⁵ finding that 68% of species in the Atlantic Forest of Brazil are rare, and that 86 of the 379 species known in Parati were identified by only one of the nine sources. Of course, there is the

possibility that some single-source species were misidentified, and these species are most needing confirmation from Parati. A probable occurrence of the Harpy Eagle *Harpia harpyja* has been reported in Parati¹³ but is not included in the appendix because of uncertainty expressed by the observer.

It is noteworthy that, as is clear from Fig. 1, only a small part of the municipality has been explored ornithologically, and only c.500 observation hours have been devoted to this work. Some 682 species are known from the Atlantic Forest region²³; thus we can assume that further exploration will yield more species.

Endemism

The Atlantic Forest region has the highest number (199) of endemics of any region in Brazil and the third most in the Neotropics, after the Central Andes with 216 and Northern Andes with 222²³. Because of the interest of visiting birders in endemics and because of their intrinsic biological interest, I have undertaken my most detailed analysis on these species. Some 31% of all species and 42% of forest species in Parati are endemic, compared to 40% endemic species in a forest study at Ubatuba⁶.

Table 3 reveals the association between endemism and four other biological factors (habitat, low altitude, high altitude, threatened status) in Appendix 1, obtained by cross-tabulating endemism with each of these factors in turn, and testing the resulting contingency table for statistically significant departure from chance distribution by the Chi-squared test. All were highly significant ($p < .0001$).

Of the effects connected with endemism in Table 3, two are quite expected: those of habitat and threatened status. Regarding habitat, since endemic species are those restricted to the Atlantic Forest region, it is unsurprising that they occur in forest. However, the very close relationship is perhaps unexpected. Only 11 of the 116 endemics (9.5%) appeared to occur outside forest: Maroon-

Table 3. Association of endemism with the other biological factors in Appendix 1.

Annotation	Observed effect on endemism
Habitat	Endemics were found only or primarily in forest (all in habitats f, (f), and fn except for l in b).
Low altitude (<500 m)	Endemic species were fewer at low altitudes than would be expected if endemism were independent of altitude.
High altitude (>500 m)	Endemic species were more numerous at high altitudes than would be expected if endemism were independent of altitude.
Threatened species	Threatened species were nearly all endemics (32 of 33).

Table 4. Endemism and altitude at Parati: own data.

Altitude (m)	All species	Endemic species	% endemic
Lowland forest (0–200)	119	35	29
Higher forest (900–1,100)	49	23	47

Table 5. Endemism and altitude at Parati: DRCB's³ data.

Site number	Mean altitude (m)	All species	Endemic species	% endemic
1	1	33	1	3
2	10	68	5	7
5	15	115	38	33
6	1	98	25	26
8	230	108	36	33
10	165	82	41	50
11	600	107	40	37
15	380	80	32	40
16	1,000	92	43	47
17	875	106	50	47
18	1,650	50	29	58

bellied Parakeet *Pyrrhura frontalis*, Plain Parakeet *Brotogeris tirica*, Black Jacobin *Melanotrochilus fuscus*, Sombre Hummingbird *Aphantochroa cirrhochloris*, Yellow-fronted Woodpecker *Melanerpes flavifrons*, Spot-breasted Antwren *Dysithamnus stictothorax*, Ferruginous Antbird *Drymophila ferruginea*, White-shouldered Fire-eye *Pyriglena leucoptera*, Red-eyed Thornbird *Phacellodomus erythrophthalmus*, Blue Manakin *Chiroxiphia caudata* and Brazilian Tanager *Ramphocelus bresilius*. All of these except *A. cirrhochloris* were fairly common to abundant and the majority I detected were in forest, but I also detected some in open country with scattered trees or scrub, perhaps indicating adaptation to deforestation. Goerck⁵ discovered that 8.5% of endemics in the Atlantic Forest region used disturbed habitats. *A. cirrhochloris* were found at feeders within an open-plan restaurant (hence in a built-up area) but the restaurant is surrounded by forest.

That threatened status is associated with endemic species is well known, because endemism is itself associated with risk indicators such as small range size, ancient isolates, small population size, habitat choice and habitat sensitivity^{5,10}.

The effects of low and high altitudes on endemism are interesting, as they appear at first to contradict the findings of the only comparable

study of which I am aware: Goerck⁶ in Ubatuba, which is c.45 km south-west of Parati town, on the coast of São Paulo state. Using point count data, she found larger numbers of endemic species at low altitudes than at high altitudes, which seems opposite to Table 3. I have no similar data from Parati, as the only source to use point count data was Buzzetti³, and, in relation to this, he did not separate endemic species in his published analysis. However, in comparing percentages, rather than numbers, of endemic species at different altitudes, it is apparent that my results correspond to those from Ubatuba. In both areas, the percentage of endemics increased with altitude. I have calculated percentage of endemic species in lowland and highland forest from my own data (Table 4), and the percentage of endemic species in relation to all forest species at each of Buzzetti's³ 11 sites (Table 5).

Both tables reveal a higher degree of endemism at higher altitudes than lower. Regression analysis, performed upon the data in Table 5, estimated that at sea level degree of species endemism was 24% and that it increased by 2.3% over every 100-m increase in altitude. The rate of increase was statistically significant ($t = 3.17$, $d. f. = 9$, $.01 < p < .02$).

Goerck's⁶ Ubatuba data, as shown in Table 6, corresponds. It shows that the effect of altitude on percentage of endemic species occurred even in primary forest, where Goerck's study was conducted, and was not just an artefact of greater forest disturbance at lower altitudes.

The increase in percentage of endemic birds with altitude in the Neotropics was remarked by Stotz *et al.*²³. For the Atlantic Forest region, they found 34% endemic species in lowland and 55% in montane forests, corresponding well with the two independent estimates from Parati: Buzzetti's data³ gave 24% at sea level and 47% at 1,000 m, whilst mine gave 29% in lowland forest and 47% in montane forest. At Ubatuba, in contrast, although percentages increased with altitude, they did so to a lesser extent (24% to 32%).

Species richness

Other than degree of endemism, species richness is an important biological parameter in deciding on measures for environmental protection²⁵. Thus far, there are no good measures of species richness in Parati, which is a common problem in the Neotropics²⁵. Statistical software packages are now available that can utilise point count data, such as those collected by Buzzetti³ and Goerck⁶ to make many kinds of estimates (including error estimates) of species richness. The comparative merits of these estimates were analysed by Walther & Martin²⁵. I recommend that future studies of avian

Table 6. Endemism and altitude at Ubatuba: Goerck's⁶ data.

Altitude (m)	Mean number of species during point counts		
	All	Endemic	% endemic
0–100	11.2	2.7	24
100–950	7.0	2.0	29
950–1,150	3.7	1.2	32

communities in the region incorporate such estimates.

Detection

The majority of birds in Parati inhabit forest and, among commoner species, I detected c.90% of individuals by vocalisation rather than sight, a common phenomenon in forests. Tape-recordings that can be replayed later for identification are valuable adjuncts to immediate field recognition. Parker¹⁴ recounted that, during a forest survey in Amazonian Bolivia in which 287 species were found by seven experienced ornithologists during 54 days of intensive field work (including 36,804 mist-net hours), he tape-recorded 85% of the species within one week, and presented guidelines for conducting such work. Buzzetti³ and Goerck⁶ utilised such methods in their surveys.

For identifying forest birds at Parati, bird sound archives are much more useful than field guides, and a tape-recorder more useful than binoculars. I have not found descriptions of vocalisations in field guides and other publications particularly useful compared to sound-recordings. South-east Brazil has not been especially well served with publically available material of this type until very recently. Buzzetti³ used private archives for identifying his field recordings. However, the first Remold CD-ROM¹⁷ was published in 2001 and covers c.50% of species likely to be heard in the region, including some of the most difficult to identify. Other CDs or CD-ROMs have been⁷ or are in the process of being prepared (e.g. the second Remold disk, covering the remainder of the passerines, was expected to be published in May 2005: H. Remold pers. comm.).

Breeding data

The following dates extend the known breeding season of four species in south-east Brazil. **Rufous-tailed Jacamar** *Galbula ruficauda*: an apparently occupied nest, 26 February, compared with 'Sept–Dec in Brazil (Minas Gerais)¹⁰'; **Yellow-chinned Spinetail** *Certhiaxis cinnamomea*: an apparently occupied nest February–March compared with 'eggs in Oct in S Brazil⁹'; **Red-eyed Thornbird** *Phacellodomus erythrophthalmus*: two certainly and one probably occupied nests January–March, compared with 'breeding season probably during austral spring–summer⁹'; and **Black-cheeked Gnateater** *Conopophaga melanops*: male carrying food, 7 February, compared with 'breeding Oct and Nov in S half of range⁹'.

Range extensions

Buzzetti³ reported range extensions for several species, of which perhaps the most notable was the globally threatened Black-hooded Antwren

Formicivora erythronotos, formerly known only from Angra dos Reis but now also from Parati.

Range extensions I recorded were as follows.

Picazuro Pigeon *Columba picazuro*: up to 110 roosted in mangroves by Parati town, 7 January–3 March 2001. This species invades deforested areas and exploits urban areas¹⁰, which may explain its apparent recent arrival in Parati. **Band-winged Nightjar** *Caprimulgus longirostris*: calling at dawn in high grassland at c.1,100 m on the Cunha road, on 17 February 2001. **Minute Hermit** *Phaethornis idaliae*: one in forest, at 100 m, near Laranjeiras, on 1 February 2001. Sick²² depicted the species' distribution as penetrating Rio de Janeiro state, but not as far south as Parati. **Tail-banded Hornero** *Furnarius figulus*: one at Trindade beside a sandy freshwater lagoon c.100 m from the sea, on 16 February 2001. According to Ridgely & Tudor¹⁸ this species has spread to Rio de Janeiro state from the north. My record is just 2 km from the São Paulo state border.

The occurrence of highland birds at low altitudes in Parati had already been remarked by Buzzetti³ for five species, and I noted three further examples: **Blue-billed Black-tyrant** *Knipolegus cyanirostris* (10 January 2001, 100 m), **Rufous-capped Antshrike** *Thamnophilus ruficapillus* (2 February 2001, 150 m) and **Fawn-breasted Tanager** *Pipraeidea melanonota* (10 March 2001, 50 m).

Migration

Nearctic migrants. Spotted Sandpiper *Actitis macularia* was the only northern winter resident shorebird, being fairly common on rocky shores and in mangrove channels. Passage migrant shorebirds were Semipalmated Plover *Charadrius semipalmatus*, White-rumped Sandpiper *Calidris fuscicollis* and Ruddy Turnstone *Arenaria interpres*. Parati (and much of the coast between Rio de Janeiro and São Paulo) was not included in aerial shorebird surveys conducted 1982–86 in coastal South America, because the precipitous coastline was considered unlikely to host many wintering shorebirds¹¹.

Common Tern *Sterna hirundo* was seen 18 January–17 March 2001 in groups of up to 150 offshore and on flats at low tide at Parati town. Though this species has not been recorded at Parati by other observers, its presence is not surprising as southern Brazil and Argentina are the most important wintering grounds in the Western Hemisphere for adult Common Terns².

Olive-sided Flycatcher *Contopus borealis*—three observations of singles: on 3 February 2001 in open forest at 150 m (PWPB); 10 March 1994 (HR) and 10 November 1990 (JFP), the latter two below 500 m. These observations tie in well with c.10 records in São Paulo and Rio de Janeiro states

between 10 November and 18 March (1983–90) at altitudes of 100–1,400 m²⁶. Although there are records for all months November–March, c.70% occurred in November or March, perhaps indicating passage.

Purple Martin *Progne subis*—one on a roof in Parati town 6 February 2001. The large concentrations noted in northern São Paulo state^{8,18} are not a feature in Parati, and this appears to be the sole February record in Rio de Janeiro state²².

Barn Swallow *Hirundo rustica*—six on passage along the shore at Parati town 6 March 2001.

Cliff Swallow *Hirundo pyrrhonota*—reported¹² on 23 September 1992, and by Buzzetti³ (date unknown).

Austral migrants. As my observations were made during the austral summer, I did not obtain personal exposure to austral migrants, nor to altitudinal movements downslope, which occur in the austral winter at Parati (e.g. Blue-bellied Parrot *Triclarina malachitacea*²², Black-and-gold Cotinga *Tijuca atra*^{1,22} and Yellow-legged Thrush *Platycichla flavipes*¹).

Abundance rating changes since 1941

I compared the abundance of various species presented in the present paper (rare, fairly common, common, very common, abundant) to those reported by Berla¹ over 60 years ago. Of 93 species in Berla's paper, he rated abundance of 43 using similar descriptors (*raro*, *bastante comun*, *comun*, *muito comun*, *abundante*). These ratings have been allocated the same numerical values of 1–5 respectively as used in Appendix 1.

There is no statistically significant correlation between the two abundance ratings for the 43 species ($t = 0.98$, d. f. = 41, $.5 < p < .2$). However, there were many changes in abundance ratings for

individual species. These have been calculated numerically: e.g. a change from *abundante* to fairly common is -3, and from *raro* to common is +2. Table 7 lists the species for each change.

On average, as is evident from Table 7, abundance ratings changed by -1. This could be real or due to different methods of assessment used by Berla and myself. However, the change of abundance rating varies from -4 to +2 in different species. To explain this broad spread, I used three variables: threatened status, endemic status and body size. Threatened or near-threatened species are indicated by * and endemic species by +. Threatened and endemic species do not seem to be have been obviously impacted, as indicated by their broad spread in Table 7. However, larger species appeared, on average, to have been negatively affected. This was confirmed by a statistically significant regression ($t = 2.87$, d. f. = 41, $p < .01$) of the (negative) change in abundance ratings on the length of the bird (taken from del Hoyo *et al.*¹⁰ and Ridgely & Tudor¹⁸). Species with negative changes in abundance ratings, among this sample of 43 species, included all three tinamous, one wood-quail, one wood-rail and one quail-dove, perhaps indicating that hunting has been a factor in these changes. In 1941, Parati was difficult of access from the rest of the state, but a highway was constructed in the 1970s³, perhaps resulting in increased hunting pressure. Another factor tending to give smaller species increased abundance ratings (e.g. *Iodopleura pipra* and *Hemitriccus furcatus*) is almost certainly likely to be the much-increased knowledge of vocalisations compared to 1941.

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To the sources that kindly permitted me access to their records. To my friends in Parati: Sabina Wenzel for

Table 7. Species showing various changes in abundance ratings since 1941.

Change in abundance ratings						
-4	-3	-2	-1	0	+1	+2
- <i>Chamaeza campanisona</i>	- <i>Tinamus solitarius</i> *+	- <i>Micrastur ruficollis</i>	- <i>Crypturellus obsoletus</i>	- <i>Batara cinerea</i>	- <i>Megarynchus pitangua</i>	- <i>Hemitriccus furcatus</i> *+
	- <i>Crypturellus tataupa</i>	- <i>Aramides saracura</i> +	- <i>Rupornis magnirostris</i>	- <i>Drymophila ferruginea</i> +	- <i>Notiochelidon cyanoleuca</i>	- <i>Myiozetetes similis</i>
	- <i>Geotrygon montana</i>	- <i>Lochmias nematura</i>	- <i>Knipolegus cyanirostris</i>	- <i>Myiodynastes maculatus</i>	- <i>Euphonia pectoralis</i> +	
	- <i>Bailloniopsis bailloni</i> *+	- <i>Mionectes rufiventris</i> +	- <i>Odontophorus capueira</i> +	- <i>Iodopleura pipra</i> *+		
	- <i>Tijuca atra</i> *+	- <i>Platycichla flavipes</i>	- <i>Piaya cayana</i>	- <i>Cyclarhis gujanensis</i>		
		- <i>Geothlypis aequinoctialis</i>	- <i>Phaethornis ruber</i>	- <i>Hemithraupis ruficapilla</i> +		
		- <i>Cacicus haemorrhous</i>	- <i>Trogon viridis</i>	- <i>Ramphocelus bresilius</i>		
			- <i>Notharchus macrorhynchus</i>	- <i>Thraupis sayaca</i>		
			- <i>Synallaxis ruficapilla</i> +			
			- <i>Automolus leucophthalmus</i> +			
			- <i>Dendrocincla turdina</i> +			
			- <i>Colonia colonus</i>			
			- <i>Oxyruncus cristatus</i>			
			- <i>Turdus albicollis</i>			
			- <i>Tachyphonus coronatus</i> +			
			- <i>Tangara cyanocephala</i> +			
			- <i>Sporophila caerulescens</i>			

hospitality during 1997 and 2001, and access to her hummingbird book; Edmund & Martha Raas for consistent help and encouragement, including access to their property; Hans & Adaline König for advice on birding areas near Parati, permitting me to park my bike in their shed and for many cold drinks following my walks; Werner Ploch for trips in his yacht and detours for birds; Christophe Collet for his topographic maps of Parati which are out of print; Ney Pinto Fuanya, director of IBAMA in Parati, for introducing me to some excellent birding locations and to a knowledgeable guide; Luiz Eduardo Pontual Marx for sharing his knowledge of the birds of Parati; and Rachel Ribas for access to her garden. Jeremy Minns, Fernando Pacheco and Kimball Garrett sent important reference material. My wife Shirley suffered, with understanding, my early risings and protracted absences whilst in Parati.

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Appendix I. Consolidated observations.

App. Abu.:	Hab.:	Alt.:	Status	Sources:	Evi. Cat.:
apparent abundance in preferred habitat	observed habitats with preferred habitat first; parentheses indicate presumed habitat.	X indicates altitude range in which the species occurred		the sources responsible for inclusion of a species in the Parati list. Numbers relating to source are as follows (see Data sources):	evidence categories for inclusion when known
1 rare, scarce or local	f forest	L below 500 m	Thr.		S sight record
2 fairly common	n non-forest: open country with scrub. scattered trees, fields	H above 500 m	N Near threatened	E Endemic to Atlantic Forest region	R vocalisation recorded
3 common	a aquatic: rocky coast, river, beaches, mudflats and sea	Blank in both columns	T Threatened		H vocalisation heard but not recorded
4 very common	b built up: buildings and gardens				P photographed
5 abundant and conspicuous					M specimen

Name	App.	Hab.	Alt.	Status	Sources	Evi.
Scientific	Abu.	L	H	Thr. End.		Cat.
<i>Tinamus solitarius</i>	2 f	X	X	N E	1,5	M
<i>Crypturellus obsoletus</i>	2 f	X	X		1,3,4,5	M
<i>Crypturellus tataupa</i>	1 f	X			1,5	M
<i>Sula leucogaster</i>	2 a	X			1,2	S
<i>Phalacrocorax brasilianus</i>	3 a	X			1,2,3,4	S
<i>Fregata magnificens</i>	4 abf	X			1,2,3	S
<i>Ardea cocoi</i>	2 a	X			1,2	S
<i>Casmerodius albus</i>	4 a	X			1,2,3,4	S
<i>Egretta thula</i>	3 a	X			1,2,3,4	S
<i>Egretta caerulea</i>	3 a	X			1,2,3,7	S
<i>Bubulcus ibis</i>	1 (n)	X			1	
<i>Butorides striatus</i>	1 a	X			1,2	S
<i>Syrigma sibilatrix</i>	1 a	X			7	
<i>Nycticorax nycticorax</i>	2 a	X			1,2	S
<i>Nyctanassa violacea</i>	1 a	X			2	S
<i>Tigrisoma lineatum</i>	1 (a)	X			1	
<i>Platalea ajaja</i>	1 a	X			2,6	S
<i>Coragyps atratus</i>	5 abfn	X	X		1,2,3,4	S
<i>Cathartes aura</i>	2 fbn	X			1,2,3,4	S
<i>Elanoides forficatus</i>	1 f	X			2,4	S
<i>Harpagus diodon</i>	1 f	X			2,3,4	S
<i>Accipiter polygaster</i>	1 f	X			4	S
<i>Buteo brachyurus</i>	1 f	X			3	S
<i>Rupornis magnirostris</i>	3 n	X	X		1,2,3,4,5	SRM
<i>Leucopternis lacernulata</i>	1 f	X		T E	1,3,8	S
<i>Buteogallus meridionalis</i>	1 n	X			1,2,7	S
<i>Spizaetus tyrannus</i>	1 f	X	X		1	S
<i>Geranospiza caerulescens</i>	1 f	X			2	S
<i>Herpetotheres cachinnans</i>	1 f	X			1	
<i>Micrastur semitorquatus</i>	1 f	X	X		1,2,7	S
<i>Micrastur ruficollis</i>	2 f	X	X		1,3,5	SM
<i>Milvago chimachima</i>	3 abfn	X			1,2,4	S
<i>Caracara plancus</i>	3 an	X			1,2,4	S
<i>Falco rufigularis</i>	1 ba	X			2	S
<i>Falco femoralis</i>	1 (n)	X			1	
<i>Penelope supercilialis</i>	1 (f)				7	
<i>Penelope obscura</i>	2 f	X			1,5	M
<i>Pipile jacutinga</i>	1 (f)			T E	7,8	
<i>Odontophorus capueira</i>	1 f		X	E	1,5	M
<i>Amaurolimnas concolor</i>	1 (f)	X			1	
<i>Aramides mangle</i>	1 (f)	X			1	
<i>Aramides cajanea</i>	1 (f)	X			1	
<i>Aramides saracura</i>	2 f	X		E	1,2,3,5	SM
<i>Porzana albicollis</i>	1 (n)	X			1	
<i>Laterallus exilis</i>	1 (a)	X			7	S

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The birds of Parati, south-east Brazil

Name Scientific	English	Portuguese	App.	Hab.	Alt.	Status		Sources	Evi. Cat.
			Abu.		L	H	Thr.		
<i>Laterallus melanophaius</i>	Rufous-sided Crane	Pinto-d'água-comum	1	n	X			1,2	S
<i>Gallinula chloropus</i>	Common Moorhen	Frango-d'água-comun	1	(a)	X			7	
<i>Jacana jacana</i>	Wattled Jacana	Jaçanã, Cafezinho	1	(a)	X			7	S
<i>Haematopus palliatus</i>	American Oystercatcher	Pirupiru	1	a	X			2,3	S
<i>Vanellus chilensis</i>	Southern Lapwing	Quero-quero	3	an	X			1,2	S
<i>Charadrius semipalmatus</i>	Semipalmated Plover	Batuira-de-bando	1	a	X			1,2	S
<i>Arenaria interpres</i>	Ruddy Turnstone	Agachadeira	1	a	X			7	
<i>Actitis macularia</i>	Spotted Sandpiper	Maçarico-pintado	2	a	X			1,2	S
<i>Calidris fuscicollis</i>	White-rumped Sandpiper	Maçarico-de-sobre-branco	1	a	X			3	S
<i>Gallinago paraguaiæ</i>	South American Snipe	Narceja, Batuira	1	(a)	X			7	
<i>Larus dominicanus</i>	Kelp Gull	Gaivotão	4	a	X			1,2,3,4	S
<i>Sterna hirundinacea</i>	South American Tern	Trinta-réis-de-bico-vermelho	1	a	X			1	
<i>Sterna hirundo</i>	Common Tern	Trinta-réis-boreal	1	a	X			2	S
<i>Sterna superciliaris</i>	Yellow-billed Tern	Trinta-réis-anão	1	a	X			3	S
<i>Sterna maxima</i>	Royal Tern	Trinta-réis-real	3	a	X			1,2,3,7	S
<i>Sterna eurygnatha</i>	Cayenne Tern	Trinta-réis-de-bico-amarelo	3	a	X			1,2	S
<i>Rynchops niger</i>	Black Skimmer	Talha-mar	1	a	X			3,7	S
<i>Columba livia</i>	Rock Pigeon		2	ba	X			2,7	S
<i>Columba picazuro</i>	Picazuro Pigeon	Asa-branca, Pomba-trocal	1	f	X			2	S
<i>Columba cayennensis</i>	Pale-vented Pigeon	Pomba-galega	2	nf	X			1,2,4	S
<i>Columba plumbea</i>	Plumbeous Pigeon	Pomba-amargosa	3	f	X	X		1,3,5	SRM
<i>Zenaida auriculata</i>	Eared Dove	Pomba-de-bando, Avoante	1	n	X			2	S
<i>Columbina talpacoti</i>	Ruddy Ground-dove	Rolinha-caldo-de-feijão	3	nf	X			1,2,3,4	S
<i>Leptotila verreauxi</i>	White-tipped Dove	Juriti-pupu	2	f	X	X		1,2,3	SR
<i>Leptotila rufaxilla</i>	Grey-fronted Dove	Juriti-gemeadeira	1	f	X	X		2,3,5	SRM
<i>Geotrygon montana</i>	Ruddy Quail-dove	Pariri	1	f	X	X		1,5	M
<i>Pyrhura frontalis</i>	Maroon-bellied Parakeet	Tiriba-de-testa-vermelha	4	fn	X	X	E	1,2,3,4,5,6	SM
<i>Forpus xanthopterygius</i>	Blue-winged Parrotlet	Tuim	3	fn	X	X		1,2,3	S
<i>Brotogeris tirica</i>	Plain Parakeet	Periquito-rico	4	fn	X	X	E	1,2,3,4,5,6	SRM
<i>Touit surda</i>	Golden-tailed Parrotlet	Apuim-de-cauda-amarela	1	(f)			T E	7	
<i>Pionopsitta pileata</i>	Pileated Parakeet	Cuiú-cuiú	2	f	X	X	E	1,7	
<i>Pionus maximiliani</i>	Scaly-headed Parrot	Maitaca-bronzeada	3	f	X	X		1,3,4,6	SR
<i>Tricharia malachitacea</i>	Blue-bellied Parrot	Sabiá-cica	2	f	X	X	T E	1,3,8,9	S
<i>Coccyzus melacoryphus</i>	Dark-billed Cuckoo	Papa-lagarta	1	f	X			7	
<i>Piaya cayana</i>	Squirrel Cuckoo	Alma-de-gato	3	fn	X	X		1,2,3,5,6	SM
<i>Crotophaga ani</i>	Smooth-billed Ani	Anu-preto	3	n	X	X		1,2,4	S
<i>Guirra guirra</i>	Guirra Cuckoo	Anu-branco	2	f	X			1,2,4	S
<i>Tapera naevia</i>	Striped Cuckoo	Saci, Sem-fim	1	f	X			1,2,4	S
<i>Tyto alba</i>	Barn Owl	Suindara	1	b	X			1,2	S
<i>Otus choliba</i>	Tropical Screech-owl	Corujinha-do-mato	1	f	X			7	S
<i>Pulsatrix koeniswaldiana</i>	Tawny-browed Owl	Murucutu-de-barriga-amarela	1	f	X		E	1	
<i>Glaucidium minutissimum</i>	Least Pygmy-owl	Caburé-miudinho	1	(f)	X			7	
<i>Speotyto cunicularia</i>	Burrowing Owl	Buraqueira	1	n	X			1,2	SP
<i>Rhinopteryx clamator</i>	Striped Owl	Coruja-orelhuda	1	(n)	X			1,7	
<i>Nyctibius aethereus</i>	Long-tailed Potoo	Mãe-da-lua-parda	1	(f)	X			7	
<i>Nyctibius griseus</i>	Common Potoo	Urutau, Mãe-da-lua	1	f	X	X		1,4	H
<i>Lurocalis semitorquatus</i>	Short-tailed Nighthawk	Tuju	1	f	X			1	
<i>Chordeiles acutipennis</i>	Lesser Nighthawk	Bacurau-de-asa-fina	1	(n)	X			1,7	
<i>Nyctidromus albicollis</i>	Pauraque	Curiango	1	(f)	X			1	
<i>Caprimulgus longirostris</i>	Band-winged Nightjar	Bacurau-da-telha	1	n		X		2	R
<i>Hydropsalis torquata</i>	Scissor-tailed Nightjar	Bacurau-tesoura	1	f	X			7	S
<i>Macropsalis creagra</i>	Long-trained Nightjar	Bacurau-tesoura-gigante	1	f		X	E	1	
<i>Streptoprocne zonaris</i>	White-collared Swift	Andorinhão-de-coleira, Taperuçu	2	f	X	X		1,2,3,4	S
<i>Cypseloides senex</i>	Great Dusky Swift	Andorinhão-velho-da-cascata	1	(f)				7	
<i>Cypseloides fumigatus</i>	Sooty Swift	Andorinhão-preto-da-cascata	1	f		X		1	
<i>Chaetura cinereiventris</i>	Grey-rumped Swift	Andorinhão-de-sobre-cinzento	3	f	X	X		1,2,3,4	S
<i>Chaetura meridionalis</i>	Sick's Swift	Andorinhão-do-temporal	4	bnf	X	X		1,2,4,9	S
<i>Panyptila cayennensis</i>	Lesser Swallow-tailed Swift	Andorinhão-estofador	1	f	X			1,2,4	S
<i>Ramphodon naevius</i>	Saw-billed Hermit	Beija-flor-grande-do-mato	3	f	X	X	N E	1,2,3,4,5,6	SM
<i>Glaucis hirsuta</i>	Rufous-breasted Hermit	Balança-rabo-de-bico-torto	1	f	X			1,2,5	SM
<i>Phaethornis eurynome</i>	Scale-throated Hermit	Rabo-branco-de-garganta-rajada	2	f	X	X	E	1,3	SR
<i>Phaethornis squalidus</i>	Dusky-throated Hermit	Rabo-branco-miúdo	1	f	X		E	3,6	S
<i>Phaethornis pretrei</i>	Planalto Hermit	Rabo-branco-de-sobre-amarelo	1	b	X	X		2	S
<i>Phaethornis ruber</i>	Reddish Hermit	Besourinho-da-mata	3	fn	X			1,2,3,5,6	SM
<i>Phaethornis idaliae</i>	Minute Hermit	Besourinho	1	f	X		E	2	S
<i>Eupetomena macroura</i>	Swallow-tailed Hummingbird	Tesourão	2	bnf	X			2,4,7	S
<i>Melanotrochilus fuscus</i>	Black Jacobin	Beija-flor-preto-e-branco	3	fn	X	X	E	1,2,4,5	SM

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Name Scientific	English	Portuguese	App.	Hab.	Alt.		Status	Sources	Evi.
			Abu.		L	H	Thr. End.		Cat.
<i>Colibri serrirostris</i>	White-vented Violetear	Beija-flor-de-orelha-violeta	1	(f)				5,7	M
<i>Anthracothorax nigricollis</i>	Black-throated Mango	Beija-flor-preto	1	bf	X	X		1,2,4	S
<i>Stephanoxis lalandi</i>	Plovercrest	Beija-flor-de-topete	1	f		X	E	1	
<i>Chlorostilbon aureoventris</i>	Glittering-bellied Emerald	Besourinho-de-bico-vermelho	1	f	X			2	S
<i>Thalurania glaucopsis</i>	Violet-capped Woodnymph	Tesoura-de-fronte-violeta	3	f	X	X	E	1,2,3,4,5,6	SM
<i>Hylocharis cyanus</i>	White-chinned Sapphire	Beija-flor-roxo	1	f	X			1	
<i>Leucochloris albicollis</i>	White-throated Hummingbird	Papo-branco	1	f	X	X	E	1	
<i>Amazilia versicolor</i>	Versicoloured Emerald	Beija-flor-de-banda-branca	2	f	X	X		1,2	S
<i>Amazilia fimbriata</i>	Glittering-throated Emerald	Beija-flor-de-garganta-verde	2	bn	X			1,2	S
<i>Aphantochroa cirrhochloris</i>	Sombre Hummingbird	Beija-flor-cinza	1	b	X		E	2,6,7	S
<i>Clytolaema rubricauda</i>	Brazilian Ruby	Beija-flor-rubi, Papo-de-fogo	1	f		X	E	1	
<i>Helioamaster squamosus</i>	Stripe-breasted Starthroat	Bico-reto-verde	1	f		X		1	
<i>Trogon viridis</i>	White-tailed Trogon	Surucua-grande-de-barriga-amarela	3	f	X	X		1,3,4,5,6	SM
<i>Trogon rufus</i>	Black-throated Trogon	Surucua-de-barriga-amarela	2	f	X	X		1,3,5	RM
<i>Trogon surrucura</i>	Surucua Trogon	Surucua-de-peito-azul, João-tolo	2	f	X	X	E	1,2,3,5	SM
<i>Ceryle torquata</i>	Ringed Kingfisher	Martim-pescador-matraca	2	ab	X			1,2,4	S
<i>Chloroceryle amazona</i>	Amazon Kingfisher	Martim-pescador-verde	2	a	X			2,3,4,6,7	S
<i>Chloroceryle americana</i>	Green Kingfisher	Martim-pescador-pequeno	2	af	X			1,2	S
<i>Chloroceryle inda</i>	Green-and-rufous Kingfisher	Martim-pescador-da-mata	1	(a)	X			7	
<i>Baryphthengus ruficapillus</i>	Rufous-capped Motmot	Juruva	2	f	X	X	E	1,3,5	RM
<i>Galbula ruficauda</i>	Rufous-tailed Jacamar	Bico-de-agulha-de-rabo-vermelho	2	nf	X			1,2,3,5,6	SRM
<i>Notharchus macrorhynchus</i>	White-necked Puffbird	Capitão-do-mato	1	f	X			1,4,5	SM
<i>Malacoptila striata</i>	Crescent-chested Puffbird	João-barbudo	1	f	X		E	1,5	M
<i>Selenidera maculirostris</i>	Spot-billed Toucanet	Araçari-poca	2	f	X	X	E	1,3,4,5	M
<i>Baillonius bailloni</i>	Saffron Toucanet	Araçari-banana	1	(f)	X		N E	5,6,7	SM
<i>Ramphastos vitellinus</i>	Channel-billed Toucan	Tucano-de-bico-preto	2	f	X			1,3,5,6	SM
<i>Ramphastos dicolorus</i>	Red-breasted Toucan	Tucano-de-bico-verde	1	f		X	E	1	
<i>Picumnus cirratus</i>	White-barred Piculet	Pica-pau-anão-barrado	4	fn	X	X		1,2,3,4,5,6	SM
<i>Colaptes campestris</i>	Campo Flicker	Pica-pau-do-campo	1	(n)	X			1,4	S
<i>Colaptes melanochlorus</i>	Green-barred Woodpecker	Pica-pau-verde-barrado	1	f	X	X		1,2,4	S
<i>Piculus flavigula</i>	Yellow-throated Woodpecker	Pica-pau-bufador	1	f	X			1,5	M
<i>Piculus aurulentus</i>	Yellow-browed Woodpecker	Pica-pau-dourado	1	f		X	N E	1	
<i>Ceelus flavescens</i>	Blond-crested Woodpecker	Pica-pau-de-cabeça-amarela	2	f	X	X		1,3,6	S
<i>Dryocopus lineatus</i>	Lineated Woodpecker	Pica-pau-de-banda-branca	1	f	X			1,2	S
<i>Melanerpes flavifrons</i>	Yellow-fronted Woodpecker	Benedito-de-testa-amarela	3	fn	X	X	E	1,2,3,4,5,6	SM
<i>Melanerpes candidus</i>	White Woodpecker	Birro	1	n	X			1,2	S
<i>Veniliornis spilogaster</i>	White-spotted Woodpecker	Pica-pauzinho-verde-carijó	2	f	X	X	E	1,5	M
<i>Campephilus robustus</i>	Robust Woodpecker	Pica-pau-rei	1	f	X	X	E	1,5	M
<i>Psilorhamphus guttatus</i>	Spotted Bamboowren	Tapaculo-pintado	1	f	X		N E	1,7	
<i>Merulaxis ater</i>	Slaty Bristlefront	Entufado	2	f	X	X	N E	1,2,3,4,6	SR
<i>Scytalopus speluncae</i>	Mouse-coloured Tapaculo	Tapaculo-preto	2	f	X	X	E	1,3,4	H
<i>Hypodaleus guttatus</i>	Spot-backed Antshrike	Chocão-carijó	3	f	X	X	E	1,2,3,4,5,6	SRM
<i>Batara cinerea</i>	Giant Antshrike	Matracaõ	3	f	X	X		1,2,3,5	SRM
<i>Mackenziaena leachii</i>	Large-tailed Antshrike	Borrallhara-assobiadora	1	f		X	E	1,7	
<i>Mackenziaena severa</i>	Tufted Antshrike	Borrallhara	2	f	X	X	E	1,4	S
<i>Thamnophilus palliatus</i>	Chestnut-backed Antshrike	Choca-listrada	1	f	X			1	
<i>Thamnophilus caeruleus</i>	Variable Antshrike	Choca-da-mata	1	f		X		1,3	R
<i>Thamnophilus ruficapillus</i>	Rufous-capped Antshrike	Choca-de-chapéu-vermelho	1	n	X			2,7	R
<i>Dysithamnus stictothorax</i>	Spot-breasted Antvireo	Choquinha-de-peito-pintado	4	fn	X	X	N E	1,2,3,4,5,6	SRM
<i>Dysithamnus mentalis</i>	Plain Antvireo	Choquinha-lisa	2	f	X	X		1,2,3,4,6	SR
<i>Dysithamnus xanthopterus</i>	Rufous-backed Antvireo	Choquinha-de-asa-ferrugem	2	f		X	E	1,3	SR
<i>Myrmotherula gularis</i>	Star-throated Antwren	Choquinha-da-garganta-pintada	3	f	X	X	E	1,2,3,6	SR
<i>Myrmotherula minor</i>	Salvadori's Antwren	Choquinha	1	f	X		T E	1,3,4	SR
<i>Myrmotherula unicolor</i>	Unicoloured Antwren	Choquinha-cinzenta	2	f	X		T E	1,2,3,4	SR
<i>Herpsilochmus rufimarginatus</i>	Rufous-winged Antwren	Chororozinho-de-asa-vermelha	3	f	X			1,2,3,4,6,7	SR
<i>Formicivora erythronotos</i>	Black-hooded Antwren		1	f	X		T E	1	
<i>Drymophila ferruginea</i>	Ferruginous Antbird	Trovoada	4	fn	X	X	E	1,2,3,4,5,6	SRM
<i>Drymophila rubricollis</i>	Bertoni's Antbird	Choquinha-de-Bertoni	1	f		X	E	1,7	
<i>Drymophila genei</i>	Rufous-tailed Antbird	Choquinha-da-serra	1	f	X	X	N E	1,3	SR
<i>Drymophila ochropyga</i>	Ochre-rumped Antbird	Choquinha-de-dorso-vermelho	1	f	X	X	N E	1	
<i>Drymophila squamata</i>	Scaled Antbird	Pintadinho	2	f	X	X	E	1,2,3,4,6	SR
<i>Terenura maculata</i>	Streak-capped Antwren	Zidede	2	f	X	X	E	1,3,4,6	SR
<i>Pyrgilena leucoptera</i>	White-shouldered Fire-eye	Borrallhara	4	fn	X	X	E	1,2,3,4,5,6	SRM
<i>Myrmeciza squamosa</i>	Squamate Antbird	Papa-formigas-de-grota	3	f	X	X	E	1,2,3,4,5	RM
<i>Chamaeza campanisona</i>	Short-tailed Anthrush	Tovaca-campainha	1	f	X	X		1,3,5	RM
<i>Chamaeza meruloides</i>	Such's Anthrush	Tovaca-cantador	3	f		X	E	1,2,3	R
<i>Chamaeza ruficauda</i>	Brazilian Anthrush	Tovaca-de-rabo-vermelho	3	f		X	E	1,3,5,7	M

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Name Scientific	English	Portuguese	App.	Hab.	Alt.		Status		Sources	Evi. Cat.
			Abu.		L	H	Thr.	End.		
<i>Formicarius colma</i>	Rufous-capped Antthrush	Galinha-do-mato	2	f	X				1,2,3,5	RM
<i>Grallaria varia</i>	Variagated Antpitta	Tovacuçu	2	f	X	X			1,2,3,5	RM
<i>Hylopezus nattereri</i>	Speckle-breasted Antpitta	Pinto-do-mato	2	f		X		E	1,2	H
<i>Conopophaga melanops</i>	Black-cheeked Gnatcatcher	Cuspidor-de-máscara-preta	2	f	X			E	1,2,6	SR
<i>Conopophaga lineata</i>	Rufous Gnatcatcher	Chupa-dente	1	f	X	X		E	1,3,6	SR
<i>Furnarius rufus</i>	Rufous Hornero	João-de-barro	1	n	X				2,6,7	S
<i>Furnarius figulus</i>	Tail-banded Hornero	Casaco-de-couro-da-lama	1	a	X				2	S
<i>Synallaxis spixi</i>	Spix's Spinetail	João-teneném	2	n	X	X			1,2	SR
<i>Synallaxis ruficapilla</i>	Rufous-capped Spinetail	Pichororé	3	f	X	X		E	1,2,3,4,5	SM
<i>Synallaxis albescens</i>	Pale-breasted Spinetail	Uipi	1	(n)	X				7	
<i>Certhiaxis cinnamomea</i>	Yellow-chinned Spinetail	Curutié	2	n	X	X			1,2,6	SR
<i>Cranioleuca pallida</i>	Pallid Spinetail	Arredio-pálido	2	f	X	X		E	1,3,4	H
<i>Phacelodomus erythrophthalmus</i>	Red-eyed Thornbird	João-botina	2	fn	X			E	1,2,6	SR
<i>Anabazenops fuscus</i>	White-collared Foliage-gleaner	Trepador-coleira	2	f	X	X		E	1,4,5	M
<i>Syndactyla rufosuperciliata</i>	Buff-browed Foliage-gleaner	Trepador-quiete	1	f		X			1	
<i>Anabacerthia amaurotis</i>	White-browed Foliage-gleaner	Limpa-folha-miuda	1	f		X	N	E	1	
<i>Philydor atricapillus</i>	Black-capped Foliage-gleaner	Limpa-folha-coroadá	3	f	X	X		E	1,2,3,4,5	SRM
<i>Philydor lichtensteini</i>	Ochre-breasted Foliage-gleaner	Limpa-folha-ochracea	3	f	X	X		E	1,2,3,4,5,6	SM
<i>Philydor rufus</i>	Buff-fronted Foliage-gleaner	Limpa-folha-testa-baia	2	f	X	X			1,2,3,4,5,6	SRM
<i>Automolus leucophthalmus</i>	White-eyed Foliage-gleaner	Barranqueiro-olho-branco	3	f	X	X		E	1,2,3,4,5,6	SRM
<i>Cichlocolaptes leucophrys</i>	Pale-browed Treehunter	Trepador-sobrancelha	3	f	X	X		E	1,3,5,6	SRM
<i>Heliobletus contaminatus</i>	Sharp-billed Treehunter	Trepadorzinho	1	f		X		E	1	
<i>Xenops minutus</i>	Plain Xenops	Bico-virado-miudinho	2	f	X				1,2,4	S
<i>Xenops rutilans</i>	Streaked Xenops	Bico-virado-carrijó	1	f	X	X			1,2	SR
<i>Sclerurus scansor</i>	Rufous-breasted Leaf-tosser	Vira-folhas	2	f	X	X		E	1,3,5,6	SM
<i>Sclerurus mexicanus</i>	Tawny-throated Leaf-tosser	Vira-folhas	1	f	X				4,7	S
<i>Lochmias nematura</i>	Sharp-tailed Streamcreeper	João-porca	2	f		X			1,5	M
<i>Dendrocincla turdina</i>	Thrush-like Woodcreeper	Arapaçu-liso	3	f	X	X		E	1,3,4,5,6	SRM
<i>Sittasomus griseicapillus</i>	Olivaceous Woodcreeper	Arapaçu-verde	2	f	X	X			1,2,3,4,5	SRM
<i>Xiphocolaptes albicollis</i>	White-throated Woodcreeper	Arapaçu-de-garganta-branca	2	f	X	X			1,2,3,4,5,6	SRM
<i>Dendrocolaptes platyrostris</i>	Planalto Woodcreeper	Arapaçu-grande	2	f	X	X			1,4,5	SM
<i>Lepidocolaptes angustirostris</i>	Narrow-billed Woodcreeper	Arapaçu-do-cerrado	1	(f)	X	X			4	S
<i>Lepidocolaptes squamatus</i>	Scaled Woodcreeper	Arapaçu-escamado	2	f	X	X		E	1,4	S
<i>Lepidocolaptes fuscus</i>	Lesser Woodcreeper	Arapaçu-rajado	4	f	X	X		E	1,2,3,4,5,6	SRM
<i>Phylloscopus fasciatus</i>	Planalto Tyrannulet	Piolhinho	2	f		X			1,3,5	M
<i>Phylloscopus burmeisteri</i>	Rough-legged Tyrannulet	Poiaeiro-do-sul	1	f	X	X			1,2,6	S
<i>Phylloscopus virescens</i>	Greenish Tyrannulet	Poiaeiro-verde	1	(f)				E	7	
<i>Phylloscopus griseicapilla</i>	Grey-capped Tyrannulet	Poiaeiro-serrano	1	f				E	1,5	M
<i>Campostoma obsoletum</i>	Southern Beardless-tyrannulet	Risadinha	1	fbn	X	X			1,2	SR
<i>Myiopagis caniceps</i>	Grey Elaenia	Maria-de-copa	1	f	X				1,2,7	S
<i>Elaenia flavogaster</i>	Yellow-bellied Elaenia	Guaracava-de-barriga-amarela	2	n	X	X			1,2	S
<i>Elaenia mesoleuca</i>	Olivaceous Elaenia	Tuque	1	f	X	X			1,3,7	H
<i>Elaenia obscura</i>	Highland Elaenia	Guaracava-de-olhos	1	f		X			1	
<i>Serpophaga subcristata</i>	White-crested Tyrannulet	Alegriño	1	f	X				1	
<i>Mionectes rufiventris</i>	Grey-hooded Flycatcher	Abre-asas	2	f	X	X		E	1,2,3,4,5,6	SRM
<i>Leptopogon amaurocephalus</i>	Sepia-capped Flycatcher	Cabeçudo	2	f	X	X			1,2,3,4,6	S
<i>Phylloscartes sylvius</i>	Bay-ringed Tyrannulet	Maria-pequena	1	(f)	X		N	E	7	
<i>Phylloscartes ventralis</i>	Mottled-cheeked Tyrannulet	Borboletinha-do-mato	1	f		X			1,3	SR
<i>Phylloscartes oustaleti</i>	Oustalet's Tyrannulet	Papa-moscas-de-olheiras	2	f	X	X	N	E	1,4,5	SM
<i>Phylloscartes difficilis</i>	Serra do Mar Tyrannulet	Estalinho	1	f		X	N	E	1	
<i>Phylloscartes paulistus</i>	São Paulo Tyrannulet	Não-pode-parar	1	f	X		T	E	1,2,4	SR
<i>Capsiempis flaveola</i>	Yellow Tyrannulet	Marianinha-amarela	1	fn	X				1,2	SR
<i>Myiornis auricularis</i>	Eared Pygmy-tyrant	Miudinho	1	f	X	X		E	1,2,4,5	SM
<i>Hemitriccus diops</i>	Drab-breasted Bamboo-tyrant	Olho-falso	1	(f)				E	7	
<i>Hemitriccus obsoletus</i>	Brown-breasted Bamboo-tyrant	Catraca	2	f		X		E	1,2	R
<i>Hemitriccus furcatus</i>	Fork-tailed Tody-tyrant	Papa-moscas-estrela	3	f	X	X	T	E	1,2,4,5,6,8,9	SRM
<i>Hemitriccus nidipendulus</i>	Hangnert Tody-tyrant	Tachuri-campinha	2	f	X	X		E	1,7	
<i>Hemitriccus orbitatus</i>	Eye-ringed Tody-tyrant	Tiririzinho-do-mato	1	f	X		N	E	1,2,3,4	S
<i>Todirostrum poliocephalum</i>	Yellow-lored Tody-flycatcher	Teque-teque, Ferreirinho	2	f	X	X		E	1,2,3	SR
<i>Todirostrum plumbeiceps</i>	Ochre-faced Tody-flycatcher	Ferreirinho-de-cara-canela, Tororó	2	f	X	X			1,3,6	S
<i>Ramphotrigon megalophala</i>	Large-headed Flatbill	Maria-cabeçuda	1	f	X	X			2	S
<i>Tolmomyias sulphurescens</i>	Yellow-olive Flycatcher	Bico-chato-de-orelha-preta	3	f	X	X			1,2,3,4,5	RM
<i>Platyrinchus mystaceus</i>	White-throated Spadebill	Patinho	2	f	X	X			1,2,3,4,6	SR
<i>Platyrinchus leucorhynchus</i>	Russet-winged Spadebill	Patinho-gigante	1	(f)			N	E	7,8	
<i>Onychorhynchus coronatus</i>	Royal Flycatcher	Maria-leque	1	f		X			1	
<i>Myiobius barbatus</i>	Whiskered Flycatcher	Assanhadinho	2	f	X				1,3,4,6	S
<i>Myiobius atricaudus</i>	Black-tailed Flycatcher	Assanhadinho-de-cauda-preta	1	f		X			1	

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Name Scientific	English	Portuguese	App.	Hab.	Alt.		Status	Sources	Evi.
			Abu.		L	H	Thr.	End.	Cat.
<i>Myiophobus fasciatus</i>	Bran-coloured Flycatcher	Filipe	2	f	X	X		1,4	S
<i>Contopus cinereus</i>	Tropical Pewee	Papa-moscas-cinzento	1	f	X			1	
<i>Contopus borealis</i>	Olive-sided Flycatcher	Piui-boreal	1	f	X			2,4,7	S
<i>Lathrotriccus euleri</i>	Euler's Flycatcher	Enferrujado	3	f	X	X		1,2,3,4	SR
<i>Cnemotriccus fuscatus</i>	Fuscous Flycatcher	Guaracavuçu	2	f	X			1	
<i>Pyrocephalus rubinus</i>	Vermilion Flycatcher	Verão	1	(n)	X			3	S
<i>Xolmis velata</i>	White-rumped Monjita	Noivinha-branca	1	f	X			1,7	
<i>Knipolegus nigerrimus</i>	Velvety Black-tyrant	Maria-preta-de-garganta-vermelha	2	f	X	X	E	1,3	S
<i>Knipolegus cyanostris</i>	Blue-billed Black-tyrant	Maria-preta-de-bico-azulado	2	f	X	X		1,2,3,5	SM
<i>Fluvicola nengeta</i>	Masked Water-tyrant	Lavadeira-mascarada	3	anf	X			1,2,4	S
<i>Colonia colonus</i>	Long-tailed Tyrant	Viuvinha	3	fn	X	X		1,2,4,5,6	SM
<i>Satrapa icterophrys</i>	Yellow-browed Tyrant	Suiriri-pequeno	1	n	X			2,7	S
<i>Hirundinea ferruginea</i>	Cliff Flycatcher	Gibão-de-couro	2	n	X	X		1,2,4,6	S
<i>Machetornis rixosus</i>	Cattle Tyrant	Bem-te-vi-do-gado	3	n	X			1,2,3,4,6	S
<i>Muscipira vetula</i>	Shear-tailed Grey-tyrant	Tesoura-cinzenta	1	f		X	E	7	S
<i>Attila rufus</i>	Grey-hooded Attila	Tinguçu, Capitão-de-saira	2	f	X	X	E	1,3,4,5	SRM
<i>Attila phoenicurus</i>	Rufous-tailed Attila	Capitão-castanho	3	f	X	X		1,2,3,7	SR
<i>Rhytipterna simplex</i>	Greyish Mourner	Wissá	1	(f)	X			3,7	H
<i>Syrstes sibilator</i>	Syrstes	Gritador	1	f		X		2,7	R
<i>Myiarchus ferox</i>	Short-crested Flycatcher	Maria-cavaleira	1	f	X			1,4	H
<i>Myiarchus swainsoni</i>	Swainson's Flycatcher	Irrê	2	f		X		1,7	
<i>Philohydor lictor</i>	Lesser Kiskadee	Bem-te-vizinho-do-brejo	1	(n)	X			7	
<i>Pitangus sulphuratus</i>	Great Kiskadee	Bem-te-vi	4	nbf	X	X		1,2,3,4	SR
<i>Megarynchus pitangua</i>	Boat-billed Flycatcher	Nei-nei	4	f	X			1,2,3,4,5,6	SRM
<i>Myiozetetes similis</i>	Social Flycatcher	Bem-te-vizinho-penacho-vermelho	5	fn	X	X		1,2,3,4,5,6	SRM
<i>Myiodynastes maculatus</i>	Streaked Flycatcher	Bem-te-vi-rajado	3	f	X	X		1,2,3,4,5	SRM
<i>Legatus leucophaeus</i>	Piratic Flycatcher	Bem-te-vi-pirata	2	fn	X			1,2,3,4	SR
<i>Empidonomus varius</i>	Variegated Flycatcher	Peitica	2	f	X			1,5	M
<i>Tyrannus savana</i>	Fork-tailed Flycatcher	Tesoura	1	bn	X			1,2,7	S
<i>Tyrannus melancholicus</i>	Tropical Kingbird	Suiriri	4	nbf	X	X		1,2,3,4	SR
<i>Pachyrhamphus viridis</i>	Green-backed Becard	Caneleirinho-verde	1	f	X	X		1,4	S
<i>Pachyrhamphus castaneus</i>	Chestnut-crowned Becard	Caneleirinho	2	f	X	X		1,2,3,4,5,6	SM
<i>Pachyrhamphus polychropterus</i>	White-winged Becard	Caleleirinho-preto	2	f	X	X		1,2,3,4	SR
<i>Pachyrhamphus marginatus</i>	Black-capped Becard	Caneleiro-bordado	2	f	X			1,3,4,5,6	SRM
<i>Pachyrhamphus validus</i>	Crested Becard	Caneleiro-de-chapéu-negro	1	f	X	X		1,2,4	S
<i>Tityra cayana</i>	Black-tailed Tityra	Anambé-branco-de-rabo-preto	1	f	X	X		1,2,4	S
<i>Tityra inquisitor</i>	Black-crowned Tityra	Anambé-branco-de-bochecha-parda	1	f	X			1,2	S
<i>Chiroxiphia caudata</i>	Blue Manakin	Tangará-dançador	4	fn	X	X	E	1,2,3,4,5,6	SRM
<i>Ilicura militaris</i>	Pin-tailed Manakin	Tangarazinho	2	f	X	X	E	1,3,6	S
<i>Manacus manacus</i>	White-bearded Manakin	Rendeira	3	f	X			1,2,3	SR
<i>Neopelma aurifrons</i>	Wied's Tyrant-manakin	Fruxu-baiano	1	f		X	T E	1	
<i>Schiffornis virescens</i>	Greenish Schiffornis	Flautim	3	f	X	X	E	1,3,4	R
<i>Laniisoma elegans</i>	Shrike-like Cotinga	Chibante	1	f	X	X	T	1	
<i>Tijuca atra</i>	Black-and-gold Cotinga	Saudade, Assobiador	1	f		X	N E	1,5,9	
<i>Carpornis cucullatus</i>	Hooded Berryeater	Corocochó	2	f	X	X	N E	1,2,3	R
<i>Iodopleura pipra</i>	Buff-throated Purpletuft	Anambezinho	1	(f)	X		T E	4,5,7,8	SM
<i>Lipaugus lanioides</i>	Cinnamon-vented Piha	Tropeiro-da-serra	1	(f)	X		T E	3,7	SR
<i>Pyroderus scutatus</i>	Red-ruffed Fruitcrow	Pavão-do-mato	1	f		X		1,3	S
<i>Procnias nudicollis</i>	Bare-throated Bellbird	Araponga	2	f	X	X	N E	1,2,3	SR
<i>Oxyruncus cristatus</i>	Sharpbill	Araponga-do-horto	2	f	X	X		1,2,5	M
<i>Progne chalybea</i>	Grey-breasted Martin	Andorinha-doméstica-grande	4	bnaf	X			1,2	S
<i>Progne subis</i>	Purple Martin	Andorinha-azul	1	b	X			2	S
<i>Notiochelidon cyanoleuca</i>	Blue-and-white Swallow	Andorinha-azul-e-branca	4	bnf	X	X		1,2,4,5	SM
<i>Neochelidon tibialis</i>	White-thighed Swallow	Calcinha-branca	1	f	X	X		1,2,9	S
<i>Stelgidopteryx ruficollis</i>	Southern Rough-winged Swallow	Andorinha-serrador	3	nf	X	X		1,2,3,4	S
<i>Hirundo rustica</i>	Barn Swallow	Andorinha-de-chaminé	1	n	X			2	S
<i>Hirundo pyrrhonota</i>	Cliff Swallow	Andorinha-de-dorso-acanelado	1	(n)	X			1,7	
<i>Thryothorus longirostris</i>	Long-billed Wren	Garrinchão-de-bico-grande	2	f	X			1,2	SR
<i>Troglodytes musculus</i>	Southern House-wren	Corruira, Cambaxirra	3	fnb	X	X		1,2,4	SR
<i>Ramphoccaenus melanurus</i>	Long-billed Gnatwren	Bico-assoavelado	2	f	X	X		1,3,4,7	S
<i>Platycichla flavipes</i>	Yellow-legged Thrush	Sabiaúna	3	f	X	X		1,2,3,4,5,6	SRM
<i>Turdus rufiventris</i>	Rufous-bellied Thrush	Sabiá-laranjeira	4	fnb	X	X		1,2,3,4,5	SRM
<i>Turdus leucomelas</i>	Pale-breasted Thrush	Capoeirão, Sabiá-barranco	1	f	X			1,2,6	S
<i>Turdus amaurochalinus</i>	Creamy-bellied Thrush	Sabiapoca	2	fn	X	X		1,2,4,5	SM
<i>Turdus albicollis</i>	White-necked Thrush	Sabiá-coleira	3	f	X	X		1,2,3,5,6	SRM
<i>Mimus saturninus</i>	Chalk-browed Mockingbird	Sabiá-do-campo	1	n	X			1,2,4	S
<i>Anthus lutescens</i>	Yellowish Pipit	Caminheiro-zumbidor	2	n	X	X		1,2,7	S

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					L	H	Thr.	End.		
<i>Cyclarhis gujanensis</i>	Rufous-browed Peppershrike	Pitiguari, Apará-bala	4	f	X	X			1,2,3,4,5,6	SRM
<i>Vireo chivi</i>	Red-eyed Vireo	Juruviara	4	fn	X	X			1,2,3,4,5	SRM
<i>Hylophilus poicilotis</i>	Rufous-crowned Greenlet	Verdinho-coroado	2	f		X		E	1,3	SR
<i>Hylophilus thoracicus</i>	Lemon-chested Greenlet	Vite-vite	1	fn	X				1,2	SR
<i>Parula pitayumi</i>	Tropical Parula	Mariquita	3	nf	X	X			1,2,3,4,6	SR
<i>Geothlypis aequinoctialis</i>	Masked Yellowthroat	Pia-cobra	3	nf	X	X			1,2,3,4,5	SRM
<i>Basileuterus culicivorus</i>	Golden-crowned Warbler	Pula-pula	3	f	X	X			1,2,3,4	SR
<i>Basileuterus leucoblepharus</i>	White-rimmed Warbler	Pula-pula-assobiador	2	f		X		E	1,3	H
<i>Phaethlypis rivularis</i>	Neotropical River Warbler	Pula-pula-ribeirinho	3	f	X	X			1,2,3,4,5,6	SRM
<i>Coereba flaveola</i>	Bananaquit	Cambacica, Caga-sebo, Sebinho	3	bnf	X	X			1,2,3,4	SR
<i>Orchesticus abeillei</i>	Brown Tanager	Sanhaço-pardo	1	f				E	5	M
<i>Cissopis leveriana</i>	Magpie Tanager	Tié-tinga	2	f	X	X			1,2,5	SM
<i>Hemithraupis ruficapilla</i>	Rufous-headed Tanager	Saira-da-mata	2	f	X	X		E	1,2,3,5,6	SRM
<i>Orthogonyx chloricterus</i>	Olive-green Tanager	Catirumbava	2	f	X	X		E	1,2,5,6	SM
<i>Tachyphonus cristatus</i>	Flame-crested Tanager	Tié-galo	3	f	X	X			1,2,3,4,6	SR
<i>Tachyphonus coronatus</i>	Ruby-crowned Tanager	Tié-preto	3	f	X	X		E	1,2,3,4,5,6	SM
<i>Trichothraupis melanops</i>	Black-goggled Tanager	Tié-de-topete	2	f	X	X			1,3,4,5	SM
<i>Habia rubica</i>	Red-crowned Ant-tanager	Tié-do-mato-grosso	3	f	X	X			1,3,5,6	SRM
<i>Piranga flava</i>	Hepatic Tanager	Sanhaço-de-fogo	1	f	X	X			2,4	S
<i>Ramphocelus bresilius</i>	Brazilian Tanager	Tié-sangue, Sangue-de-boi	5	fn	X			E	1,2,4,5,6	SM
<i>Thraupis sayaca</i>	Sayaca Tanager	Sanhaço-cinzento	3	fnb	X	X			1,2,4,5	SM
<i>Thraupis cyanoptera</i>	Azure-shouldered Tanager	Sanhaço-de-encontro-azul	3	f	X	X	N	E	1,2,4	S
<i>Thraupis ornate</i>	Golden-chevroned Tanager	Sanhaço-de-encontros	3	f	X	X		E	1,2,3,4,5,6	SM
<i>Thraupis palmarum</i>	Palm Tanager	Sanhaço-do-coqueiro	3	bnf	X	X			1,2,3	S
<i>Stephanophorus diadematus</i>	Diademed Tanager	Sanhaço-frade	2	f	X	X			1,3	S
<i>Pipraeidea melanonota</i>	Fawn-breasted Tanager	Viúva	1	fn	X	X			1,2	S
<i>Euphonia chlorotica</i>	Purple-throated Euphonia	Fi-fi-verdadeiro	2	f	X				1,2	S
<i>Euphonia violacea</i>	Violaceous Euphonia	Gaturamo-verdadeiro	2	f	X	X			1,2,3,6	S
<i>Euphonia cyanocephala</i>	Golden-rumped Euphonia	Gaturamo-rei	1	f		X			1,7	
<i>Euphonia pectoralis</i>	Chestnut-bellied Euphonia	Ferro-velho	3	f	X	X		E	1,2,3,4,5	SM
<i>Tangara seledon</i>	Green-headed Tanager	Saira-sete-cores	3	f	X	X		E	1,2,3,4,5,6	SRM
<i>Tangara cyanocephala</i>	Red-necked Tanager	Saira-militar, Saira-lenço	3	f	X	X		E	1,2,3,4,5,6	SRM
<i>Tangara desmaresti</i>	Brassy-breasted Tanager	Saira-lagarta	2	f	X	X		E	1,3,4	SR
<i>Dacnis cayana</i>	Blue Dacnis	Sai-azul	3	fn	X	X			1,2,3,4,5,6	SM
<i>Chlorophanes spiza</i>	Green Honeycreeper	Sai-verde, Tem-tem	1	f	X				7	S
<i>Conirostrum bicolor</i>	Bicoloured Conebill	Figuiinha-do-mangue	1	f	X				1	
<i>Tersina viridis</i>	Swallow Tanager	Sai-andorinha	2	f	X	X			1,2,5	SM
<i>Zonotrichia capensis</i>	Rufous-collared Sparrow	Tico-tico	3	nf	X	X			1,2,3,4	S
<i>Haplospiza unicolor</i>	Uniform Finch	Cigarra-bambu	1	(f)				E	1,7	
<i>Poospiza thoracica</i>	Bay-chested Warbling-finch	Peito-pinhão	1	f		X		E	1	
<i>Poospiza lateralis</i>	Red-rumped Warbling-finch	Quete	1	f		X			1,3	S
<i>Sicalis flaveola</i>	Saffron Finch	Canário-da-terra-verdadeiro	1	n	X				2	S
<i>Emberizoides herbicola</i>	Wedge-tailed Grass-finch	Canário-do-campo	1	f	X				7	
<i>Volatinia jacarina</i>	Blue-black Grassquit	Tiziu	3	n	X	X			1,2,4	S
<i>Sporophila falcirostris</i>	Temminck's Seedeater	Cigarra-verdadeira	1	(f)	X		T	E	3,6,7,8	SR
<i>Sporophila lineola</i>	Lined Seedeater	Bigodinho, Boiadeiro	1	f	X				1	
<i>Sporophila caeruleascens</i>	Double-collared Seedeater	Coleirinho	3	n	X	X			1,2,4,5	SM
<i>Sporophila leucoptera</i>	White-bellied Seedeater	Chorão	1	f	X				1	
<i>Oryzoborus angolensis</i>	Chestnut-bellied Seed-finch	Curio	1	n	X				2,4,6	S
<i>Tiaris fuliginosa</i>	Sooty Grassquit	Cigarra-do-coqueiro	1	fn	X	X			1,3,7	SR
<i>Coryphospingus pileatus</i>	Pileated Finch	Galinho-da-serra	1	(n)	X				7	
<i>Pitylus fuliginosus</i>	Black-throated Grosbeak	Pimentão	3	f	X	X		E	1,3,4,5,6	SRM
<i>Saltator maximus</i>	Buff-throated Saltator	Tempera-viola	1	f	X				1	
<i>Saltator similis</i>	Green-winged Saltator	Trinca-ferro-verdadeiro	2	f	X	X			1,4	S
<i>Saltator maxillosus</i>	Thick-billed Saltator	Bico-grosso	1	f		X		E	1	
<i>Passerina brissonii</i>	Ultramarine Grosbeak	Azulão, Azulão-verdadeiro	1	(f)					5	M
<i>Psarocolius decumanus</i>	Crested Oropendola	Japuguaçu	2	f	X	X			1,2,3	S
<i>Cacicus haemorrhous</i>	Red-rumped Cacique	Guaxe, Japira	3	f	X	X			1,2,3,4,5,6	SM
<i>Cacicus chrysopterus</i>	Golden-winged Cacique	Japuíra, Soldado, Tecelão	2	f		X			1,3	H
<i>Agelaius cyanopus</i>	Unicoloured Blackbird	Carretão	1	(a)	X				6,7	
<i>Leistes superciliosus</i>	White-browed Blackbird	Polícia-inglesa	2	n	X				1,2,4,7	S
<i>Gnorimopsar chopi</i>	Chopi Blackbird	Pássaro-preto	1	n	X				2	S
<i>Molothrus bonariensis</i>	Shiny Cowbird	Chopim	1	n	X				1,2	S
<i>Scaphidura oryzivora</i>	Giant Cowbird	Iraúna-grande	1	n	X				1	
<i>Passer domesticus</i>	House Sparrow	Pardal	3	bn	X				2,3,7	S
<i>Estrilda astrild</i>	Common Waxbill	Bico-de-lacre	1	nb	X				1,2	S

Primer reporte de colonias del Martín Peruano *Progne murphyi* en Perú

Katya Balta Abadie, José Pérez Z. y Mariano Valverde

Cotinga 24 (2005): 99–101

Peruvian Martin *Progne murphyi* is a little-known hirundine endemic to the Peruvian coast, with few sight records. We report the first colonies of *P. murphyi*, on the islands of Chao and Corcovado on the central Peruvian coast. On these islands, *P. murphyi* utilises stonewalls for nesting. The number of individuals during censuses varied from 14 to 48. The proximity of these islands to the mainland and preliminary data concerning the species' diet suggest that *P. murphyi* feeds on the continental coast. Chao and Corcovado are protected by PROABONOS, thus reducing human disturbance. Additionally, the islands lack predators such as foxes or raptors, making them potentially suitable breeding areas for the species. We consider it important to continue such studies, and to determine the whereabouts of other colonies, in order to assess the state of the species' population.

La información sobre la historia natural de las especies de golondrinas del género *Progne* presentes en la costa peruana es escasa, contándose en la actualidad con sólo reportes de presencia para algunas especies. Este es el caso de *Progne murphyi*⁵, ave poco común, con una distribución casi totalmente restringida a la costa peruana^{4,10}, con algunos registros en la costa norte de Chile¹. No se conocen datos básicos de la historia natural de *P. murphyi*, ni se ha registrado la ubicación de colonias a lo largo de su distribución.

Los machos adultos de *P. murphyi* son de color azul oscuro uniforme con tonalidades metálicas de apariencia tornasolada, la hembra de *P. murphyi* es gris parda, de alas y cola oscura y con marcas negras en dorso, espalda y lados de la cabeza^{4,5,10}. Como en muchas especies de aves, las hembras de *P. murphyi* presentan un plumaje semejante a los juveniles. La coloración azul metálica del macho del martín peruano es semejante al macho de *P. subis* 'martín purpúreo', y ambas especies cuentan con registros en la costa peruana^{4,8–10}. Esto puede haber ocasionado algunos registros errados de *P. murphyi*, al ser confundido con *P. subis*.

El escaso número de registros, la semejanza en plumaje con una especie congénérica, y el vacío de información de su historia natural hace que la situación del conocimiento actual sobre *P. murphyi* sea muy precario. Esta evaluación es el primer reporte de colonias del *P. murphyi*, proporcionando la descripción de estas colonias y además datos morfológicos de los individuos capturados.

Área de estudio

Evaluamos las islas Chao (08°46'S 78°47'O) y Corcovado (08°56'S 78°42'O), ubicadas en el dpto. La Libertad, en la costa central peruana. Estas islas presentan una escasa vegetación, un sustrato de arena, salitre y rocas, y un relieve agreste con acantilados. Estas dos islas son parte del sistema

de islas y puntas guaneras del litoral peruano, actualmente bajo la administración PROABONOS (Proyecto Especial de Promoción del Aprovechamiento de Abonos Proveniente de Aves Marinas). Las islas y puntas guaneras se caracterizan por la presencia de las aves guaneras, cuyo excremento llamado 'guano' es utilizado como fertilizante natural. El guano se acumula en grandes cantidades en estas áreas, y es extraído y comercializado por PROABONOS. Por tanto, las aves guaneras tienen un interés comercial, que propicia su protección, especialmente en lugares donde existen grandes colonias de estas aves. Son consideradas aves guaneras *Phalacrocorax bougainvillii*, *Sula variegata* y *Pelecanus thagus*⁷.

En las islas Chao y Corcovado, estas tres especies de aves guaneras están presentes, pero su número es relativamente pequeño, y sufre una variación importante durante el año

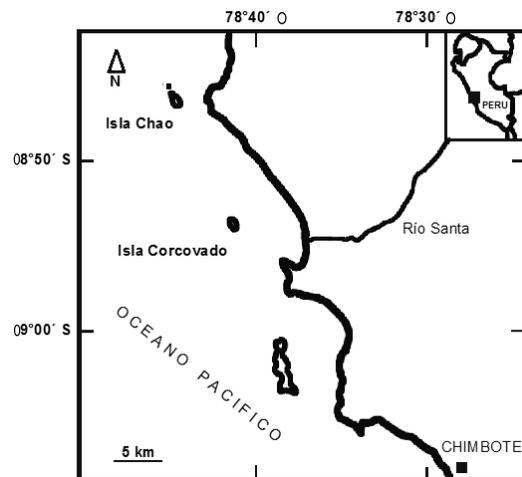


Figura 1. Ubicación del área de evaluación, islas Chao y Corcovado, dpto. La Libertad, Perú.

(PROABONOS, datos no publicados). Otras aves presentes en estas islas son *Phalacrocorax gaimardi*, *P. brasilianus*, *Larosterna inca* y *Larus dominicanus*¹². Además existe un reporte reciente de colonias reproductivas de *Oceanodroma tethys kelsalli* en estas islas².

Metodología

Realizamos dos evaluaciones a las islas Chao y Corcovado, la primera evaluación entre el 12–15 de marzo del 2003, y la segunda entre el 9–12 de abril del 2003. En la primera evaluación, recorrimos las islas en búsqueda de probables áreas refugios de *P. murphyi*, como cercos de piedra, acantilados rocosos y sustratos de salitre con cavidades, hábitats característicos para refugios de las especies de golondrinas de mar^{8,10}. En la segunda evaluación, realizamos censos visuales mediante conteo de puntos³ en las áreas identificadas en la primera evaluación. Realizamos los censos entre las 16h00–18h00, horas en las cuales llegaban las golondrinas a las islas. Adicionalmente, revisamos los refugios, determinando si estos eran utilizados (activos) en la época de la evaluación, y registramos medidas del ancho de la entrada y profundidad (en los casos que fue posible) de los dormideros o refugios.

Para cada individuo capturado registramos datos de peso (balanza de campo Pesola® con precisión de 1 g), longitud de tarso y medida de culmen (calibrador vernier con precisión de 0,1 mm), ala y cola (regla con precisión de 1 mm). Taxidermizamos a cada individuo colectado, analizando por separado contenido estomacal y gónadas (lo que permitió determinar el sexo de los ejemplares juveniles).

Los especímenes fueron depositados en la colección del Departamento de Ornitología del Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Perú (MUSM 26272, 26273, 26274 y 26275).

Resultados

Obtuvimos pesos y medidas morfométricas de todos los individuos capturados en ambas islas (N=6) (Tabla 1). Colectamos cuatro individuos, para obtener vouchers de *P. murphyi*.

Isla Chao

El tiempo de permanencia en esta isla fue de sólo dos días, debido a las malas condiciones climáticas y a la difícil accesibilidad al lugar. Realizamos un censo el día 9 de abril del 2003 entre las 16h30 y las 17h30, en donde registramos 14 individuos de *P. murphyi*. En este censo no pudimos diferenciar machos de hembras y/o juveniles, debido a las malas condiciones climáticas, que imposibilitaron tener una buena visibilidad.

La mayoría de refugios identificados se ubican en los muros de piedras, también llamados 'pircas', que son construidos para evitar la caída del guano al mar. También registramos algunos nidos en sustrato de salitre. En el interior de algunos de estos refugios observamos a individuos adultos solos o en parejas. No pudimos realizar un conteo de los mismos, ni mediciones debido a las malas condiciones climáticas y al poco tiempo de permanencia en el lugar. En el área ocupada por los refugios de *P. murphyi* también se observaron nidos activos de *Oceanodroma tethys kelsalli*. Colectamos dos machos juveniles y una hembra adulta de *P. murphyi* en esta isla.

Isla Corcovado

Visitamos esta isla entre los 10 al 12 de abril del 2003. Realizamos dos censos, uno por día, el 11 y 12 de abril, registrando 14 y 48 individuos de *P. murphyi* respectivamente. Sólo el 12 de abril las condiciones climáticas fueron buenas (despejado y sin lluvia), permitiendo diferenciar 11 machos adultos durante el censo. Al igual que en la Isla Chao, los refugios de *P. murphyi* estaban ubicados principalmente en pircas, y también en sustrato salitroso. Mediante la revisión de los refugios, determinamos que algunos estaban ocupados por parejas de *P. murphyi*, y en algunos casos por hembras solas o probablemente individuos juveniles. No realizamos un censo de los refugios ocupados debido a lo extenso de la isla y al poco tiempo de permanencia en el lugar. Estos refugios se caracterizan por presentar una alta variabilidad en la profundidad ($34,8 \pm 8,6$; N=4; ancho: $7,4 \pm 2,4$; N=6). Al igual que en la isla Chao, observamos nidos activos de *Oceanodroma tethys kelsalli* en las cercanías de los refugios de *P. murphyi*. Colectamos un macho adulto de *P. murphyi* en esta isla.

Discusión

La variación en el número de individuos en los censos estuvo aparentemente relacionada con el clima. Las malas condiciones climáticas durante la mayor parte de los días de evaluación disminuyó la visibilidad. El censo donde se obtuvieron el mayor número de registros, fue realizado el día con buenas condiciones climáticas.

Tabla 1. Datos morfométricos de machos y hembras de *Progne murphyi* en las islas Chao y Corcovado, dpto. La Libertad, Perú.

Sexo	Peso (g)	Pico (mm)	Ala (mm)	Tarso (mm)	Cola (mm)
Hembras	36	8,5	125	12,7	56
	37	10,6	135	12,9	64
Machos	34	9,5	126	12,5	55
	35	9,4	131	12,5	65
	30	11,0	157	13,0	68
	36	10,7	133	13,0	62

Las islas Chao y Corcovado están cerca al continente, a una distancia de 2,5 y 5 km respectivamente. *P. murphyi* podría estar usando estas islas como área de descanso, que visitaría después de alimentarse y realizar otras actividades en el continente. Esta afirmación es respaldada por los datos obtenidos de la dieta de los individuos colectados, donde se registraron presas terrestres y no marinas (C. Mendoza *et al.* datos no publicados). Cabe mencionar, que *P. murphyi* también ha sido registrado en islas más alejadas del continente como Mazorca⁶, ubicada a 15 km de la costa. Por tanto, pensamos que es posible obtener registros adicionales de esta especie en otras islas de la costa peruana.

Por otro lado, a juzgar por la presencia de juveniles o parejas de adultos dentro de los refugios revisados, pensamos que las islas Chao y Corcovado podrían también ser usadas como zonas de reproducción de *P. murphyi*. Esta presunción también esta basada en informaciones proporcionadas por los guardianes, que viven en estas islas durante todo el año, y afirman que esta ave se reproduce una o dos veces por año. Cabe mencionar, que la elección de las islas evaluadas estuvo basada en información de estos mismos guardianes, quienes reportaban la presencia de 'pájaros negros' en las islas Chao y Corcovado.

La elección de las islas como áreas de construcción de refugios y/o lugares de reproducción por *P. murphyi*, puede explicarse por la menor presión de depredación en estas islas, ya que en ellas no habitan mamíferos silvestres (por ejemplo zorros), y sólo eventualmente se observan rapaces. Sumado a esto, las islas se encontrarían alejadas de disturbios producto de las actividades humanas, que son comunes en el litoral cercano.

Estas mismas ventajas que ofrecen las islas o puntas protegidas, condicionan que las aves guaneras se reproduzcan solamente en este tipo de áreas¹². Los resultados obtenidos nos permiten afirmar que existen colonias de *P. murphyi* en las islas Chao y Corcovado, que utilizan estas áreas como zonas de descanso, y posiblemente también como zonas de reproducción. Esta última afirmación sólo puede ser corroborada con posteriores evaluaciones, que permitan además establecer si existe una fluctuación de la población durante el año, y determinar el estado de conservación de las poblaciones de esta especie, que por su distribución restringida es más vulnerable a perturbaciones en el medio ambiente.

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Proyecto Especial de Promoción del Aprovechamiento de Abonos Proveniente de Aves Marinas (PROABONOS), Lima, Perú.

First sound recordings, new behavioural and distributional records, and a review of the status of Scimitar-winged Piha *Lipaugus uropygialis*

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Cotinga 24 (2005): 102–106

La cotinga *Lipaugus uropygialis* es una especie muy poco conocida, mundialmente amenazada y de rango de distribución restringido al área endémica de aves EBA 055, Yungas superiores de Bolivia y Perú. Sus vocalizaciones son desconocidas y existe poca información sobre su comportamiento y distribución. A partir de las observaciones realizadas en 2001, publicamos la primera descripción de la vocalización, comportamiento y nuevos datos acerca de su distribución. También mostramos observaciones y especímenes no publicados que utilizamos en la revisión del estatus de conservación de esta especie. Concluyentemente, consideramos que *L. uropygialis* sigue siendo una prioridad de conservación. La razón para su distribución muy localizada sigue desconocida y son necesarias más investigaciones al respecto.

Records of the Scimitar-winged Piha *Lipaugus uropygialis*, a globally threatened and restricted-range species, exist for only a very limited number of localities in the Bolivian and Peruvian Upper Yungas Endemic Bird Area EBA 055^{1,8,10}. This paucity of knowledge regarding the distribution and habits of *L. uropygialis* raises concerns for the conservation of the species, as habitat has been degraded in areas for which past records exist. The vocalisations of *L. uropygialis* were unknown and behavioural information was also sparse^{7,9}. From recordings and observations made in Bolivia in 2001 we describe the species' voice and behaviour, and combine this with a review of existing unpublished and published data to assess its conservation status.

Methods

Field observations and sound recordings were made in 2001 during two biological inventory expeditions to previously unsurveyed areas of Bolivia: the first to the río Pampa Grande (16°39'S 66°29'W), Cordillera Cocapata, dpto. Cochabamba, between 2 August and 19 September⁵, and the other to Tokoaque (14°37'S 68°57'W), Madidi National Park, dpto. La Paz, on 31 October–14 November³. Observations were made at distances of 2–20 m, by six different observers, and sound recordings were made, using a Sony TCM-5000 tape-recorder and Sennheiser ME66 directional microphone, at río Pampa Grande. The behaviour of *L. uropygialis* is described based on the authors' observations and earlier, mainly unpublished, observations supplied by the observers listed in Table 1.

Voice

The only known vocal description⁸ is based on a recording made during an observation of *L. uropygialis*, on 27 October 1979. However, the

bird was not seen to vocalise and the recording was subsequently identified by the recordist as a Blue-winged Mountain-tanager *Anisognathus flavinucha* (R. A. Rowlett pers. comm.). No other recordings have been made and the vocalisations of *L. uropygialis* were unknown.

The voice of *L. uropygialis* is a noisy, variable shriek, like that of an *Aratinga* parakeet. Each burst of vocalisation consists of individual notes that rise and fall sharply with 3–4 harmonics at frequencies of 1.5–10.5 kHz (Fig. 2a). Single calls are given but usually there is a more complex combination of shrieks from a group of individuals. The sonogram represents, first, a single bird (Fig. 2a), followed by a typical burst of calling by a group (Fig. 2b). Four individuals were present during the



Figure 1. Distribution of all known specimens and observations of Scimitar-winged Piha *Lipaugus uropygialis*. 1 = Madidi National Park, 2 = Pilon-Lajas Reserve, 3 = Carrasco National Park, 4 = Amboró National Park. A = Abra de Maruncunca, Peru. B = Apa Apa, La Paz. C = Chapare, Cochabamba. D = Coroico & Cotapata, La Paz, E = Irupana, La Paz. F = río Pampa Grande, Cordillera Cocapata. G = Tokoaque, Madidi National Park.

Cotinga 24

First sound recordings and a review of the status of Scimitar-winged Piha

Table 1. All known specimens and previous observations of Scimitar-winged Piha *Lipaugus uropygialis*. ANSP = Academy of Natural Sciences of Philadelphia, AMNH = American Museum of Natural History, BMNH = Natural History Museum (Tring), LSUMZ = Louisiana State University Museum of Zoology, MCZ = Museum of Comparative Zoology and SMF = Forschungsinstitut Senckenberg. Latitude and longitude are given at the first mention of each collection/observation site, where these are certain.

Locality	Month	Year	Altitude	No. of observations or specimens	Observer/ Collector
Abra de Maruncunca, Peru (14°14'S 69°17'W)	Nov–Dec	1980	2,000 m	3–4 observed, two specimens (♀) LSUMZ	L. Binford, L. Campos & T. S. Schulenberg
Abra de Maruncunca, Peru	Aug	1986	2,200 m	one observed	M. Kessler & B. Walker
Apa Apa, La Paz, Bolivia (16°21'S 67°30'W)	Mar	1996	2,300 m	one observed	B. Woods
Apa Apa, La Paz, Bolivia	Dec	1996	2,300 m	one observed	B. Woods
Apa Apa, La Paz, Bolivia	Dec	1996	2,200 m	one observed	T. Gullick
Apa Apa, La Paz, Bolivia	Aug	1999	2,400 m	one observed	A. B. Hennessey & A. Jaramillo
Apa Apa, La Paz, Bolivia	Oct	1999	?	one observed	D. Mason
Apa Apa, La Paz, Bolivia	Jul	2001	?	one observed	L. Rubey & B. Woods
Coroico (Tilotilo), La Paz, Bolivia (coordinates unknown)	?	1876	2,400 m	four specimens (2♂ and 2♀) BMNH	C. Buckley
Coroico (Chaco), La Paz, Bolivia (16°20'S 67°48'W)	Jun and Jul	1894	?	three specimens (2♂ and 1♀) AMNH and MCZ	G. Garlepp
Coroico (San Antonio), La Paz, Bolivia (coordinates unknown)	May	1895	?	one specimen (♀) SMF	G. Garlepp
Coroico (San Antonio), La Paz, Bolivia	?	pre-1900	?	one specimen	Reported in Hellmayr ²
Coroico (Sandillani), La Paz, Bolivia (16°12'S 67°54'W)	Jul	1896	2,500 m	three specimens (2♂ and 1♀) SMF and AMNH	G. Garlepp
Coroico (Sandillani), La Paz, Bolivia	Nov	1934	2,010 m	one specimen (♂) ANSP	M. A. Carriker
Coroico (Sacramento Alto), La Paz, Bolivia (16°16'S 67°47'W)	Aug	1979	2,575 m	one specimen LSUMZ	J. V. Remsen & L. Hale
Coroico (Sacramento Alto), La Paz, Bolivia	Oct	1979	?	one observed	R. A. Rowlett & R. S. Ridgley
Coroico (Corani), La Paz, Bolivia	Jul	1989	2,750 m	one observed	M. Kessler
Coroico, La Paz, Bolivia	Mar	1994	2,090 m	one observed	A. Moon
Coroico, La Paz, Bolivia	Mar	1996	?	one observed	J. Rossouw
Cotapata, La Paz, Bolivia	Sep	1999	2,400 m	one observed	J. Balderrama
Irupana, La Paz, Bolivia (coordinates unknown)	?	pre-1900	?	one specimen	Reported in Niethammer ⁵
Locatal (location unknown), Bolivia ?	Mar	1891	?	one specimen (♂) SMF	G. Garlepp
Old Chapare Road, Cochabamba, Bolivia (17°08'S 65°36'W)	?	1970s	?	up to ten observed	R. S. Ridgley
Old Chapare Road, Cochabamba, Bolivia	Apr	1977	1,800 m	one observed	R. S. Ridgley
Old Chapare Road, Cochabamba, Bolivia	?	1980s	?	small numbers noted	Reported in Ridgely & Tudor ⁸
Old Chapare Road, Cochabamba, Bolivia	Jul	1996	2,050 m	one observed	S. K. Herzog
Old Chapare Road, Cochabamba, Bolivia	Oct	1997	2,050 m	one observed	M. Kessler

recording of Fig. 2b. The sonogram shows three distinct sound patterns (with harmonics) over a period of one second, each pattern lasting c.0.2 seconds. This might represent three vocalising individuals but observations at the time suggested that only two birds vocalised and it is possible a single individual was producing two of the sounds. The pattern of silence interrupted by a burst of calls from different individuals is common in lekking species of the genus *Pipra* and, amongst the Cotingidae, in Andean Cock-of-the-rock *Rupicola peruviana* and Screaming Piha *Lipaugus vociferans*. We cannot eliminate the possibility that some sounds might be made by the males'

wings, as described for Dusky Piha *Lipaugus fuscocinereus*⁴, but this seems unlikely as we did not observe any wing movements associated with the sounds.

We heard vocalisations during four of our five observations at Pampa Grande in August–September, but none was heard during the Madidi observation, in November. Individuals were observed vocalising at distances down to 5 m on four occasions and recordings made twice. Birds responded strongly to playback. Such stimulation, both immediately following recording and one week subsequently, resulted in birds increasing the volume and tempo of their calls and approaching

closer. One observation was made after undetected birds responded to playback made the previous week at the same location. The birds first started calling and then moved into sight, before landing immediately overhead.

Behavioural observations

Based on the reports included in Table 1, birds are most frequently observed quietly perching in the subcanopy within forest or, less often, at the forest edge. They tend to perch c.10–15 m above ground and have been observed to remain motionless for several minutes (L. Rubey pers. comm.). During the 1970s, R. S. Ridgely (pers. comm.) regularly observed *L. uropygialis* as singles accompanying mixed flocks and less often in pairs. Once, M. Kessler (pers. comm.) observed 4–5 birds chasing each other through the canopy.

Our six observations ranged from a single to groups of four. Groups were active and noisy, with birds often chasing each other through the understorey and subcanopy, 5–15 m above ground. Usually one bird would fly into view and land on a tree close to the trunk, where it would pause and actively survey its surroundings. A second individual would then land nearby. The first individual would then take flight, accompanied by shrieking calls (described above) by both birds. The process would be repeated, with the birds chasing each other 5–10 m from perch to perch. On three occasions two more birds, chasing either each other or the first two, followed. Occasionally they would perch motionless, as recorded by other observers and described above. No wing noise was heard whilst the birds were in flight.

Records of stomach contents⁷ and observations of birds feeding (ABH pers. obs.) indicate that *L.*

uropygialis feeds on berries and tree fruits to some extent. During one observation a single individual performed a series of what appeared to be flycatching sallies (A. Moon & L. Rubey pers. comm.). The bird flew 2–3 m up before returning to the same or a nearby perch. During one of our observations birds were observed in the upper subcanopy/lower canopy, perching mainly on major branches, making short sallies to moss-covered branches and flying to a new perch afterwards; foraging behaviour quite similar to that of Greyish Mourner *Rhytipterna simplex*. Once we observed a bird consume a caterpillar, after first wiping it vigorously against a tree branch.

Specimens and observations

Records of *L. uropygialis* are confined to the upper Yungas forests of central and west Bolivia (on the east Andean slope) and south-east Peru. The species is known from six Bolivian localities (Coroico, Cotapata, Irupana, Apa Apa, Locotal, Chapare) and one in Peru (Abra de Maruncunca), all at 1,800–2,750 m (Table 1; Fig. 1).

Eighteen specimens of *L. uropygialis* were collected between 1876 and 1979 (Table 1); this total includes six specimens not mentioned by Remsen *et al.*⁷. The majority of specimens are from Coroico, La Paz. Fourteen were collected before the close of the 19th century, in groups of up to four, followed by the collection of two singles and a pair in the 20th century. The decline in the frequency and number of individuals collected could be the results of a new approach by collectors, but we believe that the lack of 20th-century specimens may represent evidence for a population decline, a conclusion supported by the fewer field observations in recent years.

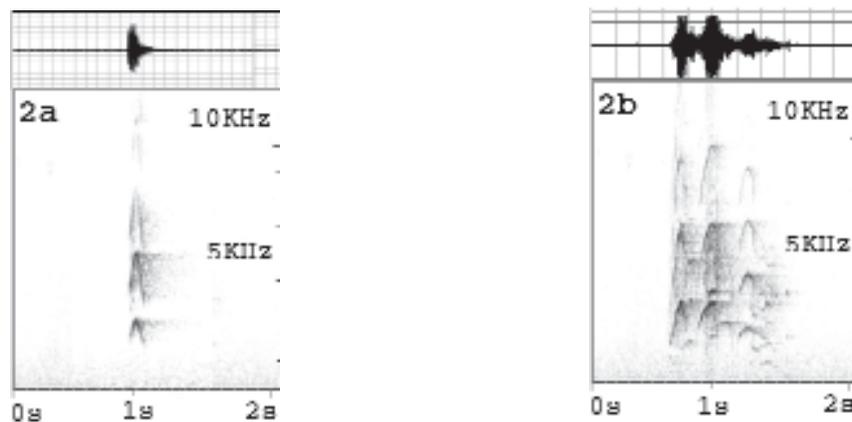


Figure 2. Sonogram of Scimitar-winged Piha *Lipaugus uropygialis*: a) single call from one bird, 23 August 2001, at 2,450 m; b) vocalisations from a group of up to four, 22 August 2001, at 2,550 m, Pampa Grande Valley, dpto. Cochabamba, Bolivia. Recordings by Steve Ewing & Ross MacLeod, sonogram prepared using Cool Edit 2000 version 1.1.

Prior to our observations, *L. uropygialis* had been observed on 17 occasions in 1970–2001. In the 1970s a maximum of ten individuals, in singles and pairs, was recorded at Coroico and along the Old Chapare road. In 1986 and 1989 groups of 3–5 were seen at Abra de Maruncunca. Since then, there are 12 known sightings of singles at a tiny number of localities. The sites around Coroico now appear degraded, with less than pristine habitat, and although frequently visited by ornithologists there are extremely few records of *L. uropygialis*. At sites that have been frequently visited (Apa Apa, Coroico, Old Chapare road), both the number of observations and group size have declined in recent decades, correlating with a reported deterioration in habitat quality.

Our observations were made first at the río Pampa Grande on 18 August–8 September 2001. Five observations, believed to involve at least eight individuals, were made in two locations, during 50 days field work in montane evergreen forest by six experienced ornithologists. The two locations are at 2,450 m and 2,550 m, on opposite sides of the valley, c.2 km apart. The habitat at each was primary montane forest on a steep ridge. One site was along a permanent trail within a small (c.10 m-wide) clearing, with some human disturbance. A further observation was made by MIG, on 8 November 2001, at 2,500 m in primary montane evergreen forest at Tokoaque, during the first ornithological survey of the upper Yungas section of Madidi National Park³.

Discussion and conservation assessment

L. uropygialis was designated as globally threatened in 2000, when classified as Vulnerable¹. This classification was based on the unpublished information presented in Table 1. The new data collected by 2001, combined with previously unpublished records, reveal that *L. uropygialis* is a genuinely rare species, even in pristine forest.

As mentioned above, in the Pampa Grande Valley, at Cocapata, observations were made on just five occasions at only two locations, both on ridges. Previous observations and specimens further suggest that the species is extremely local as such records are from just seven localities. Four of the five observations at Pampa Grande were made at a location visited near daily, suggesting that the birds might be utilising large tracts of forest in the area. Interestingly, the observation by M. Kessler in 1997 was made at exactly the same place on the Old Chapare road as the individual recorded by SKH in 1996. The pattern of the species only appearing at one place within a locality is repeated elsewhere, e.g. Apa Apa, where four observations have been made near the same ridgetop. All recent observations, with the exception of that Cocapata, have come from primary forest. The apparent restriction

to specific spots within such forest, often associated with ridges, suggests that the species may have unknown microhabitat requirements. It cannot be assumed that the species will occur in all apparently suitable primary forests within its range.

Much of the forest habitat where *L. uropygialis* has been recorded has been degraded as a result of selective logging, road construction, agriculture, clearance for plantations, grazing and hunting. We believe this probably explains the recent paucity of records from areas of former occurrence.

Within Bolivia and south-east Peru there are still extensive areas of undisturbed forest, where little or no survey work has been undertaken, and the true status of *L. uropygialis* will remain unknown until these have been searched. However, the limited range and localised distribution of the species, even in primary forest, combined with continued habitat degradation in the upper Yungas (EBA 55)¹⁰ suggest the species is indeed globally threatened and should continue to be treated as Vulnerable. Its highly localised distribution and apparent dependence on pristine forest means that the species may be subject to even greater threats than other birds endemic to the upper Yungas. Future surveys for *L. uropygialis* should concentrate on the Yungas forests of south-east Peru and Bolivia, at 1,500–3,000 m, and should aim to pinpoint new localities and monitor existing ones. Knowledge of population densities and habitat preferences are essential before an accurate estimate of the global population can be made and the level of threat properly assessed. Such actions should be supported by protection of pristine habitat in the species' known range.

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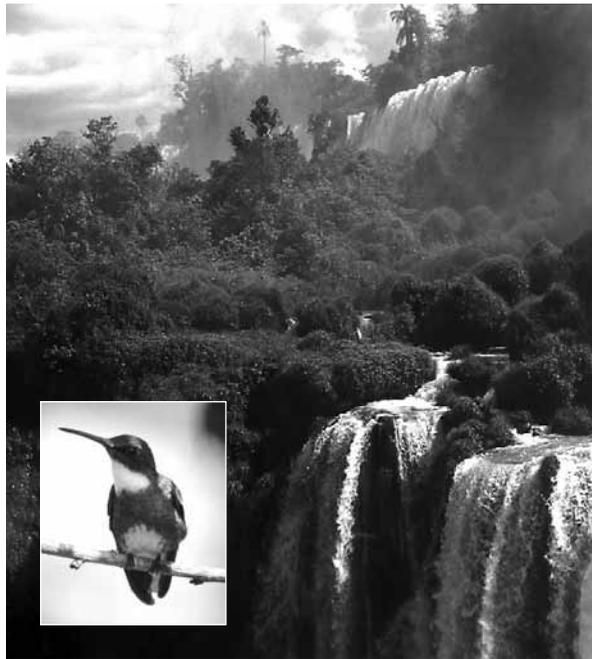
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Neotropical Notebook



Neotropical Notebook contains three sections. The first consists of short papers documenting records. Photos and descriptions are published where appropriate. The second section summarises records published elsewhere, following the format established in previous issues of *Cotinga*. The third lists unpublished and undocumented records. Please indicate, with submissions, in which section you wish your records to appear.

SHORT NOTES

First record of Spotted Rail *Pardirallus maculatus* in Guatemala

Spotted Rail *Pardirallus maculatus* is a shy resident of wetlands in Cuba, Hispaniola, Trinidad & Tobago, and locally from southern Mexico through Central America to Argentina and west Peru^{2,4}. It is known from all Central American countries except Guatemala³, having been only recently reported in Honduras, at Lake Yojoa¹.

On 26 April 2004, whilst undertaking a waterbird count at Lake Güija, I photographed an adult Spotted Rail beside the río Ostúa, dpto. Jalapa, Guatemala (14°17'N 89°32'W). The photograph is archived at VIREO (V06/56/001). No vocalisations were heard. The Ostúa forms the border between Guatemala and El Salvador, at the point where it flows into Lake Güija. Vegetation in the area included *Salix humboldtiana*, grasses (Gramineae), and *Eichhornia crassipes*.

Spotted Rail was previously known in El Salvador from single records at Laguna El Jocotal, dpto. San Miguel, and Tasajera Island, dpto. La Paz⁵, 179 km and 136 km, respectively, from Lake Güija.

Neither the El Salvador records nor the new Guatemala record implies local breeding. Records throughout Central America are widespread but few and the possibility that some or all records from northern Central America are vagrants cannot be eliminated.

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New records of Wedge-tailed Sabrewing *Campylopterus curvipennis* and Blue-black Grosbeak *Cyanocampsa cyanoides* in Cusuco National Park, Honduras

Cusuco National Park in north-west Honduras is a little-studied protected area in the Merendon Mountains. Here we outline two new observations for the park made during a study of avian diversity and abundance there, in July–August 2004. The national park has a total area of 23,000 ha, although the core zone is only 7,690 ha. The latter includes both pine-dominated and broadleaf-dominated forest, and covers an altitudinal range of 1,200 m to the highest point at 2,242 m (15°29'–15°32'N 88°12'–88°16'W). There is a mosaic of three main habitat types: cloud forest at 1,500–2,242 m, drier pine forest, mainly on south-facing slopes, at 800–1,500 m, and wet deciduous forest mainly on north-facing slopes at 500–1,500 m.

Wedge-tailed Sabrewing

Campylopterus curvipennis This sabrewing is a frequent to common resident through eastern Mexico, Belize and northern Guatemala, with two localities known in eastern Honduras^{1–3}. There are no records for western Honduras. During a ten-day period (27 June–5 July 2004) mist-netting around the visitor centre at the national park (15°29'N 88°12'W; 1,630 m), we trapped a single individual in pine-dominated forest edge. The bird had a relatively straight bill and a long, wedge-shaped tail. The face and throat were grey and there was a small, distinct white post-ocular spot. The crown was iridescent violet, tinged with blue, and the neck and upperparts were greenish blue. The tail was similarly coloured, but was

noticeably bluer with the outer rectrices showing black, revealing it to be a male, as females have broad white tips to the outer rectrices. This capture is the first record in western Honduras and a new altitudinal record for *C. curvipennis*, which was previously known only to 1,400 m². Given that the species occurs c.100 km to the north-west and c.400 km to the south-east of the study area, it is unsurprising that the sabrewing has now also been found in the national park.

Blue-black Grosbeak

Cyanocompsa cyanoides

This grosbeak occurs in humid evergreen forest and second growth from Mexico south to Ecuador and Brazil, being common to frequent below 900 m^{1,2} in northern Central America, and common up to 1,200 m in Costa Rica⁴. Our first sighting was in broadleaf forest at 1,710 m on 28 June 2004, when we found a pair singing in dense undergrowth around 2–3 m above ground level in 30–35 m-high canopy forest. Both male and female songs were a slow, descending slurred warble of six notes. The male was very dark with an overall blue-black appearance, and the bill was massive compared to the head. The overall impression was of a stocky, thickset bird. The female was deep brown with a similarly thickset appearance and massive bill. On 2 July 2004, at the same location, we trapped a male (wing length 82 mm, weight 29 g) using a tape lure, confirming the original identification, and revealing the forehead to be a noticeably brighter blue and the black bill to have a pale base to the lower mandible. The bird was photographed, but unfortunately the quality of the photographs was insufficient for publication purposes. Several further observations were made in the same location during subsequent days. Additional sightings were made of a male and a female c.1 km away, in pine-dominated forest and forest edge, at the visitor centre, indicating that the species is fairly widespread at this altitude, and is

not confined to lowland forests. Our observations represent a considerable extension of the species' altitudinal range.

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First description of the nest of a Ruddy Treerunner

Margarornis rubiginosus

We discovered a nest of a Ruddy Treerunner *Margarornis rubiginosus* at Monteverde Cloud Forest Preserve, Puntarenas province, Costa Rica (1,530 m) on 25 April 2004. The nest of this species has not been described previously^{1–3}. It was sited at c.25 m in the crown of a tree adjacent to a suspension bridge along a regularly used trail within mature cloud forest. The nest was on the underside of a thick branch (diameter: 45 cm), which projected from the main trunk at an angle of 20° from vertical. The nest was an oval mass of moss, well

camouflaged on an epiphyte-covered branch (Fig. 1), and was c.30 cm tall and 20 cm wide. The nest entrance, which oriented downwards from the bottom of the nest, had a diameter of c.10 cm, and the entrance tunnel appeared to narrow considerably within. The lip of the nest entrance appeared to be woven of brown and green plant fibres, whereas the remainder of the exterior was of shaggy moss. Moss hung down around the entrance, making it difficult to view into the nest from any angle except directly below. The branch to which the nest was attached, and the nest's structure, protected the interior of the nest from rain. The nest was sited underneath a large, leafy bromeliad and may have been attached to the root structure of the epiphyte.

Nests of Neotropical ovenbirds (Furnariidae) are variable and often highly cryptic³. The nest of only one other species of *Margarornis* has been described; that of Pearled Treerunner *M. squamiger*, which is a ball of moss with a side entrance, placed below a limb or rock¹. Hanging nests of moss may prove to be a common feature amongst the four species in this genus.

We observed one or two adults feeding nestlings. During two hours of observation, we witnessed 20 feeding visits, but only one adult was seen per visit, making it impossible to determine whether one or more individuals attended the nest. During each visit, the adult approached the nest in a long flight from below, perched briefly on the lip and then moved up into the nest, where only the tail and rump were visible. We inferred that the interior comprised a passage leading from the entrance to a shelf where the nestlings perched. On exiting, the adult dropped down in a long flight away from the nest. The nestlings begged loudly during each visit, a series of rapidly repeated, high, thin notes (*seet*). From the degree of overlap in begging vocalisations, we believe there were at least two nestlings. The adult occasionally uttered a



Figure 1. Photograph and line tracing of the nest of a Ruddy Treerunner *Margarornis rubiginos* at Monteverde Cloud Forest Preserve, Costa Rica. The globular nest was constructed of moss and plant fibres, and positioned on the underside of a thick branch high in the canopy. The adult delivered food to the nest from the entrance, which is oriented downwards from the bottom of the nest (Daniel J. Mennill)

quiet, thin *seet* at or near the nest. Each visit lasted no more than 2 seconds. On two occasions, we observed the adult carrying prey, presumably an arthropod, the wings of which extended at least 1 cm either side of the bill. The adult visited in bouts, returning every 2–3 minutes during a feeding bout. The longest between-bout interval was 18 minutes.

Directly below the nest, the leaves in the understorey were covered with nestling faecal material. During the two hours of observation, we observed faecal material falling from the nest four times.

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A nest of Rufous Antpitta *Grallaria rufula* depredated by a Turquoise Jay *Cyanolyca* *turcosa*

On 26 November 2003 we found a nest of Rufous Antpitta *Grallaria rufula* at Tapichalaca Biological Reserve (04°30'S 79°10'W), north of Valladolid in south-east Zamora-Chinchipe province, Ecuador, at an elevation of c.2,500 m. The nest, which held two entirely turquoise eggs (25.3 x 22.6, 25.4 x 22.5 mm),

was a large mossy cup lined with pale fibres and dark fungal rhizomorphs. It was located 2 m above ground on the side of a mossy tree trunk (12 cm diameter at breast height), supported by a shelf created by an abnormal growth of the tree and epiphytic bromeliads. Its measurements were: inside cup diameter 10 cm, cup depth 6.5 cm, outside diameter 20 cm, and outside height 12 cm. A large quantity of moss was stuffed onto the front of the ledge below the nest, apparently to increase its support. This extended 9 cm below the bottom of the nest. The nest and eggs closely matched the only other nest description for *G. rufula*².

Both adults incubated the clutch and frequently arrived at the nest with fungal rhizomorphs to add to the lining. While incubating, adults sat deep in the nest cup and were not visible above the rim of the nest. Both were observed to stand and rapidly probe into the lining of the nest, frequently consuming small objects, as described for Scaled Antpitta *Grallaria guatemalensis*¹.

On 28 November, during remote filming of the nest, a Turquoise Jay *Cyanolyca turcosa* arrived while no adults were present. We videotaped the jay eating both eggs, spending c.5 minutes at the nest. It consumed both eggs entirely, breaking them open in the nest and eating small pieces of the shell and yolk with its head below the rim of the nest. No vocalisations were heard from the adult antpittas during this period.

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Third record of Rufous-chested Plover *Charadrius modestus* in Peru

Rufous-chested Plover *Charadrius modestus* breeds in southern South America, in Chile and Argentina^{2,3}. Part of the population is migratory and reaches northern Chile and southern and, exceptionally, south-east Brazil^{2,6} during the austral autumn/winter. Post-breeding migration mainly occurs in March–April and return to the breeding areas is in late August–September³.

On 25 August 1995, C. Chevalier, F. Fontaine, PP and FS observed a Rufous-chested Plover on the beach immediately west of Pisco (dpto. Ica), just 200 m from the sea. It was larger than the nearby Sanderling *Calidris alba* and Kentish Plovers *Charadrius alexandrinus*, but clearly smaller than American Golden Plover *Pluvialis squatarola* and Killdeer *Charadrius vociferous* present on the same beach. It had the characteristic plover combination of rounded head and relatively short bill. The bird was in breeding plumage, with a rufous chest separated from the white belly by a black bar, and grey cheeks separated from the brown cap by a white supercilium.

Previous records in Peru involve a breeding-plumage female at Playa Ventanilla, north of Lima, on

10–17 June 1972, which was collected on the final date⁴, and an adult male collected on the southwest shore of Paracas Bay, on 22 June 1975⁵. As the species is easily identified and may occur in areas frequently visited by birdwatchers (e.g. Lagunas de Mejia, the Pisco, Paracas and Lima areas), the paucity of records suggests the species is genuinely a vagrant to Peru, rather than being merely overlooking (*contra* Clements & Shany¹).

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An incomplete nest of *Poecilurus kollari* in Roraima, Brazil

The trio of species in the genus *Poecilurus* are often placed in the

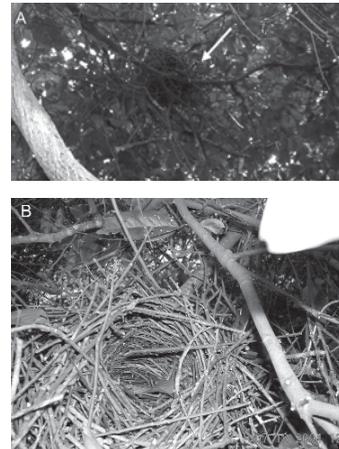


Figure 1. Nest of *Poecilurus kollari* at Alagadi o, Roraima, Brazil. A) general view of nest placement; B) close-up showing that it was apparently incomplete and abandoned (note leaves inside).

genus *Synallaxis*¹, or considered a subgenus². Hoary-throated Spinetail *Poecilurus kollari* is endemic to riverine forests along the upper rio Branco and its tributaries, in extreme northern Brazil and adjacent Guyana¹. Its tiny range and ongoing forest loss have meant that *P. kollari* is considered globally threatened³. Nonetheless, the species is poorly known, and none of its known range is formally protected (although a large portion lies within indigenous reserves).

On 4 August 2004, we found a nest of *P. kollari* at Alagadi o, Fazenda Truar , on the west bank of the rio Uraricoera, Roraima, Brazil (03 24'N 60 37'W). The nest was supported from a branch 3 m above ground, in a dense bush c.10 m from the riverbank (Fig. 1A). Two individuals, presumably a male and female, were nest building using twigs from a common vine, locally known as *erva de passarinho* (Loranthaceae). We revisited the nest 12 days later, on three subsequent days. At that time the nest was not yet lined, and we observed no change in its structure. It was a round cup, 35 cm in external diameter, 11 cm

in internal diameter, and 10 cm deep (Fig. 1B). The inner cavity was a simple tube at a 45° angle. The nest was probably abandoned because it had not been cleaned of leaves and we did not observe the presumed pair. SPN revisited the nest on 27 September 2004 and confirmed it to be abandoned. The nest was collected, and will be deposited in the ornithological collection of the National Institute for Amazonian Research (INPA), Manaus.

Based on the nest architecture of *Poecilurus candei* and *P. scutatus*, Zyskowski & Prum⁴ defined the nest of the genus as a domed vegetative nest composed of sticks with a thatch, a tubular entrance, and restricted lining. Assuming that *P. kollari* has similar nest architecture, the nest found at Alagadiço was probably incomplete, as it was not domed but a cup with no cover. In July 2001, Grosset & Minns⁵ also found an incomplete nest of *P. kollari* on the east bank of the Uraricoera, in a similar environment but lower (1.5 m). To our knowledge, this is the second record of *P. kollari*'s nest, the first time it has been collected, and the first observation of the probable involvement of male and female in nest building.

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Seabird records from Alagoas and Sergipe states, north-east Brazil

The states of Alagoas (AL) and Sergipe (SE), in north-east Brazil, possess c.390 km of coastline, between c.9–11° S. Although landbirds are relatively well known (at least in AL), little has

been published concerning seabirds in these states. Here we review existing, and present new, data on seabird distributions in AL and SE. Specimens are deposited in the Universidade Federal de Pernambuco (UFPE), Empresa Ambiental do Pólo Petroquímico de Camaçari (CETREL), Universidade Federal de Alagoas (MHNUFAL), and Universidade Federal de Sergipe (UFSE). We list geographical coordinates for each locality only at its first mention. English names and taxonomy follow del Hoyo *et al.*^{5,6}, except for albatrosses, where we follow Robertson & Nunn¹⁰. Species' global status follows BirdLife International²: EN (Endangered), VU (Vulnerable), NT (Near Threatened) and LC (Least Concern).

Black-browed Albatross

Thalassarche melanophrys (EN) Olmos⁹ reported a specimen banded in the Falklands (South Atlantic) recovered in Maceió (c.09°40'S 35°44'W; AL), but did not mention a precise date (probably in May–September). On 16 March 1993 one was found dead at Praia de Aruana (11°01'S 37°04'W) and on 22 June 2003 another at Praia da Caueira (11°12'S 37°11'W), both in SE.

Atlantic Yellow-nosed

Albatross Thalassarche chlororhynchos (EN) Previously known from a juvenile taken off Pontal do Peba (c.10°21'S 36°18'W; AL) on 21 May 1988¹⁴. A juvenile (MHNUFAL 46) was caught by fishermen a few miles off Maceió (09°40'S 35°44'W; AL) on 3 June 1990, and on 7 June 2001 another (CETREL) was found dead at Praia de Pirambu (10°39'S 36°35'W; SE). Additionally, MCS and RTF received the skull of one found near the Vaza Barris estuary (11°07'S 37°08'W; SE) on 30 June 2003.

Southern Fulmar *Fulmarus glacialis* (LC)

Azevedo-Júnior¹ reported several dead at Praia de Pirambu (SE) in May 1990, one of which (3403) is retained in UFPE. *F. glacialis* has been recorded further north

(c.5°S), off Rio Grande do Norte^{3,11}.

Soft-plumaged Petrel

Pterodroma mollis (LC)

Occurs off southern Brazil during the austral winter, and occasionally reaches north to Rio de Janeiro¹¹, with one record from Bahia⁷. A single (CETREL) was found at Praia de Pirambu (SE) on 4 May 1999, which appears to be the northernmost record in Brazil.

White-chinned Petrel

Procellaria aequinoctialis (Vu)

During the Dutch occupation of north-east Brazil (in the 17th century), a naturalist from Count Maurice of Nassau-Siegen's court noted this species' presence in the region¹². Two were found dead at Praia da Caueira (SE) on 3 May 2001. *P. aequinoctialis* should occur, at least in small numbers, off AL and SE, as well as elsewhere in north-east, as birds have been recorded in southern Bahia⁷, and even further north, on the Amazon River⁸.

Cory's Shearwater *Calonectris (diomedea) borealis* (LC)

Azevedo-Júnior¹ reported several at Praia de Pirambu (SE) in May 1990. At the same locality, several were found dead on 10 April 1998, 20–24 May 1998, 3 June 1999, 12 May 2000, 23–24 May 2001, 22 April and 13–15 May 2003, and 2–9 and 15 June 2003. Several specimens are retained in MHNUFAL, UFSE, and the zoological laboratory of Tiradentes University (SE). Moreover, Olmos⁹ mentioned two specimens banded in the Azores recovered in AL and SE.

Great Shearwater *Puffinus gravis* (LC)

Azevedo-Júnior¹ reported many dead along Praia de Pirambu (SE) in May 1990, two of which (3399, 3401) are in UFPE. Several were seen following fishing boats off Maceió harbour (09°40'S 35°44'W) on 24 May 1990. At the same locality, one (MHNUFAL 68) was found dead on 26 May 1998, and another (UFSE) was found at Aracaju (10°58'S 37°02'W; SE) on 12 June 1994. RTF found one dead

at Praia de Pirambu (SE) on 23 May 2001, one was found dead at Praia da Capueira (11°12'S 37°11'W; SE) on 22 June 2003, and one at Praia de Aruana on 29 September 2004.

Manx Shearwater *Puffinus puffinus* (LC)

One (MHNUFAL 99) found dead at Praia do Francês (09°58'S 35°45'W; AL) on 27 May 1990. Several were found dead at Santa Isabel Biological Reserve (10°39'S 36°35'W; SE) on 27 May 1990, 6 August 1999 and 23 August 2001. In addition, three were found at Praia de Pirambu on 6 August 1999, 15 July 2001 and 23 August 2001.

Sooty Shearwater *Puffinus griseus* (NT)

On 25 May 1990 one (MHNUFAL 103) was found on the beach at Maceió (AL). In addition, on 30 October 1999 one (CETREL) was found dead at Santa Isabel Biological Reserve (SE).

Wilson's Storm-petrel *Oceanites oceanicus* (LC)

First noted in the region during the Dutch occupation of north-east Brazil¹². On 3–4 November 1999, six were found dead at Santa Isabel Biological Reserve (SE). Additionally, seven were observed at sea (10°39'S 36°35'W) a few nautical miles off SE on 16 May 2002.

Red-billed Tropicbird *Phaethon aethereus* (LC)

In July 1993 one (UFSE) was found by personnel of the Projeto Tartarugas Marinhas (TAMAR) at Praia de Pirambu (SE).

Brown Booby *Sula leucogaster* (LC)

Apparently not previously recorded in AL or SE. In September 1991 one was seen off Praia de Pirambu, and on 4 July 1998 a juvenile (CETREL) was found dead at Santa Isabel Biological Reserve (both SE).

South Polar Skua *Catharacta maccormicki* (LC)

Olmos⁹ reported that one banded in the Antarctic Peninsula, on 23

February 1984, was recovered alive in AL on 14 September 1984. One (MHNUFAL 109) was found by IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis) personnel at an unknown locality in coastal AL, on 15 May 1991. One was found at Praia de Pirambu (SE) on 16 April 2002 and another there on 15 April 2003. Furthermore, MCS and RTF observed several skuas off SE, but were unable to make a certain identification.

Parasitic Skua *Stercorarius parasiticus* (LC)

One bird banded in mainland Shetland, UK (59°30'N 01°18'W) on 9 July 1963 was found dead north of Maceió (AL) on 17 May 1967⁹. On 6 June 1990 three were seen off Maceió harbour, of which one was pursuing Common Terns *Sterna hirundo*. On 14 December 1998 one was pursuing Common Terns off Pontal do Peba (AL).

Royal Tern *Thalasseus maximus* (LC)

Apparently not previously recorded in the region. One was observed near the rio Real estuary (11°25'S 37°20'W) on 10 May 1995.

Roseate Tern *Sterna dougallii* (LC)

Apparently not previously recorded in AL and SE, but on 30 October 1999 one (CETREL) was found at Santa Isabel Biological Reserve (SE).

Sooty Tern *Sterna fuscata* (LC)

On 1 March 1998 one was found dead at Santa Isabel Biological Reserve, and on 1 July 2003 another at Praia da Caueira (11°12'S 37°11'W; both SE).

Common Noddy *Anous stolidus* (LC)

One was found on 12 January 1992 at Pontal do Peba (AL), and another on 14 May 2001 at Praia de Pirambu (SE).

Black Skimmer *Rynchops niger* (LC)

First mentioned for the region during the Dutch occupation of north-east Brazil¹². On 8 March

1994 one was seen roosting on a sandbank near mangroves in the rio Sergipe river (10°58'S 37°03'W), Aracajú (SE).

Additional records

The following species are commonly recorded in north-east Brazil. **Magnificent Frigatebird** *Fregata magnificens* (LC): nine at Praia da Pajuçara (09°40'S 35°44'W; AL) on 24 May 1990, and one male at sea (10°52'S 36°56'W), off SE (8 December 2002).

Common Tern *Sterna hirundo* (LC): up to 100 off Maceió harbour (7 October 1990) and Pontal do Peba (14 December 1998), both AL; small flocks near the rio Real estuary (10 May 1995); Praia de Pirambu (30 October 1999, 8 December 2002); and following fishing boats near the rio Sergipe estuary (9 February 2004), all SE. **Cayenne Tern** *Thalasseus sandvicensis eurygnathus* (LC): previously recorded at Maceió and Pontal do Peba, both AL¹³. Up to 20 off Maceió harbour (7 October 1990); near the rio Real estuary (10 May 1995); and Pontal do Peba (14 December 1998).

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A range extension for Elegant Mourner *Laniusoma elegans* in Brazil

Laniusoma elegans comprises two allopatric populations and subspecies, *L. e. elegans* (Elegant Mourner) in eastern Brazil and *L. e. buckleyi* (Buckley's Mourner) in scattered Andean localities from Venezuela to Peru. It has been suggested that the two populations of this rarely encountered species (of humid forest and tall second growth) might be better treated as species^{1,2}.

On 10–11 October 2004, I observed a male *L. elegans* near Fazenda Jitituba, in Murici Ecological Station, Alagoas. On 10 October I observed one feeding alone in late afternoon at the edge of primary forest. Plumage characters included the yellow underparts, limited upper-breast barring, black cap and very dark green upperparts. The bird was c.3 m above ground and did not vocalise during the observation. Next day, in late morning, perhaps the same bird was at a fruiting tree, c.400 m from the previous sighting, feeding actively and accompanied by Opal-rumped Tanager *Tangara velia*, Red-necked Tanager *T. cyanocephala*, Violaceous Euphonia *Euphonia violacea* and Black-capped Antwren *Herpsilochmus atricapillus*. No recordings or photographs were obtained, but further surveys will hopefully yield more definite evidence of this species' presence in the north-east Atlantic Forest.

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First country record of Canada Warbler *Wilsonia canadensis*, in the Atlantic Forest of south-east Brazil

Canada Warbler *Wilsonia canadensis* breeds in northern North America, from north-east British Columbia and northern Alberta east to Nova Scotia, as well as south in the Appalachians to northern Georgia¹. Post-breeding it migrates to South America, principally wintering in Colombia and Venezuela south in the Andes to southern Peru, as well as, less commonly, in southern Central America¹.

On 13 November 2004 AF was with Peter Carnell and Mark Gibson in an area of selectively logged Atlantic Forest at c.600 m, close to km 57 of the Rio de Janeiro–Nova Friburgo road (RJ 116). At c.10h30, whilst observing a mixed flock containing Plain Antvireo *Dysithamnus mentalis*, Golden-crowned Warbler *Basileuterus culicivorus* and Olivaceous Woodcreeper *Sittasomus griseicapillus*, AF noticed an unusual bird 25 m away, foraging at eye level, which he immediately realised was a North American wood warbler. He swiftly drew

the other observers' attention to the bird. The most striking feature noted by AF was a large yellow eye-ring and supraloral, contrasting with a bluish-grey head and back. It also had a dark bill with a yellow throat, and yellow underparts streaked dark from the breast, but not heavily. The pale undertail-coverts were also noticeable, as were the pinkish-orange legs. The bird did not vocalise and none of the observers had a camera. It was watched for c.5 minutes before the bird moved off with the flock. MG, who had previous experience of Canada Warbler in the USA, identified the bird immediately and AF, who had the Dunning² guide to hand, confirmed its identity as a male, presumably an immature. Repeat visits to the same area were made in an effort to relocate the warbler and document the record, but were unsuccessful. The report is the southernmost for the species and the easternmost in South America.

A previous Brazilian record of *W. canadensis* mentioned by Novaes⁴ referred to a female collected by José Hidasí, in April 1962, at Posto Parima B, in the Serra Parima (Roraima). However, in 1973, when Brazil officially demarcated its northern border with Venezuela, this locality became part of the latter country, thus the record was deleted from the official Brazilian list³. However, we predict that the increasing numbers of ornithologists visiting northern Brazil will probably encounter this species again in the highlands of Roraima or Amazonas states.

Recent documentation of Black-throated Green Warbler *Dendroica virens* from Espírito Santo and Rio de Janeiro states represented another Nearctic wood warbler new to Brazil⁵. These records were also from montane Atlantic Forest. Such occurrences of Nearctic wood warblers in south-east Brazil, significantly farther south and east of their usual wintering grounds in the Andes, should alert field ornithologists to the

possibility of future similar records. Southern Brazilian records also exist for the following Nearctic parulids: Blackpoll Warbler *Dendroica striata* (Rio de Janeiro and southern São Paulo states), Cerulean Warbler *D. cerulea* (Rio de Janeiro) and Blackburnian Warbler *D. fusca* (Espírito Santo)⁶. These recent records of Nearctic parulids in the region might suggest that the montane Atlantic Forest is a more regular wintering area for these birds than previously suspected, but it remains to be seen whether this possibility will be confirmed in the future.

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A supposed early specimen of Mantled Hawk *Leucopternis polionotus* from Rio Grande do Sul, southern Brazil

Mantled Hawk *Leucopternis polionotus* (nomenclature follows David & Gosselin⁶) is a globally Near-Threatened species⁹ that inhabits lowland and mid-elevation forests of eastern Brazil (from Alagoas to Rio Grande do Sul), southern Paraguay and, possibly, north-east Argentina¹¹. The inclusion of Uruguay in the species' range^{5,11} is apparently erroneous, as no recent authority or country list includes it^{1,4}. In Rio Grande do Sul (RS), southern Brazil, it is known from a handful of sight records in the highland north-east^{4,9} and was found once in the lowlands just east of Porto Alegre (February 1978), where a primary feather was collected². In addition, Ihering⁷ mentioned a specimen taken in the 1800s in the National Museum of Lisbon, Portugal, probably on the authority of Sousa¹⁰, who listed a specimen of *L. poecilonotus* from RS.

As mentioned by Bencke³, *L. poecilonotus* is a synonym of *L. albicollis* (White Hawk) of the Amazon, not *L. polionotus*. Thus, it was recommended that the identity of this specimen should be confirmed. I requested information from the Lisbon museum (Museu Bocage, Faculdade de Ciências), and Dr Maria G. Ramalhino, head of the vertebrate section, kindly informed me that the specimen was destroyed during a fire in March 1978, together with the entire bird collection. Thus, the identity of the supposed early specimen of *L. polionotus* from RS is now a matter of speculation.

Ihering⁷ also mentioned that the Lisbon museum housed a specimen of Black Caracara *Daptrius ater* from RS. However, this species is

distributed throughout northern South America, south to central Brazil (in Mato Grosso state) and Bolivia¹². Moreover, Ihering & Ihering⁸ listed both *L. albicollis* and *L. palliata* (= *L. polionotus*) for RS. These facts suggest that both the *L. poecilonotus* and the *Daptrius ater* specimens were collected somewhere outside RS (probably in northern Brazil) and were mislabelled⁹.

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PUBLISHED RECORDS FROM THE LITERATURE

WEST INDIES**South-east Caribbean**

Murphy⁴⁶ records observations of a number of pelagic species on voyages between Curaçao (Netherlands Antilles) and the mouth of the rio Orinoco (Venezuela) in 1996–98, and also mentions the sighting of an **Atlantic Yellow-nosed Albatross** *Thalassarche chlororhynchos* north-west of Tobago in September 1968, a record which is now being considered by the relevant records committee.

MIDDLE AMERICA

Costa Rica

The Gone Birding Newsletter^{20–22} continues to inform of new and rare species for the country: recent sightings include the first **Shiny Cowbird** *Molothrus bonariensis* (April 2004), a possible **Black-vented Shearwater** *Puffinus opisthomelas* (during a pelagic in July 2004), more records of **Southern Lapwing** *Vanellus chilensis* (which may now be breeding in the country), the second country record of **Cory's Shearwater** *Calonectris diomedea*, the third record of **Golden-cheeked Warbler** *Dendroica chrysoparia* and the second record of **Eurasian Collared Dove** *Streptopelia decaocto* (all December 2004), along with many interesting migrant records.

Guatemala

Eisermann¹⁵ provides data for six species, including several of conservation concern, recorded during surveys of the Alta Verapaz region of the country, which add to our cumulative knowledge.

Honduras

Anderson *et al.*² present information on the avifauna of the Moskitia region of eastern Honduras. Two appendices list all 358 bird species reliably reported from dpto. Gracias a Dios, as well as 145 species expected to occur there. Species accounts are provided for 12 species, including **Harpy** *Harpia harpyja* and **Crested Eagles** *Morphnus guianensis*. The first description of the nest of **Ocellated Antbird** *Phaenostictus mcleannani* was presented recently, based on observations in the country in June 2002⁶.

Mexico

A recent paper¹⁰ examines the distribution and abundance of **Long-tailed Wood-partridge** *Dendrortyx macroura* at a site in western Michoacán, where the authors estimated almost 2,700 individuals to be present within an area of c.128 km². **Cedar**

Waxwing *Bombycilla cedrorum* was unusually abundant in Mexico in the winter of 2002/03, and a paper by Grosselet & Ruiz Michael³⁰ examines the invasion from the standpoint of Oaxaca records. Martínez-Morales⁴² reports new records for six species in a cloud forest in northern Hidalgo. Numbers of **American Coot** *Fulica americana* wintering in the country appear to have declined during the last 40 years⁴⁸.

Nicaragua

Two publications by Kjeldsen^{34,35} provide details of several globally threatened species found in the country, including **Keel-billed Motmot** *Electron carinatum*, **Three-wattled Bellbird** *Procnias tricarunculata* and **Golden-cheeked Warbler** *Dendroica chrysoparia*, as well as six new country records, namely **Mountain Pygmy-owl** *Glaucidium gnoma*, **Central American Pygmy-owl** *G. griseiceps*, **Great Jacamar** *Jacamerops aurea*, **Scaly-breasted Foliage-gleaner** *Anabacerthia variegaticeps*, **Slate-throated Whitestart** *Myioborus miniatus* and **Blackpoll Warbler** *Dendroica striata*, along with several other notable reports.

SOUTH AMERICA

Bolivia

Whittaker⁵⁶ mentions the first records for Bolivia of **Pearly-breasted Conebill** *Conirostrum margaritae*, made on an island in the río Mamoré, in July 2002 and June 2003 (see also Brazil). Brumfield *et al.*⁵ provide a checklist of 195 species recorded in the Laguna Kaucaya area of dpto. Santa Cruz, including the first departmental record of **Cinnamon Teal** *Anas cyanoptera*, with additional notes covering nine other species. Maillard & Catari⁴¹ report on observations of **Yellow-billed Blue Finch** *Porphyrospiza caerulescens* in Bolivia. The first nest of **Versicoloured Barbet** *Eubucco versicolor* was discovered in Madidi National Park in October 2002³².

Brazil

A major paper in *Bull. Brit. Orn. Club* by Andrew Whittaker⁵⁶, drawing principally on observations made in Rondônia, presents details of a new species to Brazil (**Subtropical Doradito** *Pseudocolopteryx acutipennis*) along with notes concerning distribution, breeding, austral migration and taxonomy for 59 other species (several of them very poorly known) from the same state, and occasionally other states in Amazonia, as well as a new species for Bolivia (see above). Other papers recently published in the same journal include records of five new bird species for the state of Roraima⁵¹, the first sight records of **Dull-coloured Grassquit** *Tiaris obscura* in Brazil, in southern Mato Grosso⁵⁷, and the first record (an overlooked specimen) of **Cape Petrel** *Daption capense* from north-east Brazil, in the state of Rio Grande do Norte⁷. A recent study has demonstrated that small numbers of **Kermadec Petrels** *Pterodroma neglecta* breed on Ilha da Trindade, in the southern Atlantic, amidst the colony of Trindade Petrel *P. arminjoniana*; the former species was previously considered to be restricted to the Pacific Ocean as a breeder³³. Two overlooked and mislabeled specimens of the globally threatened **Ochre-breasted Pipit** *Anthus nattereri*, from only the third-known locality in Paraná, have been reported recently¹⁹. Three new localities for the globally threatened **Wied's Tyrant-manakin** *Neopelma aurifrons* have been discovered in Minas Gerais recently⁵⁵. Stratford⁵³ presents notes on nests of four species from the central Brazilian Amazon, around Manaus: **Ruddy Quail-dove** *Geotrygon montana*, **Lesser Swallow-tailed Swift** *Panyptila cayennensis*, **Mouse-coloured Antshrike** *Thamnophilus murinus* and **Scale-backed Antbird** *Hylophylax poecilonotus*. Observations on a nest of **Stygian Owl** *Asio stygius* in the Brazilian cerrado have been published¹⁷. Other interesting records published recently include: a new

state record of **Yellow-billed Cuckoo** *Coccyzus americanus* in Bahia³⁹, the first state record of **Least Bittern** *Ixobrychus exilis* in Rio Grande do Sul¹, the first documented state record of **Bobolink** *Dolichonyx oryzivorus* in Rio de Janeiro (in February 2004)⁴³, the first state records of **Checkered Woodpecker** *Picoides mixtus* in both Pará and Tocantins⁴, a September 2003 record of **Harpy Eagle** *Harpia harpyja* in southern Paraná⁵², and some novel seabird records from Bahia³⁸.

Chile

New data have been published concerning the range (and diet) of **Mountain Caracara** *Phalcoeboenus megalopterus* in the country¹⁸, as well as new information on the breeding biology of **Thorn-tailed Rayadito** *Aphrastura spinicauda*⁴⁴.

Colombia

Chestnut-bellied Hummingbird *Amazilia castaneiventris* has been rediscovered in dpto. Boyacá, in April 2004, the first documented record (photographed) for 25 years¹⁴. **Peruvian Meadowlark** *Sturnella bellicosa* has only recently been demonstrated to occur in Colombia, although specimens from 35 years ago have proven to be available, whilst **Red-breasted Blackbird** *S. militaris* has also been recorded in the Amazonian part of the country for the first time⁸. Estelo¹⁶ presents details of four new records of **South Polar Skua** *Catharacta maccormicki* from the Caribbean coast. New observations of the poorly known **Buff-fronted Owl** *Aegolius harrisi* from the central Andes have been presented¹³. The nest of the secretive **Ocellated Tapaculo** *Acropternis orthonyx* has been described⁹, and notes on the nesting of the very rare **Moustached Antpitta** *Grallaria alleni* have also been made available⁴⁰. **Wilson's Plover** *Charadrius wilsonia* has been found breeding on the Pacific coast of Colombia²⁴. Naranjo⁴⁷ discusses the status of **Scarlet Ibis** in dpto. Cauca, based principally on three

recent observations, one of which suggested nesting, and new records of **Torrent Duck** *Merganetta armata* have become available from Antioquia⁴⁵, whilst Strewe⁵⁴ presents new distributional and nesting data for **White-tipped Swift** *Aeronautes montivagus* in the Serranía de Perijá and elsewhere.

French Guiana

Cleere & Ingels¹¹ describe recent unsuccessful searches for the enigmatic **Cayenne Nightjar** *Caprimulgus maculosus* and speculate as to its possible habitat preferences, and in a separate contribution in the same journal, *Alauda*, provide details of interesting new observations of **Blackish Nightjar** *C. nigrescens* in the same country¹².

Ecuador

The first record of **Pale-legged Hornero** *Furnarius leucopus* involved a specimen taken on the río Morona, Morona-Santiago province, in February 2002²⁷. A host of new nesting data for the country has been published recently, with separate communications covering the following species: **Sickle-winged Guan** *Chamaepetes goudoti*²⁶, **Buff-tailed Sicklebill** *Eutoxeres condamini*⁴⁹, **Barred Puffbird** *Nystalus radiatus*²⁹, **Bicoloured Antvireo** *Dysithamnus occidentalis*²⁵, **Peruvian Antpitta** *Grallaricula peruviana*²⁷, **Fulvous-breasted Flatbill** *Rhynchocyclus fulvipectus*²⁸ and **Tropical Gnatcatcher** *Poliophtila plumbea*³¹.

Guyana

Robbins *et al.*⁵⁰ present interesting new data from a survey of the southern Rupununi savana, including a checklist of the 456 species recorded at their five study localities, with accounts for 30 species, of which ten were new to Guyana, namely: **Broad-winged Hawk** *Buteo platypterus*, **Merlin** *Falco columbarius*, **Hudsonian Godwit** *Limosa haemastica*, **Stilt Sandpiper** *Calidris himantopus*, **Versicoloured Emerald** *Amazilia versicolor*, **Hoary-**

throated Spinetail *Poecilurus kollari*, **Streak-headed Woodcreeper** *Lepidocolaptes souleyetii*, **Rufous-winged Antwren** *Herpsilochmus rufomarginatus*, **Rio Branco Antbird** *Cercomacra carbonaria* and **Crowned Slaty Flycatcher** *Griseotyrannus aurantioatrocristatus*.

Peru

Gerhart²³ provides novel data, including two new localities, for the poorly known **Selva Cacique** *Cacicus koepckeae*, as well as data on breeding, habitat and vocalisations. Armacost³ presents the first data on the nest, eggs and nestlings of **Castelnau's Antshrike** *Thamnophilus cryptoleucus*, based on observations along the río Amazonas, dpto. Loreto, in June–July 2003.

Venezuela

Based on observations in Yacambú National Park, Kofoed & Auer³⁶ present the first breeding data for the little-known **Great Antpitta** *Grallaria excelsa*, describing the nest, eggs and young.

OTHER RECORDS RECEIVED

Brazil

A **Purple-winged Ground-dove** *Claravis godefrida* was at Fazenda Angelim, Ubatuba, São Paulo, on 18 October 2004 (GMK); there have been very few recent records in Brazil or elsewhere of this globally threatened species. Several **Least Terns** *Sterna antillarum* were at Praia Seca, Rio de Janeiro, on 18 August 2004 (GMK *et al.*); this species is only casually recorded as far south as the state of Rio (Sick 1997).

French Guiana

Photographs and details surrounding a number of first records for the country have been posted at <http://oiseauxdeguyane.monsite.wanadoo.fr/>: a **Little Egret** *Egretta garzetta* at Sablière de Kourou, from 19 November 2004; a first-year male **Belted**

Kingfisher *Megaceryle alcyon* at the same place on the same date (but not subsequently); a second-winter **Common Black-headed Gull** *Larus ridibundus* at Cayenne old harbour on 1 September 2004 (but probably present since 23 December 2002); an **Atlantic Yellow-nosed Albatross** *Thalassarche [chlororhynchos] chlororhynchos* c.120 km off the French Guianan coast on 2 September 2004; and a **Terek Sandpiper** *Xenus cinereus* at Cayenne old harbour on 2 February 2005, which represents only the fifth record for South America (see <http://tereksandpiper-fg.monsite.wanadoo.fr/>).

Mexico

Prothonotary Warbler

Protonotaria citrea is not mentioned for Guerrero in Howell & Webb (1995), thus a female in mangroves at Aztlan Parque Ecologico, in Ixtapa, on 17 January 2005 (CR, RS), may well be the first state record. Another new species for the same state was a **Yellow-bellied Flycatcher** *Empidonax flaviventris*, seen just north-west of Ixtapa, on 16 January 2005 (JF, CR, RS).

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Cotinga 24

Reviews



Handbook of the birds of the world: volume 9 edited by Josep del Hoyo, Andrew Elliott and David A. Christie, 2004. Barcelona: Lynx Edicions. 864 pages, 78 colour plates, 440 colour photographs and 809 distribution maps. UK£120.

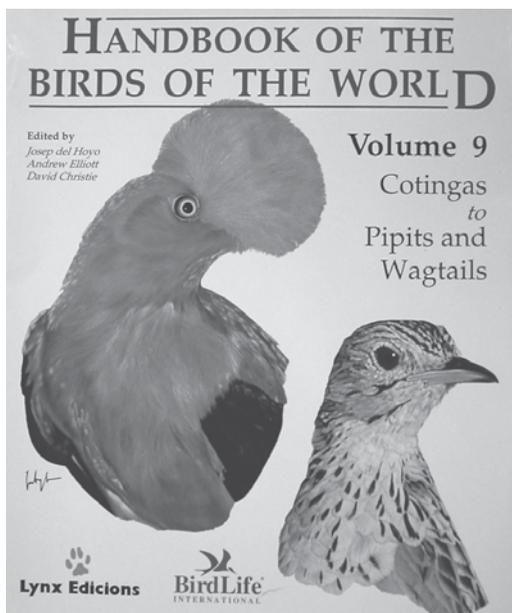
Scarcely 18 months ago the Lynx team were treating us to arguably the best (and surely the most sumptuous) book on Neotropical birds since the last volume of *The birds of South America*¹⁶, the utterly fantastic volume 8, and yet little more than one year later here we go again with another essential purchase for students and devotees of the birds of the New World tropics alike. Volume 9 of *HBW* covers the cotingas to the wagtails, thus encapsulating nine families of passerine birds, including the first three of the oscines, which will occupy the remainder of the series here on. Subject to the usual lavish treatment in the present volume, in addition to cotingas and manakins, two perennial favourites, are those maddening tyrant-flycatchers that always seem to be right in the canopy of the tallest tree, whilst the Hirundinidae and Motacillidae, also covered here, hold some interest too for those whose outlook does not reach beyond the Neotropics. Once again, we get readable, yet up-to-date and scientifically accurate texts by some of the undoubted heavyweights (and a few of the rising stars) of Neotropical ornithology, a great many lovely plates (although what happened to *Phylloscartes difficilis* [Plate 22], which looks as if it

has brown upperparts, at least in my copy [compare the real thing on p.251], and some of the shapes of the *Phyllomyias* also leave something to be desired), and just pages and pages of drop-dead great photos. Even if you've never had the urge to go and see some African larks you will do once you have this book in your hands! Just like last time, the coverage in the plates (and text) is often exemplary: where else would you find stunning artwork of both sexes of both (rather distinct) forms of *Pachyramphus viridis*? In addition to all this, and none of it should disappoint, we also get an introduction to the nomenclature of birds by chairman of the AOU checklist committee, Richard Banks, and the type description of a new tribe of flycatchers—the Contopini—for eight genera, including *Contopus* and *Empidonax*, which was indeed the most exciting result of the studies particular to this volume. Phew!

With the platitudes long since exhausted, and it now even platitudinous to state that it is impossible to find something new to say about this wonderful series, whither, might one ask, the review of *HBW*? This is a seriously meant question, for it is truly becoming very difficult to find appropriate words for this fantastic and hopefully successful compendium. I was spared, however, dilemmas as to what to write next, for while perusing volume 9, which like all of the preceding tomes is an absolute pleasure to pore over, I noticed rather more errors and omissions than any other issue I could recall. A large team has been responsible for the species accounts of the flycatchers and, I suppose, some unevenness of coverage might be expected, but it is disappointing that some published details variously relating to mass, altitudinal limits, seasonal movements, nesting (especially clutch size), and food and feeding (which are given in-depth coverage for some other species) are overlooked, e.g. for *Elaenia fallax*, *E. martinica*, *Contopus hispaniolensis*, *C. latirostris*, *Tyrannus caudifasciatus* and *Myiarchus antillarum*^{5,6,15}. At the risk of boring readers I am going to present a flavour of my criticisms for other species. In some cases, it should be stated, that references (particularly those only very recently published) might have been added to the individual species' bibliographies at the editorial stage, making non-inclusion of certain data more understandable.

Sapayoa aenigma—there is no *specific* mention that this species might be closely related to broadbills, as suggested more than a decade ago by Sibley & Ahlquist¹⁷, and recently 'confirmed' by Fjeldså *et al.*³, although the latter reference is included in the species' bibliography.

Phyllomyias fasciatus—not mapped for Pará, but well known from the Serra dos Carajás, a significant and important range extension (and mentioned for



there in Sick¹⁹, which is cited by the author in the species' bibliography).

Phyllomyias reiseri—detailed information on habitat preferences and some information on feeding have all been 'missed', in a paper⁸ (not cited), which proposed a potentially close relationship with *P. sclateri*, which possibility is mentioned, but effectively uncredited, because the paper providing rationale for such a view is not listed in the species' bibliography.

Phylloscartes kronei—occurs as far south as the state of Rio Grande do Sul, Brazil^{1,2}. Reference to Bencke¹ would also have revealed that *Culicivora caudata* is known from the same state. Neither of these species is particularly common, the former being listed as Vulnerable by IUCN, so one might have expected more effort to be expended over such interesting species?

Mionectes striaticollis—the breeding account appears to be rather strongly based on an as-yet unpublished study of this species made in north-east Ecuador, although the paper prepared by the observers in question is unmentioned in the bibliography. Researchers trying to track down the source for these data would be very hard pressed to find it!

Hemitriccus striaticollis—not mapped as (quite) reaching south to the São Francisco Valley, although a reference detailing its occurrence there is cited⁹ (and a prior reference⁸ was missed).

Hemitriccus orbitatus—we are informed that few breeding data are available for this species, and only a brief description is presented of the nest, and yet on p.230 is a fine portrait of the latter, so surely contact between the editors, author and photographer could have ensured a slightly more detailed account?

Hemitriccus nidipendulus—cited as occurring to 900 m, but the species is actually known to at least 1,400 m²² and there at least two published references in support of this, of which one is cited and the other missed¹³. Reference to Melo Júnior *et al.*¹³ would have also have led to improved altitudinal range information for *Knipolegus lophotes*, *Xolmis cinereus* and *X. velatus*.

Hemitriccus kaempferi—the description of the species' nest¹² is ignored (although the paper describing it is cited in the species' bibliography), instead we have 'Breeding. No information.'

Poecilatriccus capitalis—well known from the Serra dos Carajás, Pará, for 20 years (which fact has been published in two references, one of which¹⁹ is cited by the author), a huge range extension from south-west Amazonian Brazil.

Todirostrum poliocephalum—listed to just 1,200 m, but occurs to at least 1,350 m in Minas Gerais²², and the *HBW* text further states that no 'relevant published information' is available for breeding, yet Mitchell¹⁴ related somewhat anecdotal, but nevertheless pertinent data concerning nest building and a dependent juvenile, which might easily have been cited in the absence of anything else.

Contopus caribaeus—*HBW* has long attempted to give special attention to the issue of conservation, for all species, even going to the lengths of listing protected areas from which a given species is known.

This works well and is very valuable for genuinely rare or poorly known birds, but in cases like the present species it seems redundant and even potentially misleading to list a single national park (which is not even presaged by 'e.g.'). Given that *C. caribaeus* probably occurs in virtually every one of Cuba's protected areas!

Fluvicola nengeta—it seems a little churlish to criticise the attempted level of detail that is given to flesh out the expansion in this species' range in south-east Brazil, although it might be remarked that the wording is a mere direct copy of Sick¹⁸, but the text seems so dated now the species is found in practically every, even the tiniest, green area of Rio de Janeiro (for example), making a list of specific localities a genuine waste of effort.

Casiornis rufus—no mention is made that austral migrants have reached southern Bahia and this is not mapped (although records are published: see *Cotinga* 20: 109).

Casiornis fuscus—more data on feeding and habitat have been published⁸ than are presented here.

Xenopsaris albinucha—some critics of *HBW* have bemoaned for some time the lack of references within the text itself, perhaps using a superscript numbering system, and the present case, to my mind, offers a good case in point. In the status and conservation section the species is listed for Serra da Canastra National Park, Minas Gerais, the source for which intrigued me, as I was unaware of any records therein. Neither of the two park lists^{20,21} of which I am aware mentions the species, nor are they cited, whilst Sick¹⁹ does not even list *Xenopsaris* for the state (indeed it is not mapped as occurring in Minas Gerais by *HBW*!), and none of the other references in the bibliography appears a likely source... As an aside, I consider that Ridgely & Tudor¹⁶ made a good case for dropping the 'White-naped' from the species' English name.

Neochelidon tibialis—this species' range includes parts of east Amazonian Brazil^{18,19}, of which the former work is cited by the author, whilst the latter provides information suggesting that the species' range is broader than mapped here in the Atlantic Forest, as well as proffering further information on Movements.

Tachycineta euchrysea—breeding season is considered to be 'Jun-Jul in Jamaica; also Apr in Haiti', yet breeding reports are also available from Dominican Republic, prospecting in February and active nests in April-June^{6,11}.

Tachycineta cyaneoviridis—the map of this species' range in Cuba is almost fanciful, but certainly excusable as Garrido & Kirkconnell⁴ stated 'throughout eastern Cuba'. However, the latter authors did mention that the species is very rare in the country, and it is perhaps even better considered a vagrant there (I have yet to meet a visiting birdwatcher who has encountered it in Cuba).

Progne subis—huge numbers appear to winter in Amazonian Brazil, e.g. c.60,000 at one locality in Amazonas state (Sick 1993: 523)¹⁸, with large numbers also present in Pará at this season (pers. obs.), and fairly large flocks have even been recorded in midwinter in north-east Brazil⁷. None of this is

mentioned in *HBW*, although Sick¹⁸ is cited in the bibliography.

Progne dominicensis—no altitudinal limits are presented, although these are available⁶.

Motacilla citreola—to prove that I did not read only Neotropical species accounts, this species is not even mapped for Turkey and yet breeds across most of the eastern half of the country¹⁰.

I offer the above selection because I know the editors and publishers have been listening in the past to our concerns and suggestions, and it never hurts to keep them on their toes. Nonetheless, don't let my criticisms put you off buying this great book, as *HBW* is still just about the best value in ornithology publications there is. If you don't own a copy (and possess the money), shame on you!

Guy M. Kirwan

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Birds of Belize by H. Lee Jones, illustrated by Dana Gardner, 2004. Austin: University of Texas Press & London, UK: Christopher Helm. 431 pages, 56 colour plates, 28 figures and 234 distribution maps. UK£29.99.

Lee Jones has spent a considerable part of the last decade or so in the field in Belize, thus making very few people better or even equally well placed to contemplate producing such a book as that under review here. En route to his goal of producing Belize's first field guide, he has co-authored a number of important papers in the periodical literature (including two in these pages) concerning Belizean avifauna, as well as the most up-to-date checklist for the country. In short, he has laid much of the groundwork for modern ornithology in the country, in particular bringing new rigour to the documentation of vagrants and rare visitors, and by conducting a much-needed 'overhaul' of the national list.

Compared to the countries of Middle America most frequently visited by birders, namely Mexico (c.1,050 species), Costa Rica (c.850 species) and Panama (c.930

species), all of which already possess high-quality field guides, the Belizean avifauna is rather smaller (at fewer than 600 species) and considerably more manageable for the newcomer to Neotropical birding. Understandably so, given the country's geography, overall size (scarcely even half that of the Mexican state of Chiapas) and, until recently, almost complete lack of resident ornithologists or birdwatchers. That situation is now changing and new discoveries and additions to the Belizean avifauna are now comparatively frequent. The country also has another significant advantage for many independent travellers, it is English-speaking, and this factor, combined importantly with the release of this well-illustrated, modern-approach field guide, should stimulate renewed appreciation of Belize as an enticing destination for birders.

The book comprises three principal sections: the introductory matter, which covers the usual range of subjects and includes one of the better introductions to learning bird sounds I have chanced to read; the plates; and the species accounts. Completing the package is a moderately exhaustive reference list, maps for 234 species and the index, which incorporates English, local and scientific names in the single listing, when these three categories might, arguably, have better been presented separately.

It is a universal truth, almost invariably acknowledged, that to a large extent field guides live and die by the quality of their artwork. Dana Gardner (who also illustrated Stiles and Skutch's 1989 Costa Rican guide) is responsible for the plates in this volume, which to my mind would win few plaudits if hung in a gallery but very much serve their purpose herein. Gardner's rather heavy-handed style, with few nods to feather detail, makes for a solid base for field identification, with the occasional exception (e.g. the flying Barn Swallow *Hirundo rustica* almost has the jizz of a shorebird, and I wouldn't necessarily wish to rely on these plates, alone, to identify some waders, woodcreepers or flycatchers). Nonetheless, the vast majority of the plates are very acceptable and more than serve their purpose, given that I could easily identify the majority of species without recourse to the facing-page captions. Furthermore, whilst the publisher's blurb (erroneously) claims that all of Belize's birds are illustrated in the plates (whereas, in point of fact, some are relegated to line drawings and a tiny few, e.g. Black-legged Kittiwake *Rissa tridactyla*, are not depicted at all), it is certainly the case that the visitor can almost entirely dispense with the need to carry another identification reference such as a North American field guide.

The plate's facing-page text presents basic identification details for each species, including relevant data to assist with plumages that might not be illustrated, although the artist (and perhaps author) are to be commended for ensuring that a reasonably wide range is depicted, whilst at the same time producing plates that never appear cluttered. The brief texts also give basic range data and cross-reference the relevant species account, but (rather poorly) does not do so for the maps.

Turning to the species accounts, each comprises the English and scientific names (together with alternative English as well as the Belizean names), and sections on Identification, Voice, Habitat, Distribution (which encapsulates general information concerning world range), Status in Belize (rather full details being presented for all vagrants and many rarities), and References. Each species is cross-referenced to the relevant plate (or figure) and, where appropriate range map. A short introduction presages each new family and also contains suggested references, as well as a list of key features on which to concentrate when identifying family members. The texts are generally very good, with a strong focus on vocal identification. Stuck at the back, rather than with the relevant accounts, are the range maps, which are presented for c.40% of the Belizean avifauna (in general, maps are not given for species widespread throughout the country or for vagrants). The maps are well presented, clear and of good size, but (again) sadly lack cross-reference to either plates or species accounts.

There are few obvious errors in this guide, although (for instance) on Plate 47 the captions for Swainson's *Limnothlypis swainsonii* and Worm-eating Warblers *Helmitheros vermivorus* have been reversed. Thus, to my mind, the only significant detraction for users is the book's size and proportions. In this respect, the US edition weighs in even more heavily, at 484 pages, than the UK and European version reviewed here. Compare, for example, the Costa Rican field guide, which covers c.275 species more than the Belize guide, includes much additional prefatory material (incorporating habitat photographs) and possesses more handbook-level species accounts (nesting and necessarily more detailed altitudinal data, for example, are included), and yet contains just 511 pages and is not significantly more bulky a package. Perhaps too unfair is to compare *Birds of Belize* to the masterly *Collins bird guide* for European birds, which contains just 400 pages and offers full coverage of 722 species, can easily be carried in a normal coat pocket and still more than does the job for which it was intended (i.e. sacrifices have been rather few in terms of textual omissions, small maps and the like). *Birds of Belize* is, despite employing numerous textual abbreviations, distinctly wasteful of space (although very pleasant on the eye) and one gains few of the advantages one would hope for from such a chunky book. I suspect that some users will, once again, resort to stripping out the plates and relying upon them alone, despite the inevitable shortcomings of such an approach. This is doubly disappointing because Texas University Press (who commissioned this title) could, in my opinion, have produced a genuine field guide. True, it would have meant smaller font sizes and all of the other downsides to such a production, but how many users does one hear complaining about such matters in relation to the *Collins bird guide*, for example?

Notwithstanding such complaints, this book should revolutionise birding in Belize and is an outstanding credit to Lee Jones and Dana Gardner. Birders travelling to the country need carry nothing

else and can look forward to using a fine, if unnecessarily bulky, field guide.

Guy M. Kirwan

Annotated checklist of the birds of Chile by Manuel Marín, 2003. Barcelona: Lynx Edicions. 141 pages. UK£9.90.

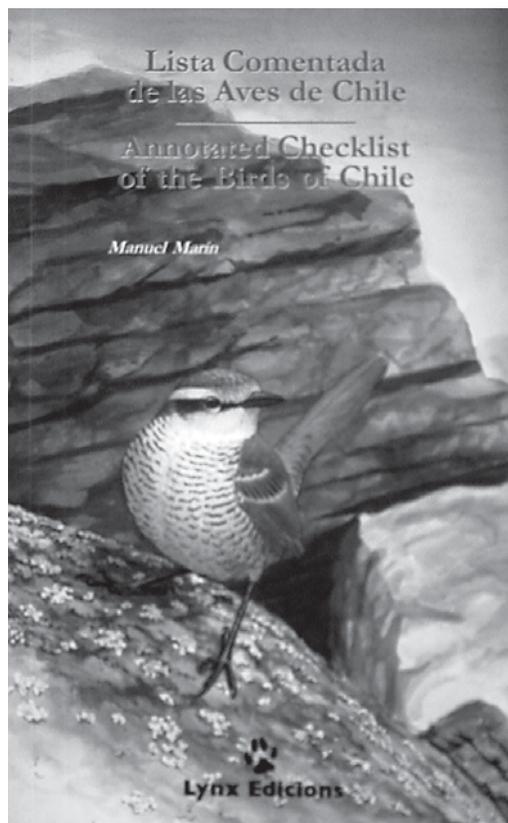
During my only birding visit to Chile, in January–February 1991, I observed four species considered rare in the country by this checklist: Little Blue Heron *Egretta caerulea*, Sparkling Violetear *Colibri coruscans*, Black-throated Flowerpiercer *Diglossa brunneiventris* and Golden-billed Saltator *Saltator aurantiirostris*. The first-named is an increasingly regular visitor to Chile, with small numbers now seemingly regular in northern coastal regions, whilst the rest all appear to be resident (rather than truly rare visitors) in northernmost Chile, where they are best known from around the mining village of Putre.

This pocket-sized checklist is the third such offering from Lynx Edicions, previous lists having covered Belize and Argentina (see review in *Cotinga* 22: 115–117), and it follows the successful format established by the latter. Bilingual throughout, c.50% of the current volume is devoted to the checklist itself, which is fully coded to life zones and other notes, e.g. whether a species is an austral or boreal migrant, a rarity, or a species subject to a recent taxonomic change. Much of the rest of the book comprises a series of very detailed appendices to the checklist, namely lists of hypothetical species, rarities, erroneously cited species for Chile, changes in taxonomy and nomenclature, endemics and near endemics, and introduced species. There is also a very useful list of references, which should satisfy just about any reader's desire for further information, as well as maps depicting the life zones and political regions of Chile.

My only significant criticism of this slim-line volume is that in the English editing the author has been poorly served by the publishers, although having said that surely he is aware that the plural of *taxon* is *taxa*? (unlike in Spanish). The English text appears to be principally based on a rather lacklustre effort to translate the Spanish version almost word for word. Seemingly in consequence, it is littered with incorrect changes of tense (some of which are genuinely confusing), sentences that are effectively incomplete, others that lack true meaning or are otherwise largely impenetrable, all of which eventually forced me on several occasions to turn to the, presumably original, Spanish text instead). The English text is also subject to many general inconsistencies of style, there is relatively frequent repetition of certain points and, whilst I support the author in following and drawing attention to the many changes in scientific names necessitated by Normand David and Michel Gosselin's recent work in *Bull. Brit. Orn. Club*, I still fail to see the need to select random or partisan examples of previous authors who spelt relevant names incorrectly, given that such failings were widespread.

Coupled with the recent field guide (see review in *Cotinga* 23: 93–95), this checklist offers a vital resource for the visiting birder. Only by using it will readers realise the significance of their observations and ensure that, unlike my own, these do not remain buried in their notebooks.

Guy M. Kirwan



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