Splits, lumps and shuffles Alexander C. Lees

This series focuses on recent taxonomic proposals—be they entirely new species, splits, lumps or reorganisations—that are likely to be of greatest interest to birders. The second instalment summarises proposals relating to tubenoses, terns, parrots, ovenbirds, and single owl, hummingbird, antbird, tyrant-flycatcher and tanager. Get your lists out!

Procellaria petrel relationships

The White-chinned Petrel Procellaria aequinoctialis (Vulnerable) is one of four traditionally recognised species of Procellaria petrels: White-chinned and Grey Petrels P. cinerea have circumpolar breeding distributions, whereas Westland P. westlandica and Black Petrels P. parkinsoni are confined as breeders to New Zealand. Back in 1998, Peter Ryan¹⁸ proposed to elevate the spectacled form of White-chinned Petrel to species status based on differences in plumage, morphometrics and vocalisations: Spectacled Petrel P. conspicillata breeds only on Inaccessible Island, Tristan da Cunha. In a follow-up study a decade later, Mareile Techow et al.²² found that mtDNA sequences supported species status for the Spectacled Petrel. Techow and colleagues (who included Peter Ryan) also revealed that the White-chinned Petrel has two regional populations, one ranging around New Zealand and the other throughout the South Atlantic and Indian Oceans.

Sandwich Tern taxonomy resolved

The classification of Sandwich Tern Thalasseus sandvicensis has been the subject of controversy for over a century. The three forms have been variously classified as subspecies or separate species: T. s. sandvicensis breeds on Atlantic and Mediterranean coasts of Europe; Cabot's Tern T. s. acuflavidus breeds on the Atlantic coasts of North America; and Cayenne Tern T. s. eurygnathus breeds on the Atlantic coast of South America from Argentina north to the Caribbean. New genetic analysis by Márcio Efe et al.7 indicates that the Old World (sandvicensis) and New World (acuflavidus/eurygnathus) populations are as divergent as other established species in the genus, and do not form a monophyletic group. Indeed, T. s. acuflavidus/eurygnathus are closest to Elegant Tern (T. elegans). These

results strongly suggest that the two standard taxonomic treatments of the complex (either as subspecies within a single species or as separate northern hemisphere and southern hemisphere species) are both phylogenetically inappropriate. The authors propose a new arrangement in which the Old World *T. (s.) sandvicensis* and the New World *T. (s.) acuflavidus/eurygnathus* are considered two different species. The appropriate taxonomic treatment for the New World forms is therefore Cabot's Tern *Thalasseus acuflavidus,* with *eurygnathus* as a subspecies. The field identification of this group was recently reviewed by Martin Garner *et al.*⁸.

Cuban Bare-legged Owl gets a new generic name

A pair of Antillean 'screech owl' species, Puerto Rican Screech Owl Megascops nudipes and Cuban Bare-legged Owl Gymnoglaux lawrencii, are notable for their unfeathered tarsi, lack of erectile 'ear' tufts and complicated taxonomic history. Storrs Olson and William Suárez¹⁴ have recently argued that the type species of the genus Gymnoglaux, usually stated as 'Noctua nudipes Lembeye, 1850 (not Strix nudipes Daudin, 1800)' is not valid as an independent name. Tracing the nomenclatural history, Olson and Suárez find the type species of Gymnoglaux to actually be the Puerto Rican Screech Owl. As a consequence, Gymnoglaux cannot be used as the genus for Bare-legged Owl, for which the authors propose a new genus, Margarobyas, a name whose components mean 'pearl' (a reference to Cuba, the 'pearl of the Antilles') and 'owl'.

Fewer tears for Glaucous Macaw?

Glaucous Macaw *Anodorhynchus glaucus* is one of the most enigmatic species in South America. Known from southern Brazil, Paraguay, Uruguay



White-chinned Petrel *Procellaria aequinoctialis* (inset), off Mar de Plata, Buenos Aires, Argentina (James C. Lowen; www.pbase.com/james_lowen) and Spectacled Petrel *P. conspicillata* (main photo), off Gough Island, South Atlantic (Bryan Thomas): molecular work affirms the split



A new genus has been erected for Cuban Bare-legged Owl Margarobyas lawrencii, Bermejas, Zapata, Cuba (Hadoram Shirihai/The photographic handbook to taxonomy of birds of the world)

and northern Argentina this macaw was recorded with certainty only twice in the 20th century, having declined precipitously over the previous century. Whilst it is generally considered to be extinct, BirdLife International⁶ treats it as Critically Endangered on the grounds that "persistent rumours of recent sightings, local reports and birds in trade indicate that a few birds may still survive". Herculano Alvarenga³ presents a case for lumping Glaucous Macaw with the certainly still extant (albeit Endangered) Lear's Macaw A. leari, which occurs in northern Bahia, Brazil; see Ciro Albano's article on pp. 56-64). Alvarenga argues that the two species have no osteological differences and are only separable on subtle plumage characters. Moreover, fossil remains found in caves in Bahia and Minas Gerais, Brazil, indicate that the two forms once had a contiguous distribution up until at least 10,000 years ago. Lear's Macaw, Alvarenga argues, could potentially be best treated as a subspecies of Glaucous Macaw.

Editorial note: in the captions, we depart from our standard practice of following the South American Classification Committee for nomenclature and taxonomy, and follow the proposals of the papers summarised in this article



Cabot's Tern *Thalasseus acuflavidus eurygnathus*, Rincón de Cobo, Buenos Aires, Argentina (James C. Lowen; www. pbase.com/james_lowen). A long-running saga resolved, so the identification gurus are now working on to develop solid field identification characteristics

Sulphur-breasted Parakeet has multiple aliases

Georges Louis Leclerc, the Comte de Buffon, was a French naturalist, mathematician, cosmologist and encyclopaedia author. In the 18th century Buffon published a seminal series of books on birds, describing and illustrating more than 1,000 species. Unfortunately, Buffon refused to adopt Linnaeus's system of binominal nomenclature, so none of his names are available for modern nomenclature. Nevertheless, his descriptive text focused the attention of ornithologists on the importance of studying birds in their natural environment. Scholarly study of these works continues to overhaul conventional nomenclature, as André Nemésio and Claus Rasmussen¹³ have demonstrated for Sulphur-breasted Parakeet Aratinga pintoi.

Buffon's 'Guarouba' or 'Perriche jaune' is illustrated in his magnificent *Histoire naturelle des oiseaux* and was interpreted by Buffon to be the same bird described by Marcgrave in the 17th century as 'Guarouba' or Quijubatui'. However, Buffon's illustration, upon which Boddaert's 1783 description of '*Psittacus luteus*' was based, is not of a Sun Parakeet *Aratinga solstitialis*, but a

similar species recently redescribed and named Sulphur-breasted Parakeet Aratinga pintoi²¹. But the detective work does not end there. It transpires that another scientist used Buffon's same plate to describe the same species, which he called 'Psittacus maculatus'. This older and overlooked synonym of *P. luteus* is thus the valid name of this species. As such, Aratinga maculata (Statius Müller, 1776 comb. nov.) is the senior synonym of both Psittacus luteus (Boddaert, 1783 syn. nov.) and Aratinga pintoi (Silveira, Lima & Höfling, 2005 syn. nov.). Accordingly, in order to establish nomenclatural stability, Nemésio and Rasmussen designate the holotype of Aratinga *pintoi* as the neotype (a specimen chosen to serve as the single type specimen where an original holotype no longer exists, or where the original author never cited a specimen) of both Psittacus maculatus and Psittacus luteus. Got that?

Molecular chemistry of *Brotogeris* parakeets unravelled

Camila Ribas *et al.*¹⁷ recently published a molecular phylogenetic analysis of the *Brotogeris* parakeets.This resolved eight well-supported clades that agree with traditional morphology-

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based species limits (so no 'armchair ticks', sorry). However, the analysis offered little genetic support for morphologically diagnosed subspecies (so little prospect of armchair ticks either).

Tapajos Hermit: a hybrid no more

Phaethornis hermits are one of the most taxonomically challenging Neotropical generaand can be tricky to identify too. Visitors to the rio Cristalino near Alta Floresta in the Brazilian Amazon may be familiar with the story of the unidentified hermit there. This small 'reddish type' hermit with a dark throat and with white margins to the outer rectrices was described as a subspecies of Little Hermit Phaethornis longuemareus aethopyga²⁴. Subsequently Hinkelmann¹⁰ proposed that the three known specimens were hybrids between Reddish Hermit P. ruber and Streakthroated Hermit P. rupurumii amazonicus. Vitor Piacentini and colleagues recently reappraised the status of this form on the basis of new specimens¹⁵. They reveal that this hummingbird has unique characters not found in the alleged parents, that it does not occur within the distribution of one of the purported parental species and that the form leks! The authors suggest that the form is best treated as a valid biological species, Tapajos Hermit Phaethornis aethopyga, endemic to the Tapajós river basin. The easiest places to see the species are at the Cristalino Jungle Lodge (Mato Grosso state) and at Pousada Rio Azul (Pará), where it is a scarce inhabitant of the understorey of *terra firme* forest.

Patagonian Forest Earthcreeper is a good species

The Patagonian Forest Earthcreeper Upucerthia saturatior occurs in Nothofagus beech forests of central-west Argentina and adjacent Chile. Described as a full species in 1900, it was quickly subsumed as a subspecies of Scale-throated Earthcreeper U. dumetaria. Nacho Areta and Mark Pearman⁴ defend the specific status of saturatior with a series of arguments. They note that there is no evidence of intergradation between U. dumetaria and U. saturatior (despite claims to the contrary). Areta and Pearman point out that there are consistent vocal differences between the taxa; the song of *U. saturatior* is three times slower than that of *U. dumetaria*, and their calls also differ. The authors also demonstrate consistent morphological differences in bill morphology, tail pattern, breeding habitat preferences (forest borders vs. shrubby steppe and open highlands) and migration patterns (trans-Andean vs. northsouth routes). Although these differences might not seem huge, they exceed those between other established species pairs in the genus *Upucerthia*, namely between Plain-breasted Earthcreeper *U. jelskii* and White-throated Earthcreeper *U. albigula*, and between Plain-breasted Earthcreeper and Buff-breasted Earthcreeper *U. validirostris*. The authors have shared their evidence base by archiving videos of the birds at http://ibc. lynxeds.com. The South American Classification Committee (SACC) has formally accepted the split.

Bar-winged Cinclodes split

Bar-winged Cinclodes Cinclodes fuscus is a common, widespread ovenbird that breeds from Tierra del Fuego to the northern Andes. Traditionally, nine subspecies have been defined, including four (tucumanus, rufus, yzurietae and riojanus) that occur in a relatively small area of north-west Argentina; this total excludes Cordoba Cinclodes C. comechingonus (endemic to Córdoba province, Argentina) which is treated as distinct by SACC but sometimes considered to be a subspecies of Bar-winged. Across its range, the species exhibits substantial variation in song, migratory behaviour and some plumage characteristics. Intrigued that the species's long, narrow range might mean considerable genetic variation among populations, Camilo Sanín and colleagues19 examined sequences of two mitochondrial genes. This revealed three discrete and geographically coherent groups of 'Bar-winged' Cinclodes occupying the southern Andes (most of Argentina and Chile; taxon fuscus), central Andes (extreme and high-altitude northern Argentina, Bolivia and Peru; albiventris/tucumanus group) and northern Andes (Ecuador northwards; albidiventris group).

Combining genetic data with available information on plumage, behavioural and vocal variation, the authors propose that the northern and southern clades be treated as distinct biological species. The southern, monotypic form would keep the name *C. fuscus*, and the northern form would become *C. albidiventris*. Sanín *et al.* also propose that the central Andean group should be considered a different species, *C. albiventris*, pending new information to clarify species limits in this group.

These findings will not astonish readers of Jaramillo¹¹, who treated 'Buff-winged' Cinclodes (*fuscus*) separately from 'Cream-winged' (*albiventris*) on account of migratory, plumage and vocal differences. Truly surprisingly, however, phylogenetic analyses indicated that these three groups were more closely related to other species of *Cinclodes* than to each other, i.e. they represent unrelated and independent lineages.

A new spinetail from Venezuela

Long neglected by ornithologists, river islands have become one of the first places to look for those keen to describe birds new to science¹⁶. On 3 January 1998, Steve Hilty was travelling along the río Orinoco in Venezuela. About 20 km south of Puerto Ayacucho, he heard a couple of unfamiliar vocalisations. One proved to be a spinetail in the genus *Synallaxis*, and, judging by its song, was clearly an undescribed species. A little over ten years later this bird has a name; the Rio Orinoco Spinetail Synallaxis beverlyae9. The new species most closely resembles the widespread Pale-breasted Spinetail S. albescens with which it occurs sympatrically and differs chiefly in being paler and having a pale iris. The new spinetail's vocalisations are most similar to Dark-breasted Spinetail S. albigularis, Cinereous-breasted Spinetail S. hypospodia and Spix's Spinetail S. *spixi*, although they are diagnosably different from all. As far as is known, Rio Orinoco Spinetail is restricted to scrubby river-island vegetation and adjacent river edges in the lower and middle sections of the main channel of the río Orinoco in Venezuela and in adjacent Colombia. The species's restricted range and probable vulnerability to any large scale river-engineering projects make it likely to be of conservation concern.

Skutchia no more

Pale-faced Bare-eye Skutchia borbae is one of the jewels of the southern Amazon. Edwin Willis²³ placed the bird in its own monotypic genus on the grounds of its distinctive morphology, the genus name honouring Alexander Skutch, the late, eminent ornithologist. In a new study, Alexandre Aleixo et al.2 evaluated the species's phylogenetic position among core obligate army ant-following antbirds. They placed Skutchia consistently as sister to Black-spotted Bare-eye *Phlegopsis nigromaculata* and within a clade that additionally comprises the two other species of Phlegopsis. This conclusion was reinforced by the mapping of plumage characters originally used to diagnose Skutchia onto the group's phylogeny. It appears that these characteristics have evolved convergently on multiple occasions among the core obligate army ant-followers. Unfortunately for the memory of Alexander Skutch, these results support the return of Pale-faced Bare-eye

RECENT SACC DECISIONS

Here we list some of the most interesting taxonomic decisions made recently by the South American Classification Committee (SACC; for which see *Neotropical Birding* 2: 21–23 and www.museum.lsu. edu/~Remsen/SACCBaseline.html), the recognised authority on the taxonomy, systematics and nomenclature of South American birds (but not for other parts of the Neotropical region).

SPLITS

Gartered Trogon *Trogon caligatus* split from Violaceous *T. violaceus*; White-tailed Trogon *T. chionurus* split from Green-backed Trogon *T. viridis*; and Ecuadorian Trogon *T. mesurus* split from Black-tailed Trogon *T. melanurus*.

Pernambuco Foliage-gleaner *Automolus lammi* split from White-eyed Foliage-gleaner *A. leucophthalmus*.

Santa Marta Foliage-gleaner Automolus rufipectus split from Ruddy Foliage-gleaner A. rubiginosus (see Neotropical Birding 5: 17–18).

Red-eyed Thornbird split into Orange-breasted Thornbird *Phacellodomus ferrugineigula* and Orangeeyed Thornbird *P. erythrophthalmus*.

Ecuadorian Thrush *Turdus maculirostris* split from Spectacled Thrush *T. nudigenis*.

Gray-throated Warbling Finch *Poospiza cabinisi* split from Red-rumped Warbling Finch *P. lateralis*.

Warbler Finch, a Galapagos endemic, split into Gray Warbler Finch *Certhidea fusca* and Green Warbler Finch *C. olivacea*.

LUMPS

Lara Tapaculo Scytalopus fuscicauda lumped with Merida Tapaculo S. meridanus (see Neotropical Birding 5: 19).

Narosky's Seedeater Sporophila zelichi is not a valid species (see Neotropical Birding 5: 21).

NO CHANGE

'Puna Hawk' *Buteo poecilochrous* not split from Variable Hawk *B. polyosoma*.

'Cundinimarca Tapaculo' Scytalopus infasciatus not split from Mattoral Tapaculo S. griseicollis (see Neotropical Birding 5: 19).

'Cobb's Wren' *Troglodytes cobbi* not split from House Wren *T. aedon*.

'Cerulean-streaked Mountain Tanager' *Dubusia* stictocephala not split from Buff-breasted Mountain Tanager *D. taeniata*.

Lear's Macaws Anodorhynchus leari, Canudos, Bahía, Brazil (Ciro Albano; www.nebrazilbirding. com). 'Just' a subspecies of the enigmatic Glaucous Macaw Anodorhynchus glaucus?

Inset: Yellow-chevroned Parakeet Brotogeris chiriri, La Lucila, Buenos Aires, Argentina (James C. Lowen; www.pbase.com/james_lowen). Sorry, no armchair ticks here



Left: Patagonian Forest Earthcreeper *Upucerthia saturatior*, Lagunas de Epulauquen, Neuquén, Argentina (Juan Ignacio Areta); split from Scale-throated Earthcreeper *U. dumetaria*

Right: Rio Orinoco Spinetail (Robin Restall): river islands continue to deliver species new to science



'Buff-winged' Cinclodes Cinclodes fuscus (left), Ushuaia, Tierra del Fuego, Argentina and 'Cream-winged' Cinclodes C. albiventris (right), La Quiaca, Jujuy, Argentina (James C. Lowen; www.pbase.com/james_lowen). Evidence suggests that the forms are specifically distinct



Warbling Doradito *P. flaviventris* (left), Rincón de Cobo, Buenos Aires, Argentina (James C. Lowen; www.pbase.com/ james_lowen) and 'Lemon Doradito' *Pseudocolopteryx* cf. *citreola* (right), Lago Nihuil, San Rafael, Mendoza, Argentina (Raúl Mauro Ábalos): differences in vocalisations argue for a split



House Wrens *Troglodytes aedon* in Argentina: (left) Parque Nacional Iguazú, Misiones (James C. Lowen; www.pbase. com/james_lowen) and (right) Cabo de San Pablo, Tierra del Fuego (Santiago Imberti/Seriema Nature Tours). These individuals may look similar, but is more than one species involved?

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to the genus *Phlegopsis* where it was originally placed. Time then for someone to describe a new species by which to honour Skutch...

A new cryptic doradito?

Four Pseudocolopteryx doraditos inhabit the Southern Cone of South America. Warbling Doradito Pseudocolopteryx flaviventris is monotypic, but Raúl Ábalos and Nacho Areta1 recently found that two phenotypically identical populations differed in several bioacoustic and morphometric characters. They provisionally call the cryptic taxon 'Lemon Doradito' P. cf. citreola; it occurs in western Argentina and central Chile. The authors contrast the vocalisations of the Argentina population (transcribed as 'tick tick tick tick-tick-you') with the song of P. f. flaviventris ('u-eet-u, u-eét'). Both forms are highly responsive to playback of their own vocalisations but not to the vocalisations of the other form. The authors note that the two forms accompany their singing with different head movements. The form *citreola* is migratory, being found in Mendoza province only from October-March. Habitat preferences also differ. Although nest architecture appears to be identical, the eggs of P. cf. citreola are speckled, a characteristic that may be unique for the genus. The authors suggest that the two forms should be considered as separate species. (For details on where to see 'Lemon Doradito' around Santiago de Chile, see Fabrice Schmitt's article on pp. 28-35.)

Opal-rumped Tanager should be split

Opal-rumped Tanager Tangara velia is widespread in Amazonian and Atlantic Forests and comprises at least four subspecies. The most distinctive is Tangara velia cyanomelaena of the Brazilian Atlantic Forest. Claydson Assis et al.5 looked at the variation in plumage colour within the group. Using descriptive statistics they were able to unequivocally separate T. v. cyanomelaena on morphological differences (notably sky-blue breast and flanks) from all other members of the genus. Morphometric analysis indicated that T. v. cyanomelaena differed subtly from other members of the *T. velia* complex. Given clear plumage differences and inferred longterm independent evolution allopatrically in the Atlantic Forest, the authors suggest that T. cyanomelaena should be treated as a separate species under the phylogenetic species concept, a treatment already favoured by Sibley¹⁵ under the English name Silver-breasted Tanager.

Trawling for new species using DNA barcodes

Kevin Kerr et al.12 recently undertook an ambitious study of the DNA barcodes of 500 Argentinian birds and compared their patterns of genetic diversity with those of North American species. Only nine species studied could not be distinguished using barcodes: three were Muscisaxicola ground tyrants (which are paraphyletic and have low interspecific divergence) and the remaining six are Sporophila seedeaters that are believed to have diverged within the past half-a-million years. The study also revealed that some species may be being overlooked. Examples include forms within White-crested Tyrannulet Serpophaga subcristata (see the comments on Serpophaga griseicapilla in the first 'Splits, lumps and shuffles' article in Neotropical Birding 5: 20) and House Wren Troglodytes aedon. The latter possessed three distinct (COI) lineages with divergences as high as 5%; several species-level taxa are likely to be involved. Populations of Red-eyed Vireos Vireo olivaceus in north-east and north-west Argentina showed up to 3.1% sequence divergence, but both COI lineages occurred at one north-east site. The authors conjecture that this region might represent either an area of sympatry between reproductively isolated species or a contact zone between phylogeographic groups. White-bearded Manakins Manacus manacus have four colour forms that are sometimes regarded as different species. Specimens from Parque Nacional Iguazú in Misiones province included two COI groups with 3.5% divergence. Intriguingly, males of both lineages were collected from a single lek suggesting that the divergent groups represent a rare case of deep intra-specific divergence. Such exploratory analyses would seem to be an excellent way of searching for cryptic species. This author bets he is not alone in wondering how many new species might be discovered in Amazonia by using such molecular genetic techniques . . .

REFERENCES

- Abalos, R. & Areta, J. I. (2009) Historia natural y vocalizaciones del doradito limón (*Pseudocolopteryx* cf. citreola) en Argentina. Orn. Neotrop. 20: 215–230.
- Aleixo, A., Burlamaqui, T. C. T., Schneider, M. P. C. & Gonçalves, E. C. (2009) Molecular systematics and plumage evolution in the monotypic obligate armyant-following genus *Skutchia* (Thamnophilidae). *Condor* 111: 382–387.

- Alvarenga, H. M. F. (2007) Anodorhynchus glaucus e A. leari (Psittaciformes, Psittacidae): osteologia, registro fósseis e antiga distribuição geográfica. Rev. Bras. Orn. 15: 427–432.
- Areta, J. & Pearman, M. (2009) Natural history, morphology, evolution, and taxonomic status of the Earthcreeper *Upucerthia saturatior* (Furnariidae) from the Patagonian forests of South America. *Condor* 111: 135–149.
- Assis, C. P., Seixas, L., Raposo, M. A. & Kirwan, G. M. (2008) Taxonomic status of *Tangara cyanomelaena* (Wied, 1830), an East Brazilian Atlantic Forest endemic. *Rev. Bras. Orn.* 16: 232–239.
- BirdLife International (2009) Species account: *Anodorhynchus glaucus*. www.birdlife.org (accessed 28 July 2009).
- Efe, M. A., Tavares, E. S., Baker, A. J. & Bonatto, S. L. (2009) Multigene phylogeny and DNA barcoding indicate that the Sandwich Tern complex (*Thalasseus* sandvicensis, Laridae, Sternini) comprises two species. Mol. Phyl. & Evol. 52: 263–267.
- Garner, M., Lewington, I. & Crook, J. (2007) Identification of American Sandwich Tern (*Sterna* sandvicensis acuflavida). Dutch Birding 29: 273–287.
- 9. Hilty, S. L. & Ascanio, D. (2009) A new species of spinetail (Furnariidae: *Synallaxis*) from the río Orinoco of Venezuela. *Auk* 126: 485–492.
- Hinkelmann, C. (1996) Evidence for natural hybridisation in hermit hummingbirds (*Phaethornis* spp.). *Bull. Brit. Orn. Club* 116: 5–14.
- 11. Jaramillo, A. (2003) *Birds of Chile*. Princeton, NJ: Princeton Unversity Press.
- Kerr, K. C. R., Lijtmaer, D. A., Barreira, A. S., Hebert, P. D. N. & Tubaro, P. L. (2009) Probing evolutionary patterns in Neotropical birds through DNA barcodes. PLoS ONE 4(2): e4379. doi:10.1371/journal. pone.0004379.
- Nemésio, A. & Rasmussen, C. (2009). The rediscovery of Buffon's 'Guarouba' or 'Perriche jaune'; two senior synonyms of *Aratinga pintoi* Silveira, Lima & Höfling, 2005 (Aves: Psittaciformes). *Zootaxa* 2013: 1–16.
- Olson, S. L. & Suárez, W. (2008) A new generic name for the Cuban Bare-legged Owl *Gymnoglaux lawrencii* Sclater and Salvin. *Zootaxa* 1960: 67–68.
- Piacentini, V. Q., Aleixo, A. & Silveira, L. F. (2009) Hybrid, subspecies, or species? The validity and taxonomic status of *Phaethornis longuemareus aethopyga* Zimmer, 1950 (Trochilidae). *Auk* 126: 604–612.
- Remsen, J. V. & Parker, T. A. (1983) Contribution of river-created habitats to bird species richness in Amazonia. *Biotropica* 15: 223–231.

- Ribas, C. C., Miyaki, C. Y. & Cracraft, J. (2009) Phylogenetic relationships, diversification, and biogeography in Neotropical *Brotogeris* parakeets. *J. Biogeogr.* 36: 1712–1729.
- Ryan, P. G. (1998) The taxonomic and conservation status of the Spectacled Petrel *Procellaria conspicillata. Bird Conserv. Intern.* 8: 223–235.
- Sanín, C., Cadena, C. D., Maley, J. M., Lijtmaer, D. A., Tubaro, P. L. & Chesser, R. T. (2009) Paraphyly of *Cinclodes fuscus* (Aves: Passeriformes: Furnariidae): implications for taxonomy and biogeography. *Mol. Phyl. & Evol.* 53: 547–555.
- 20. Sibley, C. G. (1996) *Sibley's birds of the world*, v. 2.0. Cincinnati, OH: Thayer Birding Software.
- Silveira, L. F., de Lima, F. C. T. & Höfling, E. (2005) A new species of *Aratinga* parakeet (Pscittaciformers: Psittacidae) from Brazil, with taxonomic remarks on the *Aratinga solstitialis* complex. *Auk* 122: 292–305.
- 22. Techow, N. M. S. M., Ryan, P. G. & O'Ryan, C. (2009) Phylogeography and taxonomy of White-chinned and Spectacled Petrels. *Mol. Phyl. & Evol.* 52: 25–33.
- 23. Willis, E. O. (1968) Taxonomy and behavior of Palefaced Antbirds. *Auk* 85: 253–264.
- Zimmer, J. T. (1950) Studies of Peruvian birds, 55. The hummingbird genera *Doryfera, Glaucis, Threnetes* and *Phaethornis. Amer. Mus. Novit.* 1449: 1–51.

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