



Full Issue

Source: Bulletin of the British Ornithologists' Club, 138(3) : 143-277

Published By: British Ornithologists' Club

URL: <https://doi.org/10.25226/bboc.v138i3.2018.a10>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Bulletin of the BRITISH ORNITHOLOGISTS' CLUB

Vol. 138 No. 3

Published 22 September 2018

CLUB ANNOUNCEMENTS

Bon Voyage? 250 years exploring the natural world

Bon Voyage? 250 Years Exploring the Natural World was the theme for a fascinating conference organised by the Society for the History of Natural History in association with the British Ornithologists' Club and held at the World Museum Liverpool on 14–15 June 2018, marking the 250th anniversary of Captain James Cook's first voyage to the Pacific on *HMS Endeavour*. Cook's voyages influenced many areas of science and endeavour—from astronomy and geology to natural history and anthropology. The meeting drew people from around the world to listen and discuss the history of natural history exploration on land to sea worldwide—the risks the early explorers took, the discoveries they made, and their contributions to science.

Knowsley Hall

Ahead of the conference, on 13 June, delegates visited Knowsley Hall, the home of successive Earls of Derby. It was the 13th Earl, Sir Edward Stanley (1775–1851) whose passion, beyond horse-racing, was his menagerie, aviary and natural history pursuits, which as a major landowner, and one of the richest in England, he was well able to indulge. He assembled a large collection of birds, mammals and plants, and became acquainted with John Latham, the foremost English ornithologist of his day. At the Zoological Society of London, Lord Stanley met Edward Lear and hired him to paint rare species in his own collection. He also became an avid collector of specimens from London and Liverpool dealers, and collectors returning from overseas with live and dead specimens. Contemporary visitors to Knowsley included John James Audubon, Charles Lucien Bonaparte and John Gould.

Conference visitors were also treated to a rare opportunity to examine close-up the paintings of Edward Lear who, besides entertaining children with his nonsense rhymes, was a very gifted artist. Guided by Stephen Lloyd, curator, we gathered in the library among cases of antiquarian portfolios and studied at leisure the finest works of L. J. Robins and Edward Lear.

The conference

The 25 speakers covered a wide range of explorations and discoveries, the full programme being available at: <http://shnh.org.uk/events/past-meetings-events/>. My summary here focuses on selected papers, notably those of a maritime and / or ornithological bias, which particularly attracted my attention. Jordan Goodman of Univ. College, London, set the scene with his talk on Cook and Banks. What became clear was after the first voyage of the three-mast barque *Endeavour*, starting in 1768, how better organised things became. The vessels were small and cramped, but in 1776 *Resolution* was specifically built with collectors and their collections in mind, with the space normally allocated to a certain degree of luxury for the captain being designed for scientific work. The captain occupied a small-sized cabin. How far Cook voyaged and the progress in navigation made in those 12 years, with the ability to calculate longitude with greater precision using Harrison's marine chronometer, is amazing. Sydney Parkinson was employed by Joseph Banks to travel with him on Cook's first voyage to the Pacific, drawing thousands of plants and animals in very difficult conditions. He died at sea during the voyage and is commemorated in the vernacular and scientific names of Parkinson's Petrel *Procellaria parkinsoni*. On Cook's third voyage on *HMS Resolution*, a converted collier, David Nelson and William Anderson collected vast numbers of living plants to bring back to Kew to create the world's finest botanical collection.

Edwin Rose, Univ. of Cambridge, explained how Banks and Daniel Solander used the Linnaean system of classification to record and classify natural history specimens. Solander had a system he had developed while working at the British Museum to manage the huge amount of information collected. Rose also described the transport of breadfruit plants from the Pacific, which when established were used to feed the workers in the Caribbean sugar plantations, as conflict prevented the supply of grain from America.

Preserving and transporting specimens in the early years brought its own challenges. Stanislav Strekopytov, of the Natural History Museum, recounted the evolution of preserving zoological specimens in spirit. For dry specimens, protection against insects was a pressing issue. A corrosive sublimate—mercury(II) chloride—was used at that time, and it continued to be used by taxidermists in Britain well into the 20th century.



1–3. Some the conference attendees at Knowsley Hall (Stephen Chapman)

4. Parkinson's Petrel *Procellaria parkinsoni*, by Joseph Smit, 1896, from *Catalogue of the birds in the British Museum*, vol. 25 (courtesy of Biodiversity Heritage Library)

5. At sea between the Auckland Islands and Campbell Island (© Tony Whitehead www.tonywhitehead.com)

The topic of preservation was picked up by Leslie Overstreet of the Smithsonian Libraries when she addressed *The (most important) books on the Beagle*. When it set sail in December 1831 on its second surveying voyage for the Royal Navy, *HMS Beagle* boasted a library of some 400 books on travel, exploration, natural history, navigation and related subjects, most belonging to Captain Robert Fitzroy. Naturalist Charles Darwin brought some of his own as well. Leslie showed that the two most important titles were small

booklets that illuminate Darwin's work as a practicing naturalist, collecting specimens and describing them in his letters and subsequent publications: the Paris Muséum National d'Histoire Naturelle's *Instruction pour les voyageurs...* (1818) and Patrick Syme's *Werner's nomenclature of colours* (1821). She said that methods of preserving and transporting specimens (dead or alive) were a crucial and sometimes controversial interest for naturalists during the centuries. From 1800 arsenical soap was widely used. This is reflected in the incredible number of such publications, particularly in the 19th century, as these activities became more 'institutionalised'. During much the same period, in their correspondence and publications, naturalists had begun trying to define colour terms used to identify and distinguish species, as well as the pigments used to illustrate them, initially by incorporating colour charts in their own books and eventually by establishing standards intended for widespread adoption.

Continuing the theme of skin preservation, the French ornithologist Jean-Baptiste Bécœur's (1718–77) father, was an apothecary. Bécœur studied pharmacy then devoted himself to natural history, studying mainly insects and birds. He developed a method that preserved bird specimens and prevented them from being damaged by insects. His efforts helped revolutionise the conservation of bird specimens and ornithology at the Paris museum. His method was based on arsenic, but he died without publishing the recipe of arsenical soap. It appeared again early in the 19th century. Bécœur's secret had been handed to François Levaillant (1753–1828), who sold the recipe together with his collection of birds, animals and plants to the French government in 1797.

Zoë Varley in her talk on *Robert Fitzroy: captain, collector and collaborator* emphasised the importance of Fitzroy's contribution to the overall success of the second voyage of the Beagle (of which he was captain), including the amassing of a distinct and largely overlooked zoological collection. The young and high-flying Fitzroy, who incidentally developed the instrument for accurately measuring barometric pressure, closely collaborated with Darwin in the task of collecting and documenting zoological specimens, which now largely reside at the Natural History Museum in London and Tring.

Edward Dickinson described how the French naturalist for the Paris museum, Alcide d'Orbigny, travelled extensively in South America between 1826 and 1833. He visited Brazil, Argentina, Paraguay, Chile, Bolivia, Peru, Ecuador and Colombia, and returned to France with an enormous collection of more than 10,000 natural history specimens. D'Orbigny wrote at length and brought major collections and exquisite drawings back to France. Several zoological and botanical taxa are named in his honour, including the Rusty-vented (or Creamy-breasted) Canastero *Asthenes dorbignyi*, a species of Furnariidae found in montane scrub in the Andes of Peru, Chile, Bolivia and north-west Argentina, and Grey-breasted Seedsnipe *Thinocorus orbignyianus*, which occurs in temperate grasslands in Argentina, Bolivia, Chile and Peru.

Robert Prýs-Jones's talk remained in the 19th century with a focus on how Wallace's Sarawak bird collection sheds light on the development of his ornithological knowledge. Alfred Russell Wallace spent eight years in the Malay Archipelago, visiting Sarawak, where he collected c.100 bird species, early in the trip and spending longer there (15 months) than anywhere else. Robert drew on Wallace's field notebook *Birds collected in Borneo* and his revealing annotations on the labels of his specimens to analyse the identification problems Wallace faced in the field, and how his ornithological knowledge and ability to identify the birds he collected evolved over time.

Carlo Bovolo of Fondazione Filippo Burzio, Turin, presented a paper that dealt with the Italian zoologist Filippo De Filippi (1814–67) and his diplomatic and exploratory endeavour for the Kingdom of Italy. Professor Filippi sailed on the corvette *Magenta* as scientific director on a three-year round-the-world voyage. He died in Hong Kong of hepatitis and his assistant Enrico Giglioli was left to publish their findings. De Filippi's or Masatierra Petrel *Pterodroma defilippiana*, a seabird in the family Procellariidae, endemic as a breeder to the Juan Fernández Islands, is named in his memory.

HMS Dryad, sister ship to *HMS Nymphe*, took Edwin Jennings, taxidermist, to the Auckland and Campbell Islands (see photo) in 1878, about the time that Joseph Hatch started exploiting seals and later penguins for fat and oil, so explained Rosi Crane. That said the final conference paper before the reviewer had to leave focused on 20th century natural history explorations made by museum staff aboard the New Zealand government *SS Hinemoa* and other steamships. Rosi Crane, Honorary Curator, History of Science at the Otago Museum in Dunedin, approached this by drawing on the specimens that have survived. Commercial and scientific interests were served by a series of ad hoc expeditions that benefitted museum collections until, in 1895 and 1903, staff carried out the first scientific dredging in New Zealand. Then in 1907 a major scientific expedition utilised the ship's services, setting up camp for the summer on Auckland and Campbell: Rosi's slides depicted the wholesale slaughter of Southern Elephant Seals *Mirounga leonina* for their oil, bringing the species to the verge of extinction at the end of the 19th century. At this point the sealers switched to catching and processing young penguins *Eudyptes* at Nuggets Point on Macquarie Island. This in turn had a devastating impact on their population. Such practices are outlawed today.

Stephen Chapman

Conclusion

The conference brought together a remarkably stimulating range of topics and styles of presentation. In addition to the papers highlighted by Stephen Chapman above, areas of enquiry ranged from the naming of Australian animals (Jack Ashby, *Contrary to the general laws of nature: Europe's earliest encounters with*

Australian animals), to Spruce's voyages in Amazonia and the Andes (Luciana Martins, *An ethnologist avant la lettre: Robert Spruce collecting in South America*) and Deborah Wace's artwork in response to the French D'Entrecasteaux scientific expedition to Recherche Bay, Tasmania in 1792–93 (Deborah Wace, *Art and history in the French garden at Recherche Bay*).

The whole event, including the behind-the-scenes tours of the World Museum's collections and the dinner at The Ship and Mitre, was a delightful reminder of the benefits of meeting with members of other societies dedicated to exploring and describing the natural world. The BOC's thanks go to all participants and the creative and indefatigable organisers, and in the hope of more collaboration with SHNH in the future.

Chris Storey

CORRIGENDA

In Sánchez *et al.* (*Bull. Brit. Orn. Cl.* 138: 93–100), Fig. 2 (p. 95) was incorrectly credited by the authors to Ariel A. Fonseca-Arce, but the photograph was taken by Javier Tenorio.

In reporting the discovery of Slate-crowned Antpitta *Grallaricula nana* in north-west Ecuador, Freile *et al.* (2018, *Bull. Brit. Orn. Cl.* 138: 141) erroneously asserted that Donegan (2008, *Bull. Brit. Orn. Cl.* 128: 150–178) had suggested that 'the population in the West Andes of north-central Colombia and the headwaters of the Magdalena Valley... might represent an unnamed subspecies, due to its vocal characters'. What Donegan (2008) actually suggested is that the population of this species from the head of the Magdalena Valley and from the *nudo de Pasto* (in the Colombian dptos. of Cauca, Huila, and on the east slope of the Andes in Nariño) is geographically continuous with the Central Andes / Ecuador / Peru population (*occidentalis*), but might show some intermediate characters in plumage and voice with subspecies *nana* of the East Andes. Donegan (2008) considered the head of the Magdalena Valley population to be unidentified to race, owing to a lack of materials. Moreover, Freile *et al.* (2018: 141) incorrectly claimed that Donegan (2008) 'curiously' included that population within the same 'putative subspecies' as a disjunct West Andes population. However, Donegan (2008: 151) instead elucidated 'small differences' in voice and plumage between the Colombian West Andes population (referred to therein as '*occidentalis*?') and race *occidentalis* (type locality in the Central Andes), suggesting (p. 161) that the former should be 'provisionally treated within *G. n. occidentalis*, but requires further investigation' as a possible undescribed subspecies. The West Andes population and head of the Magdalena Valley populations were treated separately in the text and some appendices of Donegan (2008: 174, 175). This does not affect the subspecific identification (*occidentalis*) of the Ecuadorian west slope population that Freile *et al.* (2018) discovered.

FORTHCOMING MEETINGS

See also BOC website: <http://www.boc-online.org>

BOC MEETINGS are open to **all**, not just BOC members, **and are free**.

Evening meetings are in **an upstairs room at The Barley Mow, 104 Horseferry Road, Westminster, London SW1P 2EE**. The nearest Tube stations are Victoria and St James's Park; and the 507 bus, which runs from Victoria to Waterloo, stops nearby. For maps, see http://www.markettaverns.co.uk/the_barley_mow.html or ask the Chairman for directions.

The cash bar opens at **6.00 pm** and those who wish to eat after the meeting can place an order. **The talk will start at 6.30 pm** and, with questions, will last c.1 hour.

Monday 12 November 2018 – 6.30 pm – Joe Tobias – The shape of birds, and why it matters.

Abstract: Birds vary widely in size from the Bee Hummingbird *Mellisuga helenae* to Common Ostrich *Struthio camelus*, and come in a staggering range of shapes. Last century, the field of ecomorphology began to shed light on the way birds are shaped by habitat preferences and foraging behaviour, but studies focused on relatively few species and left numerous gaps in understanding. This talk will explore recent research based on detailed measurements of almost all of the world's bird species, describing how this new influx of information has been combined with spatial, phylogenetic and ecological data to help answer some fundamental questions, such as how does bird diversity arise, and how can it best be conserved?

Biography: Joe Tobias studied the behaviour of the European Robin *Erithacus rubecula* for his Ph.D. at Cambridge University, then worked for ten years in environmental NGOs including BirdLife International, focusing on bird research and conservation projects in South-East Asia, Madagascar and the Neotropics. Returning to academia, he developed a research programme in evolutionary ecology and conservation

biology as a Lecturer at Oxford University, before taking up a Senior Lectureship at Imperial College London. His current research focuses on the evolution and conservation of avian diversity.

Friends of the BOC

The BOC has from 2017 become an online organisation without a paying membership, but instead one that aspires to a supportive network of Friends who share its vision of ornithology—see: <http://boc-online.org/>. Anyone wishing to become a Friend of the BOC and support its development should pay UK£25.00 by standing order or online payment to the BOC bank account:

Barclays Bank, 16 High Street, Holt, NR25 6BQ, Norfolk

Sort Code: 20-45-45

Account number: 53092003

Account name: The British Ornithologists' Club

Friends receive regular updates about Club events and are also eligible for discounts on the Club's Occasional Publications. It would assist our Treasurer, Richard Malin (e-mail: rmalin21@gmail.com), if you would kindly inform him if you intend becoming a Friend of the BOC.

The *Bulletin* and other BOC publications

From volume 137 (2017), the *Bulletin* of the BOC has become an online journal, published quarterly, that is available to all readers without charge. Furthermore, it does not levy any publication charges (including for colour plates) on authors of papers and has a median publication time from receipt to publication of six months. Prospective authors are invited to contact the *Bulletin* editor, Guy Kirwan (GMKirwan@aol.com), to discuss prospective submissions or look at <http://boc-online.org/bulletin/bulletin-contributions>. Back numbers up to volume 132 (2012) are available via the Biodiversity Heritage Library website: www.biodiversitylibrary.org/bibliography/46639#/summary; vols. 132–136 are available on the BOC website: <http://boc-online.org/>

BOC Occasional Publications are available from the BOC Office or online at info@boc-online.org. Future BOC-published checklists will be available from NHBS and as advised on the BOC website. As its online repository, the BOC uses the British Library Online Archive (in accordance with IZCN 1999, Art. 8.5.3.1).

An update on the inventory, distribution and residency status of bird species in Guatemala

by Knut Eisermann & Claudia Avendaño

Received 27 October 2017; revised 8 July 2018; published 24 September 2018

<http://zoobank.org/urn:lsid:zoobank.org:pub:9DB4CC8A-5A86-4DB7-A685-CEB77254B623>

SUMMARY.—We present an update on the status and distribution of birds in Guatemala relative to a previous summary (Eisermann & Avendaño 2007) and based upon a review of new published and unpublished records. During the period 2006 to 2017, 50 species were first documented in Guatemala. Another 11 species were reported for the first time but without verifiable documentation. Breeding was newly confirmed for 58 species. Noteworthy observations, including range extensions, are summarised for 131 species. The Guatemalan avifauna now comprises 758 species of which 23 lack documentation. Of the 758 species, 509 breed in Guatemala, 240 are non-breeding visitors, transients or vagrants, and the status of nine is uncertain.

Thorough avifaunal research in Guatemala began in the 19th century following independence, when travel and immigration were facilitated for foreigners. The most noteworthy ornithological collections were compiled by Velásquez de León, Adolphe Delattre, George Ure Skinner, Adolphe Boucard, Robert Owen, Juan & Cipriano Prado, Felipe Sierra, José Vicente Constancia, Arthur Morelet, Florent Prevost, Joseph Leyland, Osbert Salvin, Frederick DuCane Godman, Nathaniel Stickney Goss, William Wyld, Henry Hague, Gustav Bernoulli, Enrique Arcé, Georg C. Champion, William B. Richardson, Edward W. Nelson, Edward A. Goldman, Franz Sarg and numerous local hunters employed by these naturalists (reviewed in Eisermann & Avendaño 2006). The four volumes on birds in the *Biología Centrali-Americana*, compiled by Osbert Salvin and Fredrick DuCane Godman (Salvin & Godman 1879–87, 1879–1904, 1888–97, 1897–1904), represent the baseline of avifaunal knowledge in Guatemala. Additional collections by Dearborn (1907) and Alfred Webster Anthony laid the base for the second avifaunal compilation, Griscom's (1932) *Distribution of bird-life in Guatemala*. The first field guide to Guatemalan birds (Land 1970) additionally relied on collections by Wetmore (1941), van Tyne (1935), Saunders (1950), Tashian (1953), Taibel (1955), Baepler (1962), Smithe & Paynter (1963), Land (1962a,b, 1963) and Land & Wolf (1961). Little ornithological field research was carried out during the civil war in Guatemala that lasted for more than 30 years between the 1960s and 1990s (Howell & Webb 1992, Wendelken & Martin 1986, 1989, Dickerman 2007). Howell & Webb's (1995) field guide to Mexican and north Central American birds summarised knowledge of bird distribution to that date. Much of the avifaunal research in the 1990s and first years of the 21st century in Guatemala is unpublished, the results having been presented only in reports. Noteworthy data from this 'grey literature' were included in the last compilation on the Guatemalan avifauna by Eisermann & Avendaño (2006, 2007). In the early 21st century, noteworthy observations by Guatemalan ornithologists and birdwatchers, as well as by foreign visitors, became more readily accessible via the quarterly compilations of records in *North American Birds* (Jones 2002–2005, Jones & Komar 2007–15, Jones *et al.* 2016a,b) and the online database eBird (Sullivan *et al.* 2009), with some observations documented photographically. Here we provide an updated compilation on the distribution and

residency status of birds in Guatemala. A total of 725 bird species was reported for Guatemala up to 2006 (Eisermann & Avendaño 2007). Reports were hypothetical for 42 of these species, i.e. without specimen, photographic or audio documentation. Breeding had been reported for 380 species, and for an additional 107 species breeding was assumed but undocumented in the country. We present here new information for 215 species.

Methods

To identify changes to the status of Guatemalan bird species since the publication of *Lista comentada de las aves de Guatemala / Annotated checklist of the birds of Guatemala* (Eisermann & Avendaño 2007), we reviewed our own unpublished notes up to May 2018, as well as published records and online databases from the period 2005–17. Observations are the authors' own unless otherwise stated.

In the species accounts, a code in each subheading indicates the type of update: (A) first documented country record, (B) first report for the country without documentation, (C) first breeding record for Guatemala, (D) records representing range extensions or noteworthy records of rare species. Following these codes is another indicating the species' current status in Guatemala: R—breeding resident, r—resident, breeding suspected, RM—breeding resident, partially migratory, rm—resident, partially migratory, breeding suspected, RV—breeding visitor, rv—visitor, breeding suspected, V—non-breeding visitor; T—transient, vagM—migratory vagrant, vagR—non-migratory vagrant, H—hypothetical record (without verifiable documentation involving a specimen, photograph or voice recording), and ?—status uncertain.

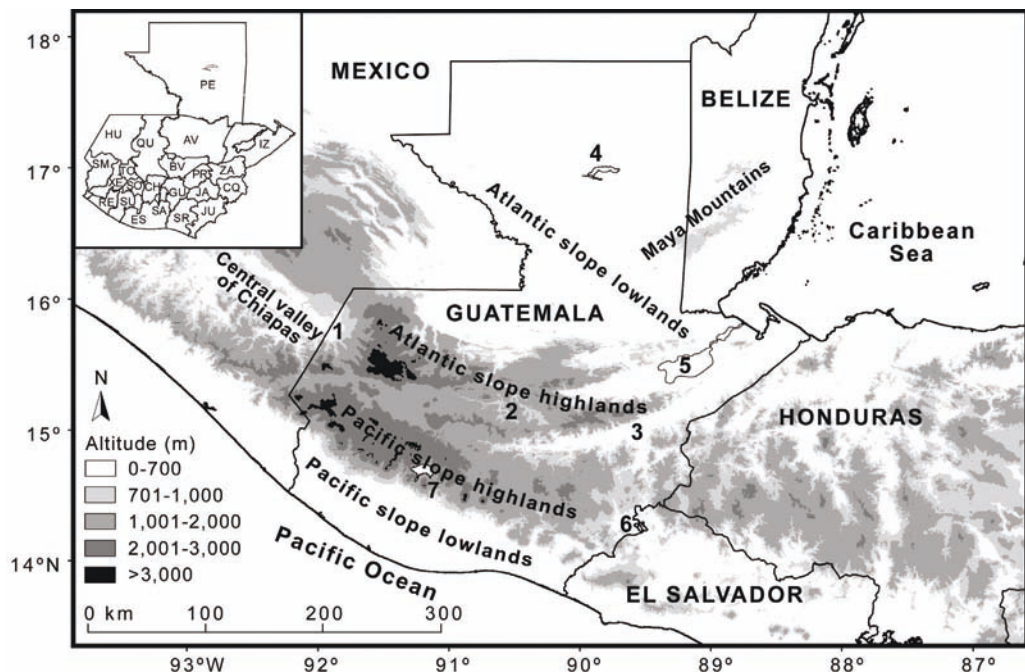


Figure 1. Map of Guatemala showing altitudinal zones and major geographic features. Interior valleys: 1—Nentón, 2—río Chixoy, 3—río Motagua. Major lakes: 4—Petén Itzá, 5—Izabal, 6—Güija, 7—Atitlán. The inset map shows the departments of Guatemala: AV—Alta Verapaz, BV—Baja Verapaz, CQ—Chiquimula, CH—Chimaltenango, ES—Escuintla, GU—Guatemala, HU—Huehuetenango, IZ—Izabal, JA—Jalapa, JU—Jutiapa, PE—Petén, PR—El Progreso, QU—Quiché, RE—Retalhuleu, SA—Sacatepéquez, SM—San Marcos, SO—Sololá, SR—Santa Rosa, SU—Suchitupéquez, TO—Tonicapán, XE—Quetzaltenango, ZA—Zacapa.

Fig. 1 shows the biogeographic units mentioned in the text. Geographic coordinates for all localities listed in the text appear in Appendix 1. Taxonomy and nomenclature follow AOU (1998) and supplements through 2017 (Chesser *et al.* 2017) with two exceptions. In the species complex Sharp-shinned Hawk *Accipiter striatus*, we include two taxa within our statistics—Sharp-shinned Hawk *A. striatus*, which is a winter visitor to Guatemala, and White-breasted Hawk *A. chionogaster*, which is a resident breeder in the highlands. In the species complex Yellow-rumped Warbler *Setophaga coronata sensu lato* we list three taxa: resident Goldman's Warbler *S. goldmani* and northern Myrtle *S. coronata* and Audubon's Warblers *S. auduboni*, which are both winter visitors to Guatemala. We used software ESRI ArcView 3.2 to conduct spatial analyses. Ornithological collections mentioned in the text: AMNH—American Museum of Natural History, New York; DMNH—Delaware Museum of Natural History, Wilmington, DE; FMNH—Field Museum of Natural History, Chicago; LACM—Natural History Museum of Los Angeles County, MCZ—Museum of Comparative Zoology, Harvard University, Cambridge, MA; MVZ—Museum of Vertebrate Zoology, Berkeley, CA; NHMUK—Natural History Museum, Tring, UK; USNM—National Museum of Natural History, Smithsonian Institution, Washington DC; UWBM—University of Washington Burke Museum, Seattle, WA; and WFVZ—Western Foundation of Vertebrate Zoology, Camarillo, CA.

Species accounts

FULVOUS WHISTLING DUCK *Dendrocygna bicolor* (D; rm)

Pantropical and has recently colonised Central America (Carboneras & Kirwan 2017). First reported in Guatemala by hunters in the early 1950s at Laguna de Retana, dpto. Jutiapa (Tashian 1953) and in the 1970s at Laguna de Ayarza, dpto. Santa Rosa and Lago de Güija, dpto. Jutiapa (Thurber *et al.* 1987). Subsequently, also reported from Lago Amatitlán, dpto. Guatemala, near Tilapa, dpto. San Marcos (including the first documented country record by J. Berry in July 2001), and Monterrico, dpto. Santa Rosa (Eisermann & Avendaño 2007). Most records in winter, including concentrations (>5,000) of presumed migrants at Lago de Güija in 2001–02 (Eisermann & Avendaño 2007). Breeds in El Salvador (Gómez Ventura & de Mendoza 1982, Thurber *et al.* 1987) and Honduras (Monroe 1968). We suspect breeding in Guatemala based on summer records at Lago de Güija (Thurber *et al.* 1987) and three seen in July 2000 (Eisermann & Avendaño 2007) and 15 on 4 July 2015 near Manchón-Guamuchal, dpto. Retalhuleu.

CINNAMON TEAL *Spatula cyanoptera*

(A, D; vagM)

Rare in Central America but reported with increasing frequency since 2011 (Jones & Komar 2012b, 2013c, 2015a). First listed by Land (1970) without details. Unreported again until one at Finca Cataluña, dpto. Retalhuleu, in December 2010 (Jones & Komar 2011c). A male photographed in Manchón-Guamuchal on 1–2 February 2016 (Fig. 2) is the first documented record.



Figure 2. Male Cinnamon Teal *Spatula cyanoptera* with male Blue-winged Teal *S. discors*, Manchón-Guamuchal, dpto. Retalhuleu, 1 February 2016 (Knut Eisermann)

NORTHERN SHOVELER *Spatula clypeata* (D; V)

Most reports from the Pacific slope (Howell & Webb 1995) but records from Atlantic lowlands and foothills including a male photographed in Sayaxché, dpto. Petén, on 15 December 2011, three near El Estor on Lago Izabal, dpto. Izabal, on 13 December 2012 (J. Berry pers. comm.) and several records including 35 on 6 February 2012 and 19 on 22 January 2015 in San Cristóbal Verapaz, dpto. Alta Verapaz (J. Cahill & J. Kvarnäck, eBird S9784290, S21498308) demonstrate it can be expected throughout the country.

GADWALL *Mareca strepera* (A; vagM)

Rare winter visitor. Four seen at Reserva Natural Privada Finca AA, dpto. Petén, in February 2014 (Jones & Komar 2015a) were the first report. Six photographed in Manchón-Guamuchal, dpto. Retalhuleu, on 22 January 2016 (J. Cahill, eBird S27376429) were the first documented record. A record from the Atlantic slope highlands near San Cristóbal Verapaz, dpto. Alta Verapaz, on 21 November 2016 (J. Cahill, eBird S32678207) shows it can be expected throughout the country.

AMERICAN WIGEON *Mareca americana* (D; V)

Rare winter visitor. Recent records from the Atlantic slope lowlands include the delta of the río Polochic, dpto. Izabal, in December 2012 (Jones & Komar 2013d), ten near Puerto Barrios, dpto. Izabal, on 1 February 2015 (Jones *et al.* 2016a), five at Laguna Lachúa, dpto. Alta Verapaz, on 4 January 2014 (J. Cahill, eBird S16244242) and repeated records in San Cristóbal Verapaz, dpto. Alta Verapaz, since November 2012 (J. Cahill, eBird, S25997735, S12070044) indicate that it can be expected throughout the country

GREEN-WINGED TEAL *Anas crecca* (D; vagM)

Rare visitor first reported by Saunders (1950) from coastal marshes in dpto. Santa Rosa and subsequently by Tashian (1953) at Laguna de Retana, dpto. Jutiapa. The first documented record was a male photographed at Lago de Güija, dpto. Jutiapa (Pineda *et al.* 2006) where another was seen in December 2012 (Jones & Komar 2013d). Other records include a male photographed in Manchón-Guamuchal, dpto. Retalhuleu, in December 2009 (Jones & Komar 2010c), with ten in December 2012 (Jones & Komar 2013d), five in December 2014 (Jones *et al.* 2016a) and at least three there on 2 February 2016. A pair photographed in the Atlantic highlands at San Cristóbal Verapaz, dpto. Alta Verapaz, on 4 February 2012 (Jones & Komar 2012b) shows that it may occur throughout the country.

CANVASBACK *Aythya valisineria* (D; vagM)

Rare winter visitor. Two females at Lago Amatitlán, dpto. Guatemala, on 16 December 2014 (L. Trujillo, eBird S39129718, photo ML68605761) was the first since an historical record of an immature male taken in San Miguel Dueñas, dpto. Sacatepéquez (Salvin 1866).

REDHEAD *Aythya americana* (A, D; vagM)

Rare winter visitor. A female photographed at El Remate, Lago Petén Itzá, dpto. Petén, in December 2011 (Jones & Komar 2012b) was the first documented record. Records from Lago Atitlán, dpto. Sololá, in March and December 2011 (Jones & Komar 2011d, 2012b), Lago de Güija, dpto. Jutiapa, in December 2012 (Jones & Komar 2013d), San Cristóbal Verapaz, dpto. Alta Verapaz, in November 2014 (Jones & Komar 2015d) and a pair photographed at El Golfete, dpto. Izabal, on 17 December 2015 (M. Ovando, eBird S26351267) reveal that it may occur throughout the country.

RING-NECKED DUCK *Aythya collaris* (D; V)

Uncommon but regular and widespread visitor. Recent records include nine at Lago Atitlán, dpto. Sololá, in December 2009 (Jones & Komar 2011c), with 42 there in March 2011 (Jones & Komar 2011d), three in the delta of the río Polochic, dpto. Izabal, in March 2012 (Jones & Komar 2013a), two in Cobán, dpto. Alta Verapaz, on 6 November 2014 (J. Cahill & R. Botzoc, eBird S20682632), nine in San Cristóbal Verapaz, dpto. Alta Verapaz, in November 2012 (Jones & Komar 2013d) with four there on 8, 16 and 26 November 2014 (J. Cahill & K. Vande Vusse, eBird S20756577, S20754714, S21333654, S20688709), and 20 at Lago Petén Itzá, dpto. Petén, in December 2011 (Jones & Komar 2012b) with 26 there in December 2012 (Jones & Komar 2013d) and six on 21 March 2013.

MASKED DUCK *Nomonyx dominicus* (D; R)

Rarely reported due to its cryptic behaviour and very local distribution. Two were seen near El Ramonal, dpto. Petén, on 13 December 2010 (K. Easley pers. comm.).

RUDDY DUCK *Oxyura jamaicensis* (D; RM)

Local winter visitor but also breeds at Lago Atitlán, dpto. Sololá, where adults with juveniles were seen in July–September 2011 (Escobar Anleu 2012), and at Laguna Chichoj, San Cristóbal Verapaz, dpto. Alta Verapaz, where adults with juveniles were seen in October 2011 and August 2012 (Jones & Komar 2012a, 2013c).

PLAIN CHACHALACA *Ortalis vetula* (D; R)

Common in the Atlantic slope lowlands and foothills below 1,500 m, but rarely reported above 2,000 m (Eisermann & Schulz 2005, Renner *et al.* 2006). At Reserva Natural Privada Chelelhá, dpto. Alta Verapaz, it has been seen to 2,200 m. A nest with three eggs found there on 3 June 2015 at 2,050 m (Fig. 3) is the first documented high-elevation nesting record.



Figure 3. Nest of Plain Chachalaca *Ortalis vetula* in Reserva Natural Privada Chelelhá, dpto. Alta Verapaz, at 2,050 m, 3 June 2015: (a) lateral view showing nest in tree-fern, the white arrow indicating the bill of an incubating adult; (b) clutch of three eggs in centre of tree-fern (Knut Eisermann)

HIGHLAND GUAN *Penelopina nigra* (D; R)

Considered Vulnerable (IUCN 2017). Recent records in Guatemala were compiled by González-García *et al.* (2001), Eisermann *et al.* (2006) and Eisermann & Avendaño (2007). New site records were established in dptos. San Marcos, Quetzaltenango, Suchitepéquez, Sololá, Chimaltenango, Sacatepéquez, Quiché, Alta Verapaz, Baja Verapaz and Huehuetenango as follows.

- Dpto. San Marcos: four on 14 August 2009, three on 1 March 2010, two each on 16 March 2011 and 11 February 2012 at Refugio del Quetzal, 4 km east of San Rafael Pie de la Cuesta, with a female on 16 January 2011 and an active nest on 28 March 2015 (O. Bravo pers. comm.) at Unión Reforma, a male at Vega del Volcán on 31 March 2015, and several observations at Finca Dos Marías (Cooper 2003).
- Dpto. Quetzaltenango: singles at Volcán Siete Orejas on 7 January 2011 and 7 December 2014, three at Loma Linda on 11 January 2011, one at Volcán Chicabal on 23 August 2000 (J. Berry, eBird S5105738) and also mentioned for Volcán Lacandón (Tenez 2005).
- Dpto. Suchitepéquez: one at Finca Las Nubes on Volcán Santo Tomás on 16 August 2009.
- Dpto. Sololá: one at Volcán San Pedro on 4 March 2007 (A. Jaramillo, eBird S23689016), at least one at Volcán Tolimán on 24 February 2001 (P. Kaestner pers. comm.), one at Cerro Paquisís on 12 November 2015 (M. Ovando, eBird S25806123), one near Panajachel on 30 March 2015 (M. Rodríguez, eBird S22637732), one at Cerro Chuiraxamoló on 30 July 2015 (E. Buchán, eBird S25151196) and mentioned for Cerro Iquitiú (Valdez *et al.* 1999).
- Dpto. Chimaltenango: a male at Cerro Tecpán on 3 January 2006.
- Dpto. Sacatepéquez: four at Volcán Acatenango on 5 January 2011, one at Cerro El Hato on 14 March 2015 (T. Mitzén, eBird S22479635) and one at Finca Filadelfia on 25 February 2006 (A. Jaramillo, eBird S23688647).
- Dpto. Quiché: Cerro El Amay (Eisermann *et al.* 2013), three 2 km east of Acul on 21 March 2017 (L. Wright, eBird S35613494) and one 8 km east of Chajul on 9 May 2017 (S. Rosales, eBird S37120112).
- Dpto. Alta Verapaz: first report at Montaña Xucaneb, one on 12 June 2010 in Finca Rubel Chahim (J. Cahill, eBird S8631435), first report for Finca Las Nubes, 8 km south-east of Cubilhuiz, one on 11 March 2012 (J. Cahill, eBird S10159044), first report for Finca Chajbaoc, one on 3 April 2007 (M. Noack, eBird S14625886), with three males at Finca La Aurora on 10 August 2017.
- Dpto. Baja Verapaz: one in Reserva Sachut, 4 km east of Purulhá, on 8 August 2017, and one in Reserva Natural Privada Santa Rosa y Llano Largo on 7 August 2017.
- Dpto. Huehuetenango: two males 2 km south of Yalambojoch on 12 April 2017, two 6 km north-east of Barillas on 7 May 2017 (M. Ramírez, eBird S36887805) and one in Chaculá on 3 February 2015.

Records in Guatemala are from 500–3,000 m, with most above 1,000 m. A female seen at 500 m near Coatepeque, dpto. Quetzaltenango, on 26 April 2014 was vocalising excitedly (M. Rodríguez pers. comm.), perhaps indicating the presence of dependent young. This is the lowest-elevation record in Guatemala. Based on records from the past 30 years, Highland Guan is widespread in humid foothill and highland forest on the Atlantic slope including the foothills of the Sierra Los Cuchumatanes, greater Sierra de Chamá (including Cerro El Amay, Montañas Sacranix, Xucaneb, Caquipec and Yalijux), Sierra de las Minas, and in the Pacific volcanic highlands. With records from, for example, different sites on Volcán Atitlán pooled as a single topographic unit, Highland Guan has been reported from a total of 57 sites in Guatemala.

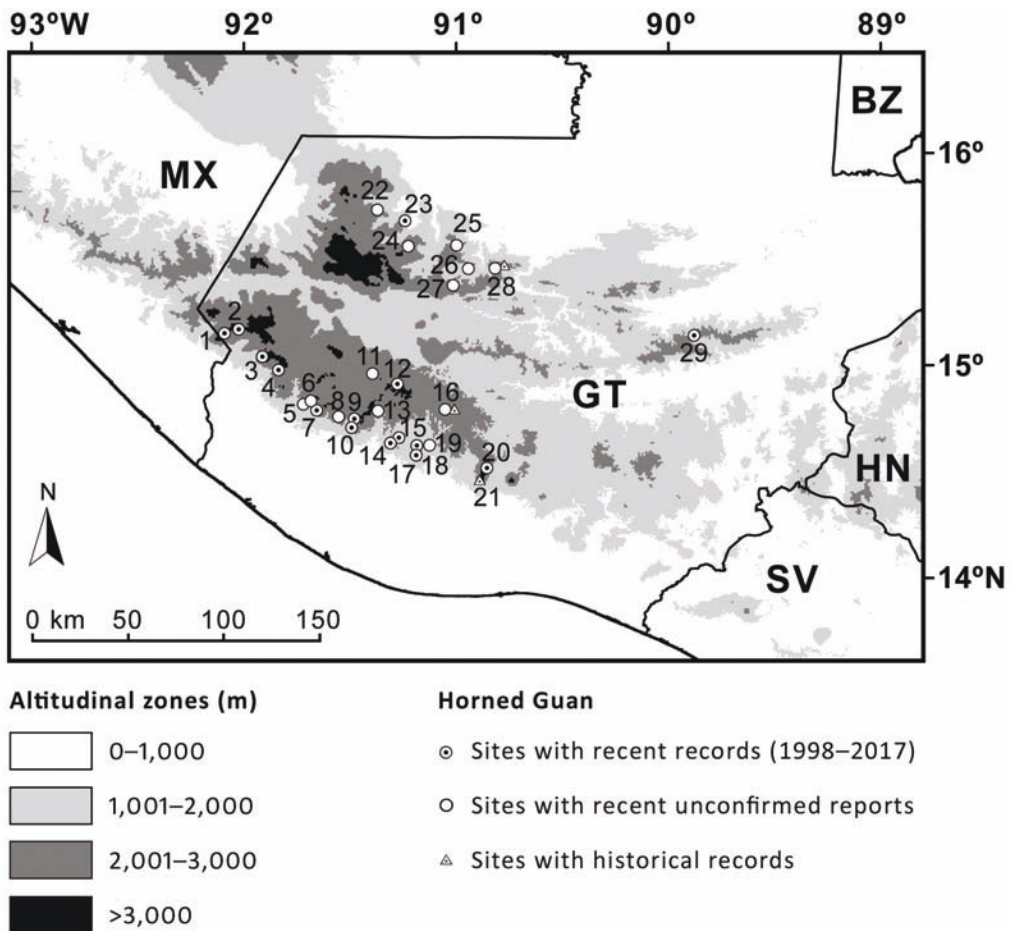


Figure 4. Distribution of Horned Guan *Oreophasis derbianus* in Guatemala, including sites with recent records, unconfirmed reports, and historical records (see text for references). Sites: 1 = Volcán Tacaná, dpto. San Marcos, 2 = Sibinal, dpto. San Marcos, 3 = Volcán Tajumulco, dpto. San Marcos, 4 = Parque Regional Municipal de San Marcos, dpto. San Marcos, 5 = Volcán Lacandón, dpto. Quetzaltenango, 6 = Cerro La Campana, dpto. Quetzaltenango, 7 = Volcán Chicabal, dpto. Quetzaltenango, 8 = Volcán Santa María, dpto. Quetzaltenango, 9 = Parque Regional Municipal Zunil including Fuentes Georginas, dpto. Quetzaltenango, 10 = Volcán Santo Tomás, dpto. Quetzaltenango, 11 = cloud forest patches north of Totonicapán, dpto. Totonicapán, 12 = Parque Regional Municipal Los Altos de San Miguel Totonicapán, dpto. Totonicapán, 13 = Santa Catarina Ixtahuacán, dpto. Sololá, 14 = Cerro Panán/Paquisís, dpto. Sololá, 15 = Volcán San Pedro, dpto. Sololá, 16 = Cerro Tecpán, dpto. Chimaltenango, 17 = Volcán Atitlán, dpto. Sololá, 18 = Volcán Tolimán, dpto. Sololá, 19 = Cerro Iquitiú, dpto. Sololá, 20 = Volcán Acatenango, dpto. Sacatepéquez, 21 = Volcán Fuego, dptos. Chimaltenango, Escuintla and Sacatepéquez, 22 = Cerro Yaxcalanté, dpto. Huehuetenango, 23 = Cerro Cruz Maltín, dpto. Huehuetenango, 24 = cloud forests north of Nebaj, dpto. Quiché, 25 = cloud forests north-east of Chajul, dpto. Quiché, 26 = cloud forest east of San Juan Cotzal, dpto. Quiché, 27 = cloud forest north of Cunén, dpto. Quiché, 28 = Cerro El Amay, dpto. Quiché, 29 = Sierra de las Minas, dptos. El Progreso, Zacapa, Izabal and Alta Verapaz. Country codes: BZ = Belize, GT = Guatemala, HN = Honduras, MX = Mexico, SV = El Salvador.

HORNED GUAN *Oreophasis derbianus* (D; R)

Considered Endangered (IUCN 2017). Reliably recorded at 15 sites in Guatemala during the period 1998–2017 (Fig. 4), most ($n = 13$) in the Pacific slope highlands, with two from the Atlantic slope highlands. Pacific reports include Volcán Acatenango, dpto. Sacatepéquez (Véliz Pérez 2000, Rivas Romero 2006a), Volcán Tolimán, dpto. Sololá (Méndez 2000), Volcán

Atitlán, dpto. Sololá (Rivas Romero 2006a, Eisermann *et al.* 2007), Volcán San Pedro, dpto. Sololá (Rivas Romero 2006a, 2008), Cerro Panán / Paquisís, dpto. Sololá (Rivas Romero 2006a), Parque Regional Municipal Los Altos de San Miguel Totonicapán, dpto. Totonicapán (Rivas Romero 2006a), Volcán Santo Tomás and the adjacent Parque Regional Municipal Zunil including Fuentes Georginas, dpto. Quetzaltenango (Brooks & Gee 2006), Volcán Tacaná, dpto. San Marcos (Cóbar Carranza & Rivas Romero 2005), where an adult was photographed at Vega del Volcán on 29 August 2014 at 2,750 m, one sound-recorded on 31 March 2015 and two adults photographed on 28 June 2015, Sibinal, dpto. San Marcos (Cóbar Carranza & Rivas Romero 2005), where one was heard at Unión Reforma on 1 February 2012, an adult photographed on 27 March 2015 and one on 30 June 2015, Parque Regional Municipal de San Marcos, dpto. San Marcos (Cóbar Carranza & Rivas Romero 2005), five photographed at Volcán Tajumulco on 7 October 2015 (C. López, eBird S25331529) and one at Volcán Chicabal, dpto. Quetzaltenango, on 18 August 2016 (C. Rivera, eBird S31433816).



Figure 5. Juvenile Horned Guan *Oreophasis derbianus*, c.2 weeks old, Volcán Atitlán, dpto. Sololá, 18 March 2007 (Knut Eisermann)

Atlantic slope reports are from the Sierra de las Minas in dptos. El Progreso, Zacapa, Izabal and Alta Verapaz (Rivas Romero & Cóbar Carranza 2005, Quiñónez-Guzmán *et al.* 2017). An adult photographed at Cerro Cruz Maltín east of Soloma, dpto. Huehuetenango, in 2010 (Cotí Lux 2010), confirms historical reports (Baepler 1962) from the site.

At three more sites, two on the Pacific slope and one in the Atlantic slope highlands, Horned Guan has been recorded historically but not recently: Cerro Tecpán, dpto. Chimaltenango (Griscom 1932, Carriker & Meyer de Schauensee 1935), Volcán Fuego, dptos. Chimaltenango, Escuintla and Sacatepéquez (Salvin & Sclater 1860a) and Cerro El Amay, dpto. Quiché (Salvin 1874, Eisermann *et al.* 2013).

Horned Guan may occur at 13 additional sites based on reports by local people (Cóbar Carranza & Rivas Romero 2005, Rivas Romero 2006a,b, Eisermann & Avendaño 2007, Rivas Romero & Cóbar Carranza 2007, Eisermann *et al.* 2013), which require verification (Fig. 4).

Breeding reported at just six sites. At Volcán Tolimán two nests were found in March and May 2000 (Méndez 2000). At Volcán Atitlán nesting was reported in Reserva Natural Privada Los Tarrales in 2005 (Eisermann *et al.* 2007). At the same site, a pair with two c.2-week-old juveniles were photographed on 18 March 2007 (Fig. 5), an adult with two one-week-old juveniles on 18 March 2011 (G. López & KE pers. obs.) and an adult with small young hidden in leaf litter on the forest floor on 4 April 2012 (G. López pers. comm.). At Volcán San Pedro, two juveniles were observed in September 2007 (J. Rivas *in* BirdLife International 2012), and at Sierra de las Minas an adult was seen with two 2–3 month-old juveniles in August 2009 (Quiñónez-Guzmán 2011). At Unión Reforma, dpto. San Marcos, a nest was found in 2008 (V. Bravo pers. comm.) and a juvenile was seen at Vega del Volcán on the slopes of Volcán Tacaná in April 2017 (R. Bartolón pers. comm.).

NORTHERN BOBWHITE *Colinus virginianus* (D; r)

Long known in Guatemala from a single female collected in the poorly surveyed Nentón area in dpto. Huehuetenango in 1895 (Nelson 1897). Thereafter, unrecorded for more than

115 years. New records show it is fairly common there: four heard near Nentón in July 2012 (Jones & Komar 2013b), five 2 km north of Chacaj on 28 April 2015, two 3 km north of Chacaj on 30 January 2016, four 7 km north of Nentón on 29 April 2015 (Fig. 6), two at Finca El Carmen on 22 April 2017, with two sound-recorded there on 2 June 2017, two 2 km east of Unión on 2 June 2017 and two at Chaculá on 23 April 2017. All records are from the Nentón Valley, but it might also occur in open landscapes in the Pacific coastal lowlands, while deforestation in north-west dpto. Petén may induce the species to expand there from adjacent Tabasco, Mexico. We assume it is a resident breeder in the Nentón Valley, but nesting has not been reported.



Figure 6. Pair of Northern Bobwhite *Colinus virginianus*, north of Nentón, dpto. Huehuetenango, 29 April 2015 (Knut Eisermann)

BLACK-THROATED BOBWHITE *Colinus nigrogularis* (D; R)

Long known only from historical records in La Libertad in south-west dpto. Petén and at Lago Petén Itzá, dpto. Petén (van Tyne 1935, Taibel 1955). Recent records are from open landscapes north-east and south-east of Lago Petén Itzá including at least 20 seen 25 km north of Dolores, dpto. Petén, in December 2012 (Jones & Komar 2013d), 5 km north of El Remate, dpto. Petén (Jones & Komar 2014a), near Santa Ana, Ixpanajul, dpto. Petén (Jones & Komar 2015c) and 27 km north-east of Dolores, dpto. Petén (Jones *et al.* 2016b).

OCELLATED QUAIL *Cyrtonyx ocellatus* (D; R)

Considered Vulnerable (IUCN 2017). Eitniear & Eisermann (2009) summarised the known distribution in 2008. Recent records including several from new sites as follows: Finca Filadelfia, dpto. Sacatepéquez and Volcán San Pedro, dpto. Sololá (Jones & Komar 2010b), Finca Rubel Chahim, dpto. Alta Verapaz (Jones & Komar 2011d), Reserva Natural Privada Santa Rosa y Llano Largo, dpto. Baja Verapaz (Jones & Komar 2015d), one sound-recorded near Tochatzé, Volcán Tacaná, dpto. San Marcos, on 2 February 2011 and one on the same volcano in Parque Regional Municipal Canjulá on 2 February 2012, with two near La Haciendita on 28 August 2014, a male at Volcán Siete Orejas, dpto. Quetzaltenango, on 14 May 2012, two calling on 28 February 2013 and one on 15 April 2013 near Parque Ecológico Corazón del Bosque, Novillero, dpto. Sololá, one heard at Cerro Tecpán, dpto. Chimaltenango, on 12 May 2012, confirming historical reports from the site (Dearborn 1907), two heard at 3,750 m on 12 April 2016, four on 3 June 2016, two seen on 2–3 July 2016, two on 27 August 2016, four on 24 April 2017 and one on 10 May 2017 in Parque Regional Municipal Todos



Figure 7. Two-day-old Ocellated Quail *Cyrtonyx ocellatus* chick, Montaña de Carmona, dpto. Sacatepéquez, 30 June 2017 (Knut Eisermann)

Santos Cuchumatán, dpto. Huehuetenango, three heard in Chiabal, dpto. Huehuetenango, on 28 April 2016, three photographed at Montaña de Carmona, dpto. Sacatepéquez, on 29 July 2016, a male seen in Parque Regional Municipal de San Marcos, dpto. San Marcos, on 14 May 2016 (E. O. Díaz, eBird S29700382) and a female photographed 2 km east of Chajul, dpto. Quiché, on 1 September 2016 (eBird S31563003).

Breeding records include a chick estimated to be *c.*2 weeks old photographed in Finca Rubel Chahim, dpto. Alta Verapaz, on 20 May 2015 (J. Cahill, eBird S23594215), a nest with six eggs at Montaña de Carmona, dpto. Sacatepéquez, on 16 June 2017 (J. Antonio pers. comm.) and a two-day old chick photographed there on 30 June 2017 (Fig. 7), and five recently fledged chicks photographed in Chiabal, dpto. Huehuetenango, on 18 July 2017 (E. Matías pers. comm.). These records suggest that nesting occurs during the first half of the wet season (April–July). In total, Ocellated Quail is reported from 31 topographic units at 1,200–3,750 m.

WHITE-CROWNED PIGEON *Patagioenas leucocephala* (A; V)

Breeds on Caribbean islands including the Belize Cays and Bay Islands off Honduras, but rarely reported from the Central American mainland. Following multiple observations of adults and immatures in mangroves at Punta de Manabique Wildlife Refuge, dpto. Izabal, during October 2000 to April 2001 (Eisermann 2003), one photographed near Yaxhá, dpto. Petén, on 8 April 2017 (G. Gonzales, eBird S35873329, photo ML54152661) was the first documented record.

EURASIAN COLLARED DOVE *Streptopelia decaocto* (A, C, D; R)

An Old World species introduced to the New World in the 1970s, and now expanding across North America including Mexico (Romagosa 2012). Recently established on the Yucatán Peninsula and in northern Belize (Jones & Komar 2015b). Records from San Benito, Santa Elena and La Libertad in central dpto. Petén since June 2014 (Jones & Komar 2015c,d, Jones *et al.* 2016a,b) indicate it is now established and common there, e.g. 55 in San Benito on 17 December 2016 (C. Echeverría, eBird S33052809). Display flights observed in San Benito on 18 March 2016 and one collecting nest material in San Miguel on 24 February 2017 (J. Dangel, eBird S34777998) confirm breeding. Singles at Uxactún, northern dpto. Petén, in April 2015, and at La Corona archaeological site in May 2015 (Jones *et al.* 2016b). One near Tulumajillo, dpto. El Progreso, on 23 February 2015 (M. Rodríguez pers. comm.) was the first record in the río Motagua Valley, and one photographed in Panajachel, dpto. Sololá, on 9 March 2016 (M. E. Chocoy, eBird S28652083) was the first record for the department. Records from the Pacific coast include one photographed in Manchón-Guamuchal, dpto. Retalhuleu, on 26 January 2017 (M. Rodríguez, eBird S33945751), one photographed in Puerto Quetzal, dpto. Escuintla, on 6 January 2017 (M. Ovando, eBird S33477941) and one photographed in Monterrico, dpto. Santa Rosa, on 13 May 2017 (E. Alvarez, eBird S36862356). Eurasian Collared Dove has colonised Guatemala from north to south in just three years and it can now be expected in open and urban habitats throughout the country.

PLAIN-BREASTED GROUND DOVE *Columbina minuta* (D; R)

Formerly thought to be locally distributed (Howell & Webb 1995, Eisermann & Avendaño 2007), but many new site records in the Atlantic slope lowlands and it is perhaps increasing with deforestation. In dpto. Alta Verapaz: a pair in Chiquibul in July 2007 (Jones & Komar 2008a), a pair 7 km north-east of Tukurú at 700 m on 12 April 2008, three south of Panzós on 7 October 2012, one sound-recorded south-east of Panzós on 10 October 2012, three near Mucbilhá in June 2014 (Jones & Komar 2015c); dpto. Izabal: three at Sierra del Caral in June

2014 (Jones & Komar 2015c), one photographed at Hacienda Tijax on 23 October 2014 with two there on 28 December 2014; dpto. Petén: one 7 km south-west of San Andrés at west end of Lago Petén Itzá (Jones & Komar 2013d), one at the río Sacluc, 7 km south-west of Paso Caballo, Parque Nacional Laguna del Tigre, on 14 April 2013, and one 25 km north of San Andrés in July 2013 (Jones & Komar 2014b). Records in Guatemala range from sea level to 700 m and the species is widespread in deforested areas of the humid lowlands and foothills.

MAROON-CHESTED GROUND DOVE *Claravis mondetoura* (D; R)

Rare, sporadically reported, and thought to be closely associated with seeding bamboo (Stiles & Skutch 1989, Howell & Webb 1995). It can be expected throughout the humid highlands of Guatemala, where it has been reported from 11 sites on the Pacific slope and four on the Atlantic slope. Pacific slope records include Volcán Tolimán, dpto. Sololá (Griscom 1932), Volcán Fuego in dptos. Escuintla, Chimaltenango and Sacatepéquez (Salvin & Godman 1897–1904), one at Volcán Chicabal, dpto. Quetzaltenango, on 1 November 2000 (J. Berry pers. comm.), two at Fuentes Georginas, dpto. Quetzaltenango, on 28 July 2001 (J. Berry pers. comm.), an active nest at Volcán Atitlán in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, at 1,400 m, in late February–early March 2010 (J. de León Lux pers. comm.) with one heard there on 10 April 2014, a male on Volcán San Pedro, dpto. Sololá, in October 2010 (Jones & Komar 2011b), a pair seen and sound-recorded at 3,100 m on 11 April 2012, three males heard and seen at 3,200 m on 14–15 May 2012, three males heard on 16 April 2013 and two on 19 April 2017 at Volcán Siete Orejas, dpto. Quetzaltenango, a female seen at Finca El Pilar, dpto. Sacatepéquez, in January 2014 (Jones & Komar 2015a), one in Finca Filadelfia, dpto. Sacatepéquez, on 25 February 2006 (A. Jaramillo, eBird S23688647), three heard at 3,150 m on 28 August 2014 and a male photographed on 29 March 2015 near La Haciendita on Volcán Tacaná, dpto. San Marcos, and two heard at Volcán Pacaya, dpto. Escuintla, in June 2013 (Jones & Komar 2014b). Atlantic slope records are from north of Usumatlán, dpto. Zacapa, at Sierra de las Minas (Land 1962a), singles sound-recorded at 1,200 m at Montaña Sacranix, dpto. Alta Verapaz, on 24 August 2003, and in Reserva Natural Privada Santa Rosa Llano Largo, near Purulhá, dpto. Baja Verapaz, in July 2015 (Jones *et al.* 2016b), and a male seen in Biotopo del Quetzal, dpto. Baja Verapaz, on 3 December 2016 (E. Buchán pers. comm.). Guatemalan records are from elevations of 1,200–3,200 m.

CARIBBEAN DOVE *Leptotila jamaicensis* (A, D; r)

Endemic to the Caribbean region and Yucatán Peninsula where most records are from coastal areas and islands (Howell & Webb 1995). Reports from Biotopo Dos Lagunas and / or Biotopo San Miguel La Palotada–El Zotz, dpto. Petén, in 1988–92, by Whitacre & Thorstrom (1992) lack documentation. The first documented record for Guatemala (sound-recordings) was made in El Tintal, dpto. Petén, on 2–3 March 2008 (Budney *et al.* 2008, Jones & Komar 2008d).



Figure 8. Caribbean Dove *Leptotila jamaicensis*, dpto. Petén: (a) río Sacluc, 7 km south-west of Paso Caballo, 16 May 2013; (b) Tikal, 29 April 2017 (Knut Eisermann)

At least eight were seen and sound-recorded along 3 km of the río Sacluc 7 km south-west of Paso Caballo, dpto. Petén, in the south-east of Parque Nacional Laguna del Tigre, on 23 March 2013, with two recorded there on 14, 16 and 17 May 2013 (Fig. 8a). Two were sound-recorded at the río San Pedro 10 km west of Paso Caballo on 15 May 2013. One was heard 1 km east of Paso Caballo, and two were 4 km south-east of Paso Caballo on 24 March 2013. In Tikal, dpto. Petén, lone birds were photographed and sound-recorded on 3 April 2017 and 28–29 April 2017 (Fig. 8b). These records suggest that the south-eastern section of Parque Nacional Laguna del Tigre hosts a population and that the mainland distribution extends well inland and >100 km further south than previously known (Howell & Webb 1995). We presume that Caribbean Dove breeds in Guatemala, but nesting has not been reported.

WHITE-WINGED DOVE *Zenaida asiatica* (D; R)

Formerly restricted to southern Guatemala (Eisermann & Avendaño 2007) but has expanded in recent decades and is now common in deforested parts of dpto. Petén, including around Lago Petén Itzá and the south of Parque Nacional Laguna del Tigre (Eisermann & Avendaño 2007). New site records include the east shore of Lago Izabal near Boca Ancha, dpto. Izabal, on 6 February 2015 (M. Ramírez, eBird S21700099), one at Rocjá Pomtilá, dpto. Alta Verapaz, in November 2009 (Jones & Komar 2010c) and one at Finca Chajbaoc, dpto. Alta Verapaz, on 13 June 2016 (M. Noack, eBird S23889585). These reports document further expansion over the Atlantic slope lowlands and foothills, and suggest that the species can now be expected throughout the country.

MOURNING DOVE *Zenaida macroura* (C; RM)

Mainly a non-breeding winter visitor to Guatemala, but summer records have long suggested it may breed locally (Eisermann & Avendaño 2007). One seen building a nest with two eggs, 2 m above ground on a palm leaf, in Manchón-Guamuchal, dpto. Retalhuleu, on 2–4 July 2015 (Fig. 9) with a total of nine seen in the area, confirms the presence of a resident breeding population.

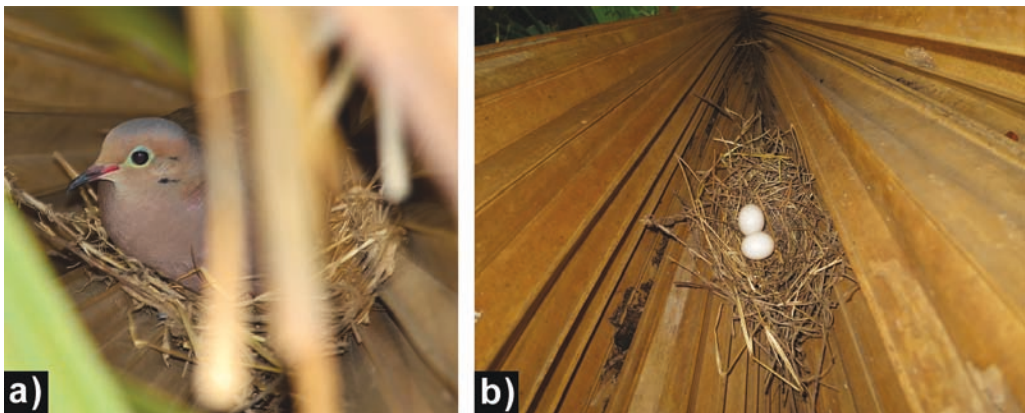


Figure 9. First nest record of Mourning Dove *Zenaida macroura* in Guatemala: (a) adult on nest, (b) clutch of two eggs, Manchón-Guamuchal, dpto. Retalhuleu, 4 July 2015 (Knut Eisermann)

MANGROVE CUCKOO *Coccyzus minor* (D; r)

One seen at 900 m near Nentón, dpto. Huehuetenango, on 19 January 2015 was a rare inland record. Other inland records include one at Santa Elena, dpto. Petén, in October 2014 (Jones & Komar 2015d), one photographed near Poptún, dpto. Petén, on 3 May 2016 (E. Salvatierra,

eBird S29389204), as well as repeated winter records (November–December) of singles at the high elevation of 2,400 m in Quetzaltenango, dpto. Quetzaltenango, in 2010 (Jones & Komar 2011b), 2011, 2012 (H. Stohlman pers. comm., photograph) and 2014 (H. Stohlman, eBird S20640641). It is uncertain if inland records represent dispersal, local migration or the presence of local resident populations. Mangrove Cuckoo occurs in mangroves on both coasts year-round and we presume the species is a resident breeder, although nesting has not been reported.

LESSER GROUND-CUCKOO *Morococcyx erythropygus* (D; R)

Long known only from the arid south (Howell & Webb 1995). Recent records from the Nentón Valley, dpto. Huehuetenango, demonstrate that its distribution extends from the central valley of Chiapas, Mexico, into adjacent western Guatemala. These include: nine at Finca El Carmen on 13 April 2012 with two there on 2 June 2017, one at Chaculá on 14 April 2012, three 3 km south of La Trinidad on 15 April 2012, four at Limonar on 1 December 2014, one near Chacaj on 28 April 2015 with one there on 30 January 2016, eight at Lagunas de Candelaria on 28 April 2015 with one there on 29 January 2016, and three on 22 April 2017 and 2 June 2017 near Unión.

SHORT-TAILED NIGHTHAWK *Lurocalis semitorquatus* (A, D; r)

Uncommon in the Atlantic slope lowlands, where known from just eight sites. Howell & Webb (1992) reported one in Biotopo Chocón-Machacas, dpto. Izabal, in February 1991, and Eisermann & Avendaño (2006) reported singles near Rocjá Pomtilá east of Parque Nacional Laguna Lachuá, dpto. Alta Verapaz, in February 2002, and at Laguna Yaxhá, dpto. Petén, in April 2003. Recent records include four at Rocjá Pomtilá on 8 January 2012 (E. Caal pers. comm.), one at Laguna Lachuá on 26 November 2011 (J. Harding pers. comm.) and one near Panzós, dpto. Alta Verapaz, on 9 October 2012. At least four at Santa María Tzejá, dpto. Quiché, on 19 October 2011 were the first in dpto. Quiché. Records from northern dpto. Petén further extend the range with two on 23 March 2013 and one on 16 May 2013 at the río Sacluc, 7 km south-west of Paso Caballo, Parque Nacional Laguna del Tigre. One photographed there on 14 December 2014 (Jones *et al.* 2016a) was the first documented record. Lone birds seen over a pond in Tikal on 7 and 22 January 2018 were the first records for that site. We assume it is a breeding resident, but nesting has not been recorded.

LESSER NIGHTHAWK *Chordeiles acutipennis* (C, D; RM)

Eight nests, each with 1–2 eggs, found on a beach at the río Paz, dpto. Jutiapa, on the border with El Salvador, in April 2010 (Juárez-Jovel & Komar 2012) was the first breeding record. Records from April–May in the Pacific slope lowlands, as well as reports from arid interior valleys and foothills on the Atlantic slope (the río Motagua Valley), suggest that the breeding range is larger than suggested by Howell & Webb (1995) and may include the entire Pacific slope, interior valleys, and highlands.

COMMON NIGHTHAWK *Chordeiles minor* (D; rv)

Long-distance migrant with most breeding in North America and wintering in South America (Brigham *et al.* 2011). Transients may be abundant during migration, e.g. >5,000 (170 individuals per minute during 30 minutes at dusk) emerged from day roosts in coastal scrub at Punta de Manabique Wildlife Refuge, dpto. Izabal, on 13 May 2001.

Summer records (June–July) are scarce but include two in Reserva Natural Privada Santa Rosa y Llano Largo, dpto. Baja Verapaz, on 9 July 2013 (J. Cahill, eBird S14616460),

five c.5 km south-east of Santa Ana, dpto. Petén, on 8 July 2014 (J. Cahill, eBird S19225992), six sound-recorded at Finca Ixobel, dpto. Petén, on 24 July 2017 (J. Dangel, eBird S38311254) and two at Chaculá, dpto. Huehuetenango, on 3 June 2017. All summer records are from lowland pine savanna or semi-humid highland pine-oak forest. These data suggest that the species is a local and uncommon summer visitor. Breeding can be assumed but has not been reported. Also, recent winter records as far north as Texas (Lockwood & Freeman 2014) and Florida (Pranty & Ponzo 2012) mean that Common Nighthawk may occur exceptionally in Guatemala at this season.

YUCATAN NIGHTJAR *Antrostomus badius* (A; rm)

Considered to be a short-distance migrant from the Yucatán Peninsula to northern Central America (Howell & Webb 1995). Two sound-recorded near the río Sacluc, 7 km south-west of Paso Caballo, Parque Nacional Laguna del Tigre, dpto. Petén, on 14 and 16 May 2013, constituted the first documented record. May nest in the area as breeding is thought to occur April–August (Cleere 1999). We consider it resident, in part migratory, breeding suspected.

BUFF-COLLARED NIGHTJAR *Antrostomus ridgwayi* (D; r)

At least five sound-recorded at Chaculá on 13–15 April 2012 were the first documented record for dpto. Huehuetenango and extend the known range from the central valley of Chiapas, Mexico, into the Nentón Valley.

EASTERN WHIP-POOR-WILL *Antrostomus vociferus* (D; vagM)

A poorly known Nearctic migrant that was formerly considered conspecific with the widespread resident Mexican Whip-poor-will *A. arizonae* (e.g. AOU 1998, Eisermann & Avendaño 2007). The only documented records for Guatemala appear to be a few specimens collected mainly in the 19th century (Salvin & Sclater 1860b, Salvin & Hartert 1892), including a male taken near Cobán, dpto. Alta Verapaz, in February 1935 (Carriker & Meyer de Schauensee 1935) and a female collected in dpto. Izabal in March 1959 (Land 1963). This paucity of material, in combination with the difficulty of identifying silent birds in the field (Howell & Webb 1995) has obscured the status of Eastern Whip-poor-will in the region. We regard it as a vagrant to Guatemala.

BLACK SWIFT *Cypseloides niger* (D; rv)

Rare, local and poorly known across its vast range (Stiles & Negret 1994, Chantler & Driessens 2000, Beason *et al.* 2012). Birds breeding in the USA have recently been found wintering in western Brazil (Beason *et al.* 2012) and it is probably a widespread transient across Central America (Stiles & Skutch 1989, Howell & Webb 1995). Summer (June–July) records are available including a female over Montaña Yalijux, dpto. Alta Verapaz, on 6 July 2014 (Fig. 10a; Jones & Komar 2015c), ten over Manchón-Guamuchal, dpto. Retalhuleu, on 1 July 2015 (Fig. 10b), ten with Vaux's *Chaetura vauxi* and Chestnut-collared Swifts *Streptoprocne rutila* over Jocotenango, dpto. Sacatepéquez, on 27 June 2017 (Fig. 10c–e), with ten also there with Vaux's, Chestnut-collared and White-collared Swifts *Streptoprocne zonaris* on 5 July 2017 (Fig. 10f–j), a pair among a flock of Chestnut-collared Swifts near La Haciendita, dpto. San Marcos, on 30 May 2017 (Fig. 10k) and a single at 3,700 m in Parque Regional Municipal Todos Santos Cuchumatán on 3 June 2016 (Fig. 10l). Summer records suggest that Black Swift is both a transient and breeder in Guatemala, but evidence of nesting has not been reported.



Figure 10. Summer records of Black Swift *Cypseloides niger* in Guatemala: (a) Montaña Yalijux, dpto. Alta Verapaz, 6 July 2014; (b) Manchón-Guamuchal, dpto. Retalhuleu, 1 July 2015; (c–e) Jocotenango, dpto. Sacatepéquez, 27 June 2017; (f–j) Jocotenango, 5 July 2017; (k) pair near La Haciendita, dpto. San Marcos, 30 May 2017; (l) single, Parque Regional Municipal Todos Santos Cuchumatán, dpto. Huehuetenango, 3 June 2016 (Knut Eisermann)

WHITE-CHINNED SWIFT *Cypseloides cryptus* (B; ?, H)

Rare, local and poorly known (Chantler & Driessens 2000). Presumed to occur in Guatemala (Howell & Webb 1995) given specimens collected in Belize (Russell 1964). Two presumed White-chinned Swifts were observed with Black *Cypseloides niger* and Great Swallow-tailed Swifts *Panyptila sanctihieronymi* over Jocotán, dpto. Chiquimula, on 3 September 2006 (R. Fergus pers. comm.). Identification was based on ‘smaller size, shorter wings, shorter tail, no gliding’ (R. Fergus pers. comm.). This is the first report from Guatemala, but it is undocumented and the species’ status is unknown. Nearest known colonies in Costa Rica (Marín & Stiles 1992).

CHIMNEY SWIFT *Chaetura pelagica* (A; T)

Breeds in eastern North America, winters in South America, and commonly passes through Middle America via the Atlantic slope (Howell & Webb 1995). However, one photographed near Hacienda Tijax, dpto. Izabal, on 22 October 2014 appears to be the first documented record.

GREAT SWALLOW-TAILED SWIFT *Panyptila sanctihieronymi* (D; R)

Rare in the interior valleys and semi-humid highlands. Historical records include observations of nesting in the eastern valley of the río Chixoy near San Jerónimo, dpto. Baja Verapaz, and near Antigua Guatemala, dpto. Sacatepéquez (Salvin & Godman 1888–97, Griscom 1932). New records are of lone birds and small flocks, including one in Antigua

Guatemala, dpto. Sacatepéquez, on 1 September 2008 (R. Fergus pers. comm.), at Volcán Acatenango, dpto. Sacatepéquez, in January 2007 (Jones & Komar 2008c), in the northern río Chixoy Valley south of San Cristóbal Verapaz, dpto. Alta Verapaz, in July 2007 (Jones & Komar 2008a), near Biotopo del Quetzal, dpto. Baja Verapaz, in August 2009 and July 2013 (Jones & Komar 2010b, 2014b), two in Jocotán, dpto. Chiquimula, on 3 September 2006 (R. Fergus pers. comm.), at Sabana Grande, dpto. Chiquimula, in September 2010 (Jones & Komar 2011b) and near Cunén, dpto. Quiché, in May 2014 (Jones & Komar 2015b). Four photographed 7 km north-west of Santa Ana Huista, dpto. Huehuetenango, on 31 January 2016 (Fig. 11) were the first record for the Nentón Valley.



Figure 11. Great Swallow-tailed Swift *Panyptila sanctihieronymi*, near Santa Ana Huista, dpto. Huehuetenango, 31 January 2016 (Knut Eisermann)

WHITE-NECKED JACOBIN *Florisuga mellivora* (C; R)

Uncommon resident in the Atlantic slope lowlands and foothills. A female incubating two eggs near Rocjá Pomtilá, dpto. Alta Verapaz, on 19 July 2009 (Fig. 12) was the first documented nesting record for Guatemala. On the Pacific side there are several records from the south-eastern slope of Volcán Atitlán in October–February (Eisermann & Avendaño 2007, Jones & Komar 2015a) including singles on 9 January 2007, 14 December 2007, 25 November 2009, 8 November 2010 (J. de León Lux pers. comm.), 20 December 2011 (A. de León Lux pers. comm.), 21 October 2012 (J. de León Lux pers. comm.) and 14 February 2015 (J. de León Lux, eBird S21820020), three on 11 February 2016 (J. de León Lux, eBird S27425910) and singles on 23 November 2016 (J. de León Lux, eBird S32681531), 13 December 2016 (J. de León Lux, eBird S33002808) and 8 January 2017 (M. Rodríguez, eBird



Figure 12. Nest of White-necked Jacobin *Florisuga mellivora*, Rocjá Pomtilá, dpto. Alta Verapaz, 19 July 2009 (Knut Eisermann)

S33555131). These records suggest that White-necked Jacobin is a regular non-breeding visitor to the Pacific slope.

LONG-BILLED STARTHROAT *Heliomaster longirostris* (C; R)

Uncommon on both the Pacific and Atlantic slopes. Nesting records from Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, confirm breeding. These include an adult seen nestbuilding at 900 m on 11 April 2011 and an adult feeding a juvenile on 6 December 2006 (E. Buchán & L. de León Lux pers. comm.), while an active nest with an incubating female was found at 1,000 m located c.18 m above ground atop a broken vertical limb of a tree in a shade-coffee plantation on 16 December 2011 (G. López pers. comm.), a nest photographed with an incubating or brooding female at 1,000 m on 9 November 2014, and a nest photographed with an incubating or brooding female at 800 m on an arching vine on 5 February 2015. On 17 February the female was video-recorded feeding two juveniles that were c.7 days old. All five nesting records were in the dry season.

PLAIN-CAPPED STARTHROAT *Heliomaster constantii* (D; r)

Thought to be restricted to the arid south-east (Howell & Webb 1995) but new records from the Nentón Valley, dpto. Huehuetenango, show that the distribution extends from the central valley of Chiapas, Mexico, into western Guatemala. These include: three at Finca El Carmen on 13 April 2012, one in Limonar on 1 December 2014, one at Lagunas de Candelaria on 28 April 2015 and one near Unión on 2 June 2017.

SLENDER SHEARTAIL *Doricha enicura* (C; R)

A female incubating two eggs in Santiago Atitlán, dpto. Sololá, on 27 July 2013 (F. Cummings pers. comm.; photograph) is the first documented breeding record for Guatemala. A young bird photographed in Chamelco, dpto. Alta Verapaz, at a lek site of Slender Sheartail, on 17 September 2008, and a fledged juvenile photographed in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 6 September 2009 (Fig. 13) suggest that it breeds in the wet season.



Figure 13. Juvenile Slender Sheartail *Doricha enicura*, Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, 6 September 2009 (Knut Eisermann)



Figure 14. Female Broad-tailed Hummingbird *Selasphorus platycercus* during final stage of nestbuilding, Volcán Tolimán, dpto. Sololá, 24 September 2017 (Knut Eisermann)

BROAD-TAILED HUMMINGBIRD

Selasphorus platycercus (C; R)

In Guatemala only found above 2,700 m. A nest with two eggs found near Chiabal, dpto. Huehuetenango, on 18 August 2016 and a nest with two eggs photographed there on 2 August 2017 (E. Matías pers. comm.), a female observed nestbuilding at Volcán Tolimán, dpto. Sololá, on 24 September

2017 (Fig. 14) and a female at another nest there on 16 November 2017 were the first breeding records for Guatemala.

GREEN-FRONTED HUMMINGBIRD

Amazilia viridifrons (D; r)

Long considered a Mexican endemic but known from three sites in the Nentón Valley, dpto. Huehuetenango (Sandoval 2000, Eisermann & Avendaño 2007). New records include at least three photographed at Finca El Carmen on 13 April 2012 (Fig. 15) with four there on 22 April 2017 and two on 2 June 2017, two near Nentón in July 2012 (Jones & Komar 2013b), one at Limonar on 1 December 2014, and two near Chacaj on 30 January 2016. It is fairly common in dry scrub in the Nentón Valley and we assume it is a breeding resident although nesting has not been reported.



Figure 15. First documented Green-fronted Hummingbird *Amazilia viridifrons* in Guatemala, Finca El Carmen, dpto. Huehuetenango, 13 April 2012 (Knut Eisermann)

GREY-BREASTED CRAKE *Laterallus exilis* (D; r)

Reported from just five sites, all in the Atlantic slope lowlands. Previous records are from Finca Higuerito, Izabal (Howell & Webb 1992) and Quetzalito and Quineles in Punta de Manabique Wildlife Refuge, dpto. Izabal (Eisermann & Avendaño 2007). One was sound-recorded on 28 March 2011 and others heard on 7 November and 23 December 2010 at El Tucán Uno, dpto. Petén. Three heard on 29 December 2014 and 26 January 2015 in Hacienda Tijax, dpto. Izabal, represented a new site record (Jones *et al.* 2016a). Reports from Tikal (Beavers 1992) and Parque Nacional Laguna del Tigre, dpto. Petén (Pérez & Castillo 2000) require confirmation (Eisermann & Avendaño 2007). Probably a breeding resident, but nesting has not been reported.

BLACK RAIL *Laterallus jamaicensis* (D; ?)

Rare, local and poorly known in Central America (Russell 1965, Valley & Gallardo 2013). In Guatemala known from only two specimens, collected before 1874 in San Miguel Dueñas, dpto. Sacatepéquez (Salvin 1866, Salvin & Godman 1897–1904). Considering its cryptic behaviour, the low observer coverage in Guatemala, and that one of the specimens was identified as an immature (Salvin & Godman 1897–1904), we conclude that an overlooked breeding population could be involved. Thus, an uncertain residency status may be more appropriate than our previous categorisation as extirpated (Howell & Webb 1995, Eisermann & Avendaño 2007).

RUFOUS-NECKED WOOD-RAIL *Aramides axillaries* (A; r)

First reported from the Atlantic slope in Punta de Manabique Wildlife Refuge, dpto. Izabal, in March 2001 (Eisermann 2003) and on the Pacific slope at Manchón-Guamuchal, dpto. Retalhuleu, in April 2002 (J. Berry *in* Eisermann & Avendaño 2007). One photographed in mangroves at Manchón-Guamuchal on 3 February 2016 (Fig. 16) was the first documented record. Although all of the few Guatemalan records are from mangroves, it may also occur in humid inland forests (Carriker 1910, Thurber *et al.* 1987, Taylor & van Perlo 1998,

Jones 2003b, Eisermann & Avendaño 2007, Howell 2010). We assume that it is a resident breeder, but nesting has not been confirmed.

UNIFORM CRAKE *Amaurolimnas concolor* (D; r)

First reported from Guatemala by Lawrence (1863) without details and subsequently unreported for nearly 140 years. New records involve singles seen in second growth adjacent to mangroves at Punta de Manabique Wildlife Refuge, dpto. Izabal, in May 2001 (Eisermann 2001) and heard in mangrove edge at Hacienda Tijax, dpto. Izabal, on 22 October 2014. We assume it breeds in Guatemala, but nesting has not been reported.



Figure 16. First documented record of Rufous-necked Wood-Rail *Aramides axillaris* in Guatemala, Manchón-Guamuchal, 3 February 2016 (Claudia Avendaño)

SPOTTED RAIL *Pardirallus maculatus* (C, D; R)

Rare and reported from just six sites in Guatemala, including birds photographed at Lago de Güija, dpto. Jutiapa, in April 2004 (Herrera 2005), San Cristóbal Verapaz, dpto. Alta Verapaz, in March 2014 (Jones & Komar 2015b), and in a wetland 4 km west of Purulhá, dpto. Baja Verapaz, on 21 and 22 December 2016 (M. Ovando, eBird S33146128). One heard in Hacienda Tijax, dpto. Izabal, on 29 December 2014, was a new site record. In Belize, one was recorded at Benque Viejo in January 2014 (Jones & Komar 2015a) near the border with Guatemala. An adult with two juveniles seen on 5 April 2017 (J. Cahill, eBird S35881252) and photographed on 14 April 2017 (M. Noack, eBird S35945090) at San Cristóbal Verapaz, dpto. Alta Verapaz, was the first breeding record. Previous records from Tikal and Parque Nacional Laguna del Tigre, dpto. Petén, require confirmation (Eisermann & Avendaño 2007). Guatemalan records range from sea level to 1,600 m, but it has been reported up to 2,000 m elsewhere (Taylor & van Perlo 1998) and we expect it may occur at wetlands across most of Guatemala.

DOUBLE-STRIPED THICK-KNEE *Burhinus bistriatus* (D; R)

Unrecorded for almost 40 years following reports from the Pacific slope lowlands in the 1970s (Dickerman 2007). Recently confirmed to breed when 12 birds and a nest with a single egg were found at Finca El Sacramento, dpto. Santa Rosa, in April 2014 (Jones & Komar 2015b). Observed repeatedly in the environs of La Avellana, dpto. Santa Rosa, with 12 there in January 2014 (Jones & Komar 2015a) and an impressive 123 on 7 November 2015 (D. Aldana pers. comm., eBird S25813813). Five seen 25 km south-west of Escuintla, dpto. Escuintla, on 6 March 2014 (J. Hackett, pers. comm.) extend the known range to the south-eastern Pacific plain. Repeated observations south-west of Río Hondo, dpto. Zacapa, since December 2014 (Jones *et al.* 2016a) were the first records for the río Motagua Valley. Double-striped Thick-knee has been reported from four areas of Guatemala including historical and recent records from the Pacific coastal plain south and south-east of Escuintla, dptos. Escuintla and Santa Rosa, and Manchón-Guamuchal, dptos. Retalhuleu and San Marcos, on the Atlantic slope, from the interior valleys of the río Motagua near Río Hondo, dpto. Zacapa, and the río Chixoy near San Jerónimo, dpto. Baja Verapaz (Salvin & Godman 1897–1904, Griscom 1932).

SOUTHERN LAPWING *Vanellus chilensis* (A; ?)

Perhaps expanding in Central America following large-scale conversion of forest to grassland for cattle ranching. One photographed at Rubelsanto, dpto. Alta Verapaz, in August 2014 (Jones & Komar 2015d) was the first country record. Status remains unknown. It is doubtful if the species will become established in Guatemala, because extensive cattle farming areas are currently being converted into oil palm *Elaeis guineensis* plantations (FAOSTAT 2012).

WILSON'S PLOVER *Charadrius wilsonia* (D; rm)

A winter visitor and local breeder on both coasts of Middle America (Howell & Webb 1995). Breeding has been reported in adjacent El Salvador and a male giving alarm calls at the río Paz, dpto. Jutiapa, in April 2010, on the border with El Salvador (Juárez-Jovel & Komar 2012) suggests that the species probably also breeds in Guatemala.

SURFBIRD *Calidris virgata* (A; vagM)

Rare on the Pacific coast. A flock of 12 photographed near Hawaii, dpto. Santa Rosa, on 17 August 2014 (J. Cahill pers. comm.) was the first documented record.

RED PHALAROPE *Phalaropus fulicarius* (A; V)

Breeds in the Arctic and winters in near-shore waters of the tropical Atlantic and east Pacific Oceans (van Gils *et al.* 2017). One photographed in the Pacific off dpto. Santa Rosa in January 2010 (Jones & Komar 2010c) was the first documented record.

SOUTH POLAR SKUA *Stercorarius maccormicki* (A; V)

Breeds in the Antarctic and reaches tropical and boreal seas as a non-breeding visitor (Harrison 1983, Furness *et al.* 2017a). One photographed in the Pacific off dpto. Santa Rosa in November 2007 (Velásquez Jofre 2008a) was the first documented record. We consider it to be a rare visitor to Guatemala.

POMARINE JAEGER *Stercorarius pomarinus* (A; V)

Breeds in the Arctic and disperses widely in pelagic waters (Harrison 1983). Reported repeatedly from both coasts of Guatemala. One photographed off the coast of dpto. Santa Rosa in April 2007 (Jones & Komar 2007d, Velásquez Jofre 2008a) was the first documented record. Uncommon near coasts, but more common in pelagic waters, where this species is apparently commoner than the next species (Pitman 1986, Velásquez Jofre 2008a,b).

PARASITIC JAEGER *Stercorarius parasiticus* (A; V)

Breeds in the Arctic and disperses widely in pelagic waters (Harrison 1983). Several reports from both coasts of Guatemala, but one photographed near Puerto Barrios, dpto. Izabal, in June 2006 (Jones & Komar 2007a) was the first documented record. Data from Guatemalan Pacific waters (Pitman 1986, Velásquez Jofre 2008a,b) suggest it is less common than Pomarine Jaeger.

SABINE'S GULL *Xema sabini* (A; V)

Circumpolar Arctic breeder and trans-equatorial migrant with main known wintering grounds in the Pacific off the coast of South America and in the Atlantic off the coast of southern Africa (Howell & Dunn 2007, Stenhouse *et al.* 2012, Davis *et al.* 2016). All records are from the Pacific Ocean off dpto. Escuintla. An adult photographed in August 2009 (Anon. 2010, Jones & Komar 2010b) was the first documented record. Other records

include eight on 20 October 2001 (J. Berry pers. comm.), four on 11 May 2002 (J. Berry pers. comm.), seven on 20 and 21 May 2013, two on 8 January 2015 and 26 on 31 December 2015 (O. Komar, eBird S26569945). These records suggest that the species is a year-round non-breeding visitor to Pacific waters off Guatemala.

BONAPARTE'S GULL *Chroicocephalus philadelphia* (A; vagM)

Breeds in northern North America and is a rare visitor to Central America and the Caribbean (Stiles & Skutch 1989, Jones 2005a, Howell & Dunn 2007, Jones & Komar 2008d). The first report in Guatemala was an adult in non-breeding plumage seen near Livingston, dpto. Izabal, on 16 January 2000 (P. Kaestner pers. comm.). A first-year photographed near Sipacate, dpto. Escuintla, on 25 March 2012 (Jones & Komar 2013a) was the first documented record.

GREY-HOODED GULL *Chroicocephalus cirrocephalus* (B; vagM, H)

Breeds in South America and Africa (Howell & Dunn 2007), with a few Central American reports, all from Panama (Jones 2004a, Angehr *et al.* 2008, Jones & Komar 2010d). An adult at Lago Petén Itzá, dpto. Petén, in February 2013 (Jones & Komar 2013d) was the first report for Guatemala. Another adult in worn breeding plumage, and identified based on the grey hood, whitish iris, red bill and legs, was seen through a telescope while perched among 300 Laughing Gulls *Leucophaeus atricilla* near Hawaii, dpto. Santa Rosa, on 19 January 2018. We consider it an accidental vagrant in Guatemala.

RING-BILLED GULL *Larus delawarensis* (A; vagM)

Breeds in northern North America and is a non-breeding visitor to Central America and the Caribbean (Howell & Dunn 2007). Rarely reported in Guatemala (Land 1970, Beavers *et al.* 1991). An immature photographed near Flores at Lago Petén Itzá, dpto. Petén, on 19 December 2015 (J. Cahill, eBird S26361105) was the first documented record.

LESSER BLACK-BACKED GULL *Larus fuscus* (A; vagM)

A mainly Old World species that is increasingly frequent in the Americas (Howell & Dunn 2007). One was seen in Puerto Barrios, dpto. Izabal, on 17 February 2001 (P. Kaestner pers. comm.). An immature photographed at Lago de Güija, dpto. Jutiapa, in March 2009 (Jones & Komar 2009d) was the first documented record.

WHITE TERN *Gygis alba* (B; vagM, H)

Pantropical pelagic species (Gochfeld *et al.* 2018). Nearest colonies are on Clipperton Island off Mexico (Howell & Webb 1995), 1,900 km west of Guatemala, and Cocos Island, Costa Rica (Stiles & Skutch 1989), 1,000 km south of Guatemala. Reported off Guatemala's Pacific coast by Pitman (1986) and Ballance *et al.* (2018), with singles 360 km offshore on 19 and 21 August 1992, and 270 km offshore on 30 October 2000. None of the observations has been documented.

BRIDLED TERN *Onychoprion anaethetus* (A; V)

Pantropical species found in pelagic and coastal waters (Harrison 1983). Two photographed 20 km off dpto. Escuintla in August 2009 was the first documented record (Jones & Komar 2010a, Anon. 2010). Another was photographed 16 km off dpto. Escuintla on 18 April 2012 suggesting that the species is an irregular visitor to Pacific waters. Records from Caribbean waters off Belize (Jones & Vallely 2001) and Honduras (Monroe 1968) suggest it may also occur off the Guatemalan Caribbean coast.

FORSTER'S TERN *Sterna forsteri* (A; V)

Breeds in North America and is an uncommon non-breeding visitor to Central America (Harrison 1983). An adult in non-breeding plumage photographed in Iztapa, dpto. Escuintla, on 20 December 2010 (C. Swift pers. comm.) was the first documented record. Records in the Caribbean off Belize (Jones *et al.* 2000) suggest that it may also occur near the Guatemalan Caribbean coast.

ELEGANT TERN *Thalasseus elegans* (A; V)

Breeds on the Pacific coast of northern Mexico and California, and is a non-breeding visitor to Pacific coasts of Central and South America (Howell & Webb 1995). Perhaps a fairly common visitor to Guatemala, but a non-breeding-plumaged adult photographed in Iztapa, dpto. Escuintla, on 20 December 2010 (C. Swift pers. comm.) was the first documented record.

BLACK SKIMMER *Rynchops niger* (D; V)

Breeds locally on Atlantic and Pacific coasts of the USA and Mexico, and along coasts and rivers in South America east of the Andes (Harrison 1983). Breeds locally in El Salvador (Komar 1998), but nesting has not been reported in Guatemala where records are thought to involve migrants from northern populations. An uncommon visitor to the Pacific coast and, given records in Belize (Jones & Valley 2001), may also occur on the Guatemalan Caribbean coast. Five seen on the río La Pasión near Sayaxché, dpto. Petén, on 6 November 1999 (P. Kaestner pers. comm.) and three at Lago Petén Itzá, dpto. Petén, in December 2006 (Jones & Komar 2007c) were the first inland records.

RED-BILLED TROPICBIRD *Phaethon aethereus* (A; V)

Pelagic in the eastern tropical Pacific, the tropical Atlantic and north-west Indian Oceans (Harrison 1983). An adult photographed 30 km off dpto. Santa Rosa on 18 January 2010 (Jones & Komar 2010c) was the first documented record for Guatemala. Additional records indicate that it occurs regularly in small numbers off the Guatemalan Pacific coast including one photographed off dpto. Santa Rosa on 15 February 2010 (J. A. Jiménez pers. comm.), one seen off dpto. Escuintla in April 2011 (Jones & Komar 2011d), one near the beach at Iztapa, dpto. Escuintla, on 22 April 2000 (P. Kaestner pers. comm.) and a juvenile photographed 6 km off Puerto San José, dpto. Escuintla, on 21 May 2013.

KERMADEC PETREL *Pterodroma neglecta* (A; vagM)

Pelagic; mainly in the tropical and subtropical Pacific Ocean (Howell 2012). Eight records near the Guatemalan coast in the Southwest Fisheries Science Center database (Ballance *et al.* 2018): one 60 km south of the Guatemalan Pacific coast on 25 August 1988, one 310 km and two 340 km offshore on 10 August 1992, one 300 km offshore on 19 August 1992, singles 280 km and 300 km offshore on 23 August 1992, one 250 km offshore on 23 August 1998 (documented with field notes by M. P. Force pers. comm.) and one 50 km offshore on 30 August 1998. Reported by Pitman (1986) off the Pacific coast of Chiapas, Mexico, and >400 km off the Guatemalan Pacific coast. Kermadec Petrel was also reported by a more recent study (Sigüenza *et al.* 2008, Velásquez Jofre 2008a,b) but a photograph showed a misidentified Tahiti Petrel *P. rostrata*.

JUAN FERNANDEZ PETREL *Pterodroma externa* (B, vagM, H)

A Vulnerable (IUCN 2017) pelagic bird nesting on the Juan Fernández Islands off Chile and ranging across the eastern and central Pacific Ocean (Howell 2012, Carboneras *et al.* 2018b).

The Southwest Fisheries Science Center database contains six records of singles 290–360 km off the Guatemalan Pacific coast, all on 13 October 1999 (Ballance *et al.* 2018). Pitman (1986) reported the species >800 km off the Guatemalan Pacific coast, and it was also reported without documentation by Sigüenza *et al.* (2008) and Velásquez Jofre (2008a,b).

GALAPAGOS PETREL *Pterodroma phaeopygia* (B; vagM;H)

Breeds on the Galápagos Islands and ranges across the eastern tropical Pacific (Howell 2012). Considered Critically Endangered (IUCN 2017). Observations by Pitman (1986) c.300 km off the Guatemalan Pacific coast are the only reports for the country.

TAHITI PETREL *Pterodroma rostrata* (A; V)

Breeds on islands in the central and western tropical Pacific and is a visitor to pelagic waters off Middle America (Howell 2012, Carboneras *et al.* 2018b). Reported by Pitman (1986) within 200 km of the Guatemalan Pacific coast. One photographed by V. Dávila c.100 km off the Pacific coast of dpto. Retalhuleu on 29 April 2008 (Sigüenza *et al.* 2008) was initially misidentified as *P. neglecta* (Sigüenza *et al.* 2008, Velásquez 2008b) but subsequently determined as Tahiti Petrel (S. N. G. Howell pers. comm.) for the first documented record. The Southwest Fisheries Science Center database contains 92 records of 1–9 individuals 60–350 km off the Guatemalan Pacific coast between 1988 and 2006 (Ballance *et al.* 2018). Those observations nearest to the coast involve 13 records of 1–2 individuals 60–100 km offshore on 27 September 2000, one at 70 km on 21 August 1998, five records of 1–2 at 100–150 km on 23 September 2003, one at 100 km on 3 September 1989, and one at 120 km on 14 October 1999 (Ballance *et al.* 2018). Apparently a regular visitor to the Guatemalan Pacific.

PARKINSON'S PETREL *Procellaria parkinsoni* (D; V)

Breeds in New Zealand and disperses to the tropical Pacific Ocean including pelagic waters off Central America (Pitman & Ballance 1992, Howell 2012). Considered Vulnerable (IUCN 2017). Recent data from Guatemalan Pacific waters (Velásquez Jofre 2008a) reveal it to be an uncommon but regular visitor.

WEDGE-TAILED SHEARWATER *Ardenna pacifica* (D; V)

Breeds on islands in the tropical and subtropical Pacific and Indian Oceans (Howell 2012). Recent data from Guatemalan Pacific waters (Velásquez Jofre 2008a) show that it is a common visitor.

PINK-FOOTED SHEARWATER *Ardenna creatopus* (A; V)

Breeds on islands off Chile and disperses across the east Pacific (Howell 2012); considered Vulnerable (IUCN 2017). Pitman (1986) reported relatively large numbers off the Pacific coast of Middle America. One photographed off dpto. Suchitapéquez on 7 June 2007 (Velásquez Jofre 2008b, Jones & Komar 2008a) was the first documented record for Guatemala. Subsequent observations off dpto. Escuintla (Jones & Komar 2008c, 2011c) including 300 seen on 26 March 2012 (Jones & Komar 2013a) and two photographed on 19 April 2012 indicate that it is common in Guatemalan Pacific waters.

CHRISTMAS SHEARWATER *Puffinus nativitatis* (D; V)

Breeds on islands in the tropical and subtropical Pacific and visits pelagic waters off Central America (Howell 2012). Pitman (1986) reported it far off the Central American Pacific coast. The Southwest Fisheries Science Center database contains four records in 1988–2000 within 400 km of the Guatemalan Pacific coast (Ballance *et al.* 2018). One photographed on 8 April

2008 off the Pacific coast (Velásquez Jofre 2008a) was the first documented record. We consider it to be a rare visitor.

GALAPAGOS SHEARWATER *Puffinus subalaris* (D; V)

Formerly considered conspecific with Audubon's Shearwater *P. lherminieri* (e.g. AOU 1998, Eisermann & Avendaño 2007) but now treated as a separate species (Chesser *et al.* 2012). Breeds on the Galápagos Islands (Howell 2012) and a common visitor to Pacific pelagic waters off Guatemala (Velásquez Jofre 2008a). Audubon's Shearwater occurs mainly in the tropical and subtropical western Atlantic Ocean (Howell 2012) but there are no reports from Caribbean Guatemala; its status changes to probable.

TOWNSEND'S SHEARWATER *Puffinus auricularis* (B; VagM, H)

Pelagic; nests on islands in the eastern tropical Pacific Ocean off Mexico (Howell 2012). Critically Endangered (IUCN 2017). The Southwest Fisheries Science Center database contains six records of 1–3 individuals 60–75 km off dpto. Escuintla on 25 August 1988, and one 23 km off dpto. Escuintla on 30 August 1989 (Ballance *et al.* 2018). Also reported by Pitman (1986). Undocumented observations reported by P. Kaestner & J. Berry in Eisermann & Avendaño (2007), Sigüenza *et al.* (2008) and Velásquez Jofre (2008a,b). We regard it as a vagrant.

BLACK-VENTED SHEARWATER *Puffinus opisthomelas* (A; vagM)

Breeds on islands in the Pacific Ocean off Baja California, Mexico, and disperses mainly to the eastern Pacific Ocean from the southern USA to southern Mexico (Howell 2012). One photographed at close range on the water off dpto. Escuintla on 23 October 2017 (L. Valle pers. comm., eBird S40094008, photo ML72892581) was the first documented record. Sullivan (2009) mentioned an observation from the Guatemalan Pacific without details. The Southwest Fisheries Science Center database does not contain any Guatemalan records (Ballance *et al.* 2018). We regard it as a vagrant.

BAND-RUMPED STORM PETREL *Oceanodroma castro* (B; vagM, H)

Pelagic, with several distinct populations in the Pacific and Atlantic Oceans; nearest colonies on the Galápagos Islands (Howell 2012). Reported off the southern Central American Pacific coast by Pitman (1986). Two undocumented records off the Guatemalan Pacific coast in the Southwest Fisheries Science Center database: one 80 km off dpto. Escuintla on 8 August 1992 and one 280 km off dpto. Retalhuleu on 23 August 1998 (Ballance *et al.* 2018). We regard it as a vagrant.

WEDGE-RUMPED STORM PETREL *Oceanodroma tethys* (A; V)

Breeds on the Galápagos Islands and disperses to the eastern tropical and subtropical Pacific Ocean (Howell 2012). The first photo-documented record for Guatemala was from Pacific waters in 2008 (Velásquez Jofre 2008a), where reports by Pitman (1986) and observations of up to 500 per day (Velásquez Jofre 2008a) suggest it is a regular and temporally common visitor.

BLACK STORM PETREL *Oceanodroma melania* (A, D; V)

Breeds on islands in the Gulf of California and off the Pacific coast of northern Mexico and the southern USA, and disperses to the eastern tropical and subtropical Pacific (Howell 2012). Photographs in Velásquez Jofre (2008a) provided the first documented record.

Numerous sight records testify to it being a regular visitor to Pacific waters (Pitman 1986, Velásquez Jofre 2008a, Jones & Komar 2010b).

MARKHAM'S STORM PETREL *Oceanodroma markhami* (B; vagM, H)

Poorly known pelagic species of the eastern tropical Pacific, nesting in deserts of Chile and Peru (Howell 2012, Torres-Mura & Lemus 2013, Schmitt *et al.* 2015). Eleven undocumented records off the Guatemalan Pacific coast in the Southwest Fisheries Science Center database, including singles 320–370 km offshore on 10, 19 and 20 August 1992, 20 at 260 km on 30 October 2000, with four records of singles 215–320 km offshore on the same day, one 150 km from the coast on 23 September 2003, and two 290 km from the coast on 4 October 2006 (Ballance *et al.* 2018). We regard it as a vagrant.

LEAST STORM PETREL

Oceanodroma microsoma (A, D; V)

Breeds in the Gulf of California and on islands off the Pacific coast of Mexico, and disperses widely in the eastern tropical and subtropical Pacific (Howell 2012). Data in Velásquez Jofre (2008a) demonstrate that it is an uncommon visitor. Birds photographed off dpto. Escuintla on 21 June 2014 (J. Cahill, eBird S18878418) and 8 January 2015 (Fig. 17) appear to be the first documented records.



Figure 17. Least Storm Petrel *Oceanodroma microsoma*, 20 km off dpto. Escuintla, 8 January 2015 (Knut Eisermann)

GREAT FRIGATEBIRD *Fregata minor*

(B; vagM, H)

Mainly in the tropical and subtropical Pacific and Indian Oceans, locally in the Atlantic. Nearest colonies on Cocos Island off Costa Rica and Islas Revillagigedos off Mexico (Howell & Webb 1990, Howell 1994). Reported by Pitman (1986) c.400 km off the Guatemalan Pacific coast.

MASKED BOOBY *Sula dactylatra* (A; V) / **NAZCA BOOBY** *S. granti* (A; D)

Nazca Booby has only recently been considered a species apart from Masked Booby (Pitman & Jehl 1998, Banks *et al.* 2000). Immatures may be inseparable in the field (Roberson 1998) and all historical sightings off the Guatemalan Pacific coast were believed to involve Nazca Boobies (Pitman & Jehl 1998). Recent photographic records confirm that both species occur. Nazca Booby is a common visitor to Pacific waters (Velásquez Jofre 2008b). Masked Booby has been reported with photographic evidence as a rare visitor off the Guatemalan Pacific coast (Velásquez Jofre 2008a). The origin of both species in the Guatemalan Pacific is unknown. Nearest colonies of Masked Booby are in the north-east Pacific on Clipperton Island, the Islas Revillagigedos and Rocas Alijos off Mexico, and in the south-east Pacific on the Juan Fernández Islands off Chile (Howell & Webb 1990, Roberson 1998). Nazca Booby breeds mainly on the Galápagos Islands, but also on Islas Revillagigedos, Clipperton, Cocos Island, and islands off Colombia, Peru and Ecuador (Howell & Webb 1990, del Hoyo *et al.* 2018).

BLUE-FOOTED BOOBY *Sula nebouxii* (A; V)

Breeds on islands off western Mexico and northern South America, and disperses to the tropical and subtropical eastern Pacific (Harrison 1983). An adult photographed and two seen off the coast of dpto. Retalhuleu on 29 April 2008 (Jones & Komar 2008d) was

the first documented record. Three seen off dpto. Escuintla on 23 August 2009 (Jones & Komar 2010b) is the only other report. Despite an increase in pelagic bird observations off Guatemala, there are few reports and we regard it as a rare visitor.

BROWN BOOBY *Sula leucogaster* (D; V)

Widespread in tropical and subtropical oceans (Harrison 1983), breeding locally on Caribbean and Pacific coasts of Central America (Harrison 1983) but nesting has not been reported in Guatemala where it is an uncommon visitor to the Caribbean coast (Eisermann 2001). Data in Velásquez Jofre (2008a) suggest it is a regular visitor to Pacific pelagic waters.

RED-FOOTED BOOBY *Sula sula* (A, D; V)

Pantropical (Harrison 1983) and occurs on both coasts. Data from Pacific waters (Pitman 1986, Velásquez Jofre 2008a) indicate that it is a regular visitor. An immature photographed off dpto. Escuintla on 18 April 2012 (Fig. 18) was apparently the first documented record.



Figure 18. Juvenile Red-footed Booby *Sula sula*, off dpto. Escuintla, 18 April 2012 (Knut Eisermann)

DOUBLE-CRESTED CORMORANT

Phalacrocorax auritus (A; vagM)

Following undocumented reports from Bahía de Amatique, dpto. Izabal (Eisermann & Avendaño 2007), two photographed in Punta de Manabique Wildlife Refuge, dpto. Izabal (Jones & Komar 2015b; J. Cahill pers. comm.) was the first documented record. Perhaps increasing on the Caribbean coast of neighbouring Belize (Jones & Komar 2015b). We treat it as a vagrant in Guatemala.

PINNATED BITTERN *Botaurus pinnatus* (D; r)

Rare and local in Central America, and reported from just seven sites in Guatemala. In the Atlantic slope lowlands it was recorded at the río Dulce, dpto. Izabal, and Lago Petén Itzá, dpto. Petén (Beavers 1992, Jones & Komar 2013d, Jones & Komar 2015b), 10 km south of Paso Caballo, dpto. Petén, in April 2013 (Jones & Komar 2014a) and at El Tucán Uno, southern dpto. Petén, in December 2010 (Jones & Komar 2011b,c). In the Pacific lowlands, one at Manchón-Guamuchal, dpto. Retalhuleu, on 18 May 2001 (J. Berry pers. comm.), three at Monterrico, dpto. Santa Rosa (Jones & Komar 2009c, 2010c) with two there on 7 January 2015 and three on 15 January 2015 (Jones *et al.* 2016a), and at Lago de Güija, dpto. Jutiapa (Pineda *et al.* 2006). Three at Manchón-Guamuchal, dpto. Retalhuleu on 2 July 2015 was the first summer record. Seven there on 28 May 2017 suggest it is a breeding resident but nesting has not been reported.



Figure 19. First documented record of American Bittern *Botaurus lentiginosus* in Guatemala, Manchón-Guamuchal, dpto. Retalhuleu, 2 February 2016, since 19th-century specimen records (Knut Eisermann)

AMERICAN BITTERN

Botaurus lentiginosus (D; vagM)

Rare in Central America and long known in Guatemala only from historical records at four sites: near Cobán, dpto. Alta Verapaz

(Salvin 1860), San Miguel Dueñas, dpto. Sacatepéquez (Salvin 1866), Manchón-Guamuchal near Ocós, dpto. San Marcos, and the río Polochic, dptos. Izabal and Alta Verapaz (Griscom 1932). Unreported for nearly a century until one was photographed at Manchón-Guamuchal, dpto. Retalhuleu, on 2 February 2016 (Fig. 19).

BLACK-CROWNED NIGHT HERON *Nycticorax nycticorax* (D; RM)

Cosmopolitan species thought to be mainly a winter visitor to Guatemala (Howell & Webb 1995, Eisermann & Avendaño 2007). Recent reports confirm breeding at two sites in the Pacific slope lowlands, with eight nests at Lago de Güija, dpto. Jutiapa (Herrera & Ibarra Portillo 2005), and 75 nests at Las Lisas, dpto. Santa Rosa, on 3 July 2009 (R. A. Jiménez pers. comm., photograph).

YELLOW-CROWNED NIGHT HERON *Nyctanassa violacea* (D; RM)

Fairly common resident in coastal lowlands and recently reported inland in the Atlantic slope lowlands including at Parque Nacional Mirador-Río Azul, dpto. Petén (Budney *et al.* 2008), Laguna Yaxhá, Parque Nacional Laguna del Tigre, Parque Nacional El Rosario and Cancuén, dpto. Petén (Jones & Komar 2012b, 2013b), and San Cristóbal Verapaz, dpto. Alta Verapaz (Jones & Komar 2012a). Nesting presumed in Parque Nacional Laguna Lachúa, dpto. Alta Verapaz (Eisermann & Avendaño 2007).

WHITE IBIS *Eudocimus albus* (C, D; RM)

Found mainly near coasts in Middle America, and Land (1970) considered it rare in dpto. Petén. The only previous record for this area was reported by Beavers *et al.* (1991). New records include seven in Parque Nacional Laguna del Tigre, dpto. Petén, on 7 April 2017 (M. Rivera, eBird S35964569), six near Sayaxché on 20 January 2016 (M. Ovando, eBird S27029917), one in wetlands along the río Mopán near La Pólvora on 29 December 2011 (J. Cahill eBird S9671682) and an adult flying over Tikal, dpto. Petén, on 15 December 2006 (Jones & Komar 2007c). Nesting not reported inland, but a colony with at least 30 active nests photographed in mangroves on the Pacific coast near Las Lisas, dpto. Santa Rosa, on 3 July 2009 (R. A. Jiménez pers. comm.) confirms breeding.

GLOSSY IBIS *Plegadis falcinellus* (A, D; vagM)

An Old World species recorded for the first time in North America in the 19th century, and now expanding its range in North, Middle and South America (Howell & de Montes 1989, Howell & Webb 1995, Patten & Lasley 2000). In northern Central America it is a rare visitor. One photographed at San Cristóbal Verapaz, dpto. Alta Verapaz, in March 2013 by J. Cahill (Jones & Komar 2014a) was the first documented record for Guatemala. Near the Guatemalan Pacific coast, an adult was photographed in April 2014 (Jones & Komar 2015b, J. Cahill pers. comm.) and one seen on 3 February 2015 (M. Rodríguez pers. comm., eBird S21677386). An adult *Plegadis* in non-breeding plumage (retaining traces of bronzy colour) photographed near Panzós, dpto. Alta Verapaz, on 10 October 2012, could not be identified to species, yet is noteworthy because no *Plegadis* has otherwise been recorded from the Guatemalan Atlantic slope lowlands. We consider Glossy Ibis to be a non-breeding vagrant.

WHITE-FACED IBIS *Plegadis chihi* (A, D; vagM)

Restricted to the Americas with a resident population in South America, and partially migratory population in North America and Mexico (Howell & de Montes 1989, Ryder & Manry 1994). A rare winter visitor to northern Central America, mainly on the Pacific coast (Howell & de Montes 1989, Howell & Webb 1995). Two photographed at Manchón-

Guamuchal, dpto. Retalhuleu, on 13 October 2014 (M. Rodríguez, eBird S20312144), and seven photographed there on 3 February 2015 (Jones *et al.* 2016a, M. Rodríguez, eBird S21677386) were the first documented records. We consider it a non-breeding vagrant.

ROSEATE SPOONBILL *Platalea ajaja* (C; RM)

Uncommon and a very local breeder on both coasts of Middle America (Stiles & Skutch 1989, Howell & Webb 1995, Frederick *et al.* 1997). At least six active nests photographed near Las Lisas, dpto. Santa Rosa, in October–November 2009 (Jones & Komar 2010b) confirm breeding. Scattered recent records in dpto. Petén indicate it is widespread in the Atlantic slope lowlands, including one at Laguna Petexbatún on 5 April 2016 (E. Salvatierra, eBird S29433140), three photographed near La Pólvara on 1 March 2015 (A. B. Lucas, eBird S22163722) with four photographed there on 23 January 2016 (A. B. Lucas, eBird S27082033) and four seen on 24 January 2018 and one on 4 May 2016 in the east of Parque Nacional Laguna del Tigre (J. Cahill, eBird S29463490).

WHITE-TAILED KITE *Elanus leucurus* (C; R)

Expanding in Central America due to deforestation. A pair with one fledgling 5 km south of Santa Catarina Pinula, dpto. Guatemala, in November 2009 (F. Mazarriegos pers. comm.) was the first nesting record for Guatemala. At the same site, displaying adults were observed in January 2010, 2011 and 2012, and adults with fledglings were seen in June–July of those years (F. Mazarriegos pers. comm.).

SNAIL KITE *Rostrhamus sociabilis* (C; R)

Local in wetlands in both the Atlantic and Pacific slope lowlands (Eisermann & Avendaño 2007). Reports of nesting at Lago de Güija, dpto. Jutiapa (Pineda & Herrera 2014) and at least three active nests at Manchón-Guamuchal, dpto. Retalhuleu, on 20 May 2017, were the first breeding records for Guatemala.

DOUBLE-TOOTHED KITE *Harpagus bidentatus* (D; RM)

Uncommon in the Atlantic slope lowlands and foothills. One photographed at Takalik Abaj, dpto. Retalhuleu, in December 2008 (Jones & Komar 2009c) was the first documented record for the Pacific slope, where it was first reported from the southern foothills of Volcán Santa María, dpto. Quetzaltenango (Vannini 1989). Eighty in flight at Punta de Manabique Wildlife Refuge, dpto. Izabal, on 31 March 2012 (Jones & Komar 2013a) suggest migration but the nature of any seasonal movements is unknown.

SWAINSON'S HAWK *Buteo swainsoni* (D; T)

Probably the entire world population passes over Guatemala during migration between the breeding range in North America and wintering range in South America (Bildstein & Zalles 2001), and it is a common transient on the Pacific slope (Heinrichs *et al.* 2006). Because little is known about roosting and foraging by raptors on migration in Central America (Dickey & van Rossem 1938, Smith 1980, Ruelas Inzunza *et al.* 2009), a concentration of at least 100 roosting in trees bordering humid broadleaf forest and a shade-coffee plantation at 1,600 m in Reserva Natural Privada Los Tarrales, dpto. Suchitupéquez, on 4 April 2008, was noteworthy.

HARPY EAGLE *Harpia harpyja* (C; R)

Very rare. The only nest in Guatemala was found in south-east dpto. Petén in 2000 (Whitacre *et al.* 2002, Vargas *et al.* 2006). A nest found in the Maya Mountains in Belize in 2010 (Rotenberg *et al.* 2012) was c.50 km to the east of that site.

FLAMMULATED OWL *Psiloscoops flammeolus* (C, D; R)

Previously thought to be a non-breeding visitor (Howell & Webb 1995, AOU 1998, Eisermann & Avendaño 2015, Weidensaul 2015) and unrecorded in Guatemala for more than 80 years. A nest found in Parque Regional Municipal Todos Santos Cuchumatán, dpto. Huehuetenango, in 2016, was also the first nesting record south-east of the Isthmus of Tehuantepec (Eisermann *et al.* 2017b). Two were at the same site on 18 November 2016. Based on the nesting record, it appears doubtful if any northern Flammulated Owls migrate further south than Mexico and we suspect that all records in Guatemala involve residents (Eisermann *et al.* 2017b, Eisermann & Avendaño 2017).

PACIFIC SCREECH OWL *Megascops cooperi* (D; R)

Found mainly in arid scrub below 1,000 m in the Pacific slope lowlands and interior valleys. The río Motagua Valley is connected via a narrow corridor of land below 1,000 m to the Pacific slope lowlands (Fig. 1). Pacific Screech Owl has been reported from several sites in the Pacific slope lowlands, and recently at Reserva Heloderma, dpto. Zacapa (Jones & Komar 2013d, see Eisermann & Avendaño 2017 for correct site information) in the río Motagua Valley, c.60 km north of sites around Lago de Güija in El Salvador (Pérez León *et al.* 2015). At other dry scrub localities in the Motagua Valley only Vermiculated Screech Owl *M. guatemalae* has been recorded (Eisermann & Avendaño 2015), suggesting that Pacific Screech Owl may have colonised the valley only recently, or that it occurs only very locally, perhaps due to competition with Vermiculated Screech Owl. A nest found at Manchón-Guamuchal, dpto. San Marcos, in March 2015, was the second nesting record (Eisermann & Avendaño 2017).

WHISKERED SCREECH OWL *Megascops trichopsis* (C; R)

Fairly common in highlands but breeding confirmed only recently based on juveniles collected in 1973 (Eisermann & Avendaño 2017).

BEARDED SCREECH OWL *Megascops barbarus* (C, D; R)

Restricted to humid Atlantic slope highlands of Guatemala and Chiapas, Mexico, and considered Vulnerable (IUCN 2017). Nesting records from the highlands of dptos. Quiché and Alta Verapaz were the first breeding records (Eisermann & Avendaño 2017). A male found at Montaña Santa Rosa, dpto. Baja Verapaz, on 9 August 2017, represents the sixth known locality in Guatemala.

NORTHERN PYGMY OWL *Glaucidium gnoma* (C; R)

G. g. cobanense (Guatemalan Pygmy Owl), which occurs in Mexico south-east of the Isthmus of Tehuantepec and in northern Central America has distinctive vocalisations (Eisermann & Howell 2011) and may represent a separate species. *G. g. cobanense* is fairly common throughout the Guatemalan highlands at 1,800–3,400 m, rarely to 1,400 m. Several nesting records in dpto. Alta Verapaz (Eisermann & Avendaño 2017) confirm breeding.

FULVOUS OWL *Strix fulvescens* (C, D; R)

Fairly common in cloud forest above 1,800 m (Eisermann & Avendaño 2017) but the nest is undescribed. A juvenile at Montaña Caquiepec, dpto. Alta Verapaz, one in Reserva Natural Privada Chelemhá, dpto. Alta Verapaz, on 6 May 2013 (Eisermann & Avendaño 2017) and a fledgling photographed at Finca El Pilar, dpto. Sacatepéquez, on 26 April 2017 (Fig. 20) were the first breeding records for Guatemala. A pair photographed 2 km south of



Figure 20. Adult and fledgling Fulvous Owl *Strix fulvescens*, Finca El Pilar, dpto. Sacatepéquez, 26 April 2017; second documented breeding record in Guatemala (Knut Eisermann)

Yalambojoch, dpto. Huehuetenango, on 12 April 2017, was the first record for the Sierra Los Cuchumatanes.

STYGIAN OWL *Asio stygius* (C, D; R)

Rare in Guatemala where known from just 11 sites (Eisermann & Avendaño 2017). A fledged juvenile at Volcán Atitlán, dpto. Suchitepéquez, in 2008 (Holt *et al.* 2014) was the first breeding record for Guatemala.

STRIPED OWL *Pseudoscops clamator* (C, D; R)

Recent records from north-west dpto. Petén and adjacent eastern Chiapas, Mexico, since 2012 (Eisermann & Avendaño 2017) suggest it may be expanding in the Atlantic slope

lowlands, benefitting from deforestation. A nest found at Hacienda Tijax, dpto. Izabal, in March 2008 (Eisermann & Avendaño 2015) was the first breeding record for Guatemala.

UNSPOTTED SAW-WHET OWL *Aegolius ridgwayi* (C, D; R)

Long thought to be rare, but recent surveys demonstrate that it is widespread in the highlands at 1,900–3,700 m and occurs rarely as low as 1,400 m (Eisermann 2013, Eisermann & Avendaño 2017). The first breeding records were from dptos. Chimaltenango, San Marcos and Alta Verapaz in 2008–15 (Eisermann & Avendaño 2017). A pair near Finca Chancol, dpto. Huehuetenango, on 13 November 2017 was a new site record for the Sierra Los Cuchumatanes.

ELEGANT TROGON *Trogon elegans* (D; R)

Uncommon to locally common on the arid eastern Pacific slope (Tashian 1953) and locally in the arid interior valleys of the Atlantic slope, where it was known from the río Motagua Valley (Dearborn 1907, Griscom 1932), and was recently observed in Parque Regional Municipal Niño Dormido, Zacapa, on 6 September 2010. Reports from the río Chixoy Valley, south of San Cristóbal Verapaz, dpto. Alta Verapaz, in July 2007 (Jones & Komar 2008a) documented a new site record on the Atlantic slope.

TODY MOTMOT *Hylomanes momotula* (C; R)

Uncommon to fairly common in the humid lowlands and foothills of both slopes. Nesting has apparently never been described (Stiles & Skutch 1989, Howell & Webb 1995, Snow & Kirwan 2018). Three nests were found in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez. Their entrances were similar to mouse holes on the slightly inclined forest floor and unlike other motmot holes, which are usually placed in steep banks (Skutch 1983). The first was found in humid broadleaf forest at c.1,000 m on 17 June 2009. Adults were feeding juveniles in the nest entrance and almost ready to fledge (A. de León Lux & G. López pers. comm.). A second nest observed between 17 May and 1 June 2010 was in a shade-coffee plantation at c.900 m (J. de León Lux pers. comm., A. Burge, video) and a third was attended by two adults feeding young on 8 June 2012 (J. de León Lux pers. comm.). All nests were active during the wet season.

RUSSET-CROWNED MOTMOT *Momotus mexicanus* (D; R)

Restricted to arid scrub in Mexico and Guatemala, where previously known only from the río Motagua Valley (Land 1970, Howell & Webb 1995). New records from the Nentón Valley, dpto. Huehuetenango, demonstrate that its distribution extends from the central valley of Chiapas, Mexico, into western Guatemala. These include one near Limonar on 1 December 2014, four near Lagunas de Candelaria on 28 April 2015, one photographed 8 km north-west of Santa Ana Huista on 21 April 2017 (L. Conrad), two seen on 22 April 2017 and one on 1 February 2018 2 km east of Unión, and two at Finca El Carmen on 20 April 2018.

TURQUOISE-BROWED MOTMOT *Eumomota superciliosa* (D; R)

Widespread on the Pacific slope of Middle America but only recently reported from the Atlantic lowlands of Guatemala, in Parque Nacional Laguna del Tigre, dpto. Petén (Eisermann & Avendaño 2007). One photographed at the park entrance 4 km south-east of Paso Caballo on 17 May 2013 (Fig. 21) was the first documented record for this area. The tawny breast with a very faint greenish wash identified it as *E. s. superciliosa* (Griscom 1929), a race not previously reported in Guatemala. Together with recent records from Tabasco,



Figure 21. First documented record of nominate Turquoise-browed Motmot *Eumomota s. superciliosa* in Guatemala, 4 km south-east of Paso Caballo, dpto. Petén, 17 May 2013 (Knut Eisermann)

Mexico (Gómez de Silva 2013), these observations suggest that Turquoise-browed Motmot has expanded south from the Yucatán Peninsula into north-western dpto. Petén.

YUCATAN WOODPECKER *Melanerpes pygmaeus* (A, D; r)

Endemic to the Yucatán Peninsula and Caribbean islands off Honduras (Howell & Webb 1995). In Guatemala, the first report involved one in forest edge on the río San Pedro south

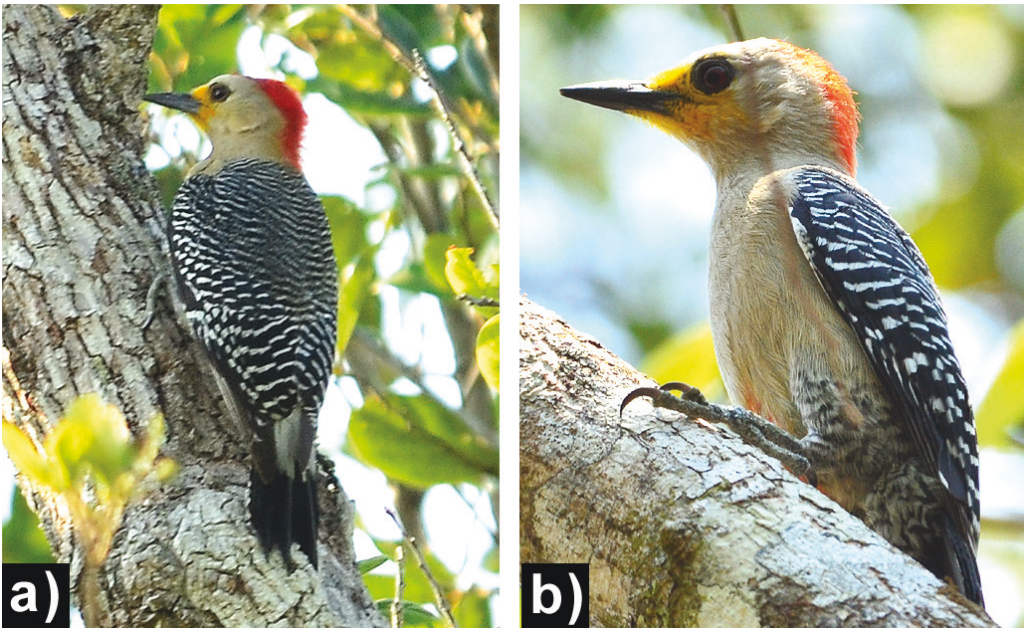


Figure 22. Yucatan Woodpecker *Melanerpes pygmaeus*: (a) male, río Sacluc, south-west of Paso Caballo, dpto. Petén, 23 March 2013; (b) male, 4 km south-east of Paso Caballo, dpto. Petén, 17 May 2013 (Knut Eisermann)

of the El Perú archaeological site in Parque Nacional Laguna del Tigre, dpto. Petén, on 28 March 2011 (G. Péron pers. comm.). A bird photographed on the lower 5 km of the río Sacluc, 7 km south-west of Paso Caballo, on 23 March 2013 (Fig. 22a) was the first documented record. Twelve along 5.6 km of the río Sacluc from its confluence with the río San Pedro, on 23 March 2013, suggest it is common in gallery forest and adjacent oak woodland there. Three more were seen 5 km south-east of Paso Caballo on 24 March 2013. Yucatan Woodpecker was subsequently found in the south-east part of Parque Nacional Laguna del Tigre and adjacent areas during 2013–17 including seven in gallery forest along the ríos Sacluc and San Pedro west of Paso Caballo on 15–17 May 2013 and three 4 km south-east of Paso Caballo on 17 May 2013 (Fig. 22b), along the río Sacluc in January 2014 (Cahill 2014), near the El Perú archaeological site on 20 December 2015 (Christmas Bird Count, eBird S26437510), 9 km south of Paso Caballo on 18 December 2016 (J. Madrid, eBird S33120072) and 13 May 2017 (C. Chablé, eBird S36811213). The southernmost record involved a male in El Caoba, dpto. Petén, on 15 March 2016 (J. Madrid, eBird S28680918). We assume it breeds in Guatemala, but nesting has not been confirmed.

RED-NAPED SAPSUCKER *Sphyrapicus nuchalis* (A; vagM)

Formerly considered conspecific with Yellow-bellied Sapsucker *S. varius* (e.g. AOU 1985) and not listed in recent works on Guatemalan birds (Eisermann & Avendaño 2007). A male collected by W. B. Richardson near Panajachel, dpto. Sololá, pre-1895 (Salvin & Godman 1879–87) is the only record for Guatemala. The only other Central American records are from dpto. Santa Bárbara, Honduras, in 1952/53 (Monroe 1968).

LADDER-BACKED WOODPECKER *Picoides scalaris* (A, C, D; R)

Very local in Central America (Howell & Webb 1995). In Guatemala reported from Magdalena Milpas Altas, dpto. Sacatapéquez, and the west slope of the Maya Mountains in south-east dpto. Petén (Howell & Webb 1992, 1995). New records are from oak savanna in the lowlands of north-western dpto. Petén (Jones & Komar 2012b), plus two photographed on 21 July 2014 (C. Echeverría, eBird S20672419) and two on 23 June 2017 (L. F. Garma, eBird S37753279) near Santa Ana in central dpto. Petén. A group comprising an adult male, female and two juveniles photographed 4 km south-east of Paso Caballo on 17 May 2013



Figure 23. Family of Ladder-backed Woodpeckers *Picoides scalaris*, 4 km south-east of Paso Caballo, 17 May 2013: (a) juvenile; (b) female; (c) male (Knut Eisermann)

(Fig. 23) was the first breeding record. One was photographed at a nest near Sacpuy on 7 March 2017 (M. Ovando, eBird S35033208). These records indicate a range extension from Tabasco and north-east Chiapas, Mexico, to the south-east. A recent colonist in Palenque, Chiapas, Mexico (Patten *et al.* 2011). In the region this woodpecker may benefit from man-made conversion of dense humid forest to woodland.

BARRED FOREST FALCON *Micrastur ruficollis* (D; R)

Fairly common in humid forest on the Atlantic slope but rare on the Pacific slope (Eisermann & Avendaño 2007), where reported from Finca Dos Marías, dpto. San Marcos (Cooper 2003). Recent records from the Pacific slope suggest it is expanding there. Heard at Volcán Atitlán in Reserva Natural Privada Los Andes, dpto. Suchitepéquez, in April 2007 and February 2010 (Jones & Komar 2007d, 2010c), with a young bird seen in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, in July 2007 (Jones & Komar 2008a) providing the first indication of breeding on this slope, a report from Finca El Pilar, dpto. Sacatepéquez, in February 2011 (Jones & Komar 2011c, 2011d), one sound-recorded in Loma Linda, dpto. Quetzaltenango, on 30 October 2009, one sound-recorded at 2,550 m near Las Pilas on the north-west slope of Volcán Tacaná, dpto. San Marcos, and one on the south-east slope of the same volcano near Yalú at 2,100 m on 3 September 2014, one at Finca Las Nubes, Volcán Santo Tomás, dpto. Suchitepéquez, on 21 March 2011 (M. Retter, eBird S31493333) and at Volcán Agua, dpto. Escuintla, where it was recorded for the first time on the south slope on 2 November 2013 (D. Aldana, eBird S15678373).

APLOMADO FALCON *Falco femoralis* (A, D; r)

Rare and local in Central America. The first country reports were one west of Lago Petén Itzá, dpto. Petén, on 27 December 2010 (Jones & Komar 2011c) and near El Tucán Uno in southern dpto. Petén in March 2013 (Jones & Komar 2014a). Two photographed in December 2014 and one in January 2015 near Paso Caballo (Jones *et al.* 2016a) were the first documented records and suggest it is resident and that breeding can be assumed. Central and southern dpto. Petén have been considerably modified by large-scale conversion of forest to cattle pasture, creating savanna-like favourable habitat for Aplomado Falcons.

PEREGRINE FALCON *Falco peregrinus* (C; RM)

Widespread winter visitor but not previously reported breeding in Central America. Following summer records in Guatemala City in 2008 (Jones & Komar 2009a), breeding was confirmed there in 2014. Although the nest site is unknown, two recently fledged juveniles with their parents were seen in the last week of April (Jones & Komar 2015b) and remained together until August (F. Aldana pers. comm.). Based on the mean length of the incubation (34 days) and nestling periods (40 days) elsewhere (White *et al.* 2002), egg laying presumably occurred in the first week of February. The first breeding record for Central America. Based on the dark ear-coverts and rather pale breast of the adults, and chestnut ground colour of the juveniles (F. Aldana & M. Rodríguez pers. comm., photographs) they were perhaps race *anatum*, whose regular breeding range includes North America, except the northern tundra, and northern Mexico (White *et al.* 2002, 2013).

PACIFIC PARAKEET *Psittacara strenuus* (D; R)

Fairly common in the Pacific foothills and highlands, and found locally on the Atlantic slope in the interior valley of the río Motagua. Observations in Cobán, dpto. Alta Verapaz, extend its range 60 km over the Atlantic slope highlands from the nearest record in the Motagua Valley. These include two on 13 and 18 July 2015, ten on 15 February 2016, two on 4 March

2016, two sound-recorded on 19 March 2016, ten sound-recorded on 1 April 2016 (Fig. 24) and ten seen on 23 and 26 July 2016.

BLACK-BANDED WOODCREEPER

Dendrocolaptes picumnus (D; R)

Widely distributed from southern Mexico to central South America, but the northern race *puncticollis* is poorly known (Howell & Webb 1995). Historical records from the highlands in dptos. Alta Verapaz and Baja Verapaz, and Sierra de las Minas, dpto. Zacapa (Salvin & Godman 1888–1897, Griscom 1932, Land 1962a). Unreported in Guatemala for almost 60 years until one was photographed at Montaña Santa Rosa, dpto. Baja Verapaz, on 26 May 2018 (Fig. 25).

STRONG-BILLED WOODCREEPER

Xiphocolaptes promeropyrhynchus (D; R)

Uncommon and previously recorded only in the Atlantic slope highlands and lowlands (Howell & Webb 1995). New records are from pine–oak forest in the Pacific slope highlands including one in Parque Regional Municipal Los Altos de San Miguel Totonicapán, dpto. Totonicapán, on 22 July 2001 (J. Berry pers. comm.), Montaña de Carmona, dpto. Sacatepéquez (Jones & Komar 2007a,c), Cerro Alux, dpto. Sacatepéquez (Jones & Komar 2013a), and one at Cerro Tecpán, dpto. Chimaltenango, on 7 April 2014. These records suggest that it occurs throughout the Guatemalan highlands.

RUFOUS-BREASTED SPINETAIL

Synallaxis erythrothorax (D; R)

Found mainly below 900 m on both slopes.

A pair photographed nestbuilding near the ecotone between humid broadleaf forest and a coffee plantation were at the unusually high elevation of 1,500 m, in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 20 May 2008. The nest was unsuccessful (G. López pers. comm.).

MOUNTAIN ELAENIA *Elaenia frankzii* (D; R)

Following the distributional summary in Eisermann & Avendaño (2007), recent data suggest it occurs locally throughout the humid and semi-humid Atlantic and Pacific slope highlands. New site records from the Atlantic highlands include 1–2 birds seen repeatedly in Reserva Natural Privada Posada Montaña del Quetzal, dpto. Baja Verapaz, during 2007–



Figure 24. Pacific Parakeet *Psittacara strenuus*, Cobán, dpto. Alta Verapaz, 1 April 2016 (Knut Eisermann)



Figure 25. Black-banded Woodcreeper *Dendrocolaptes picumnus*, Montaña Santa Rosa, dpto. Baja Verapaz, 26 May 2018 (Knut Eisermann)

17 including a nest with an incubating or brooding adult photographed on 15 June 2015 and an adult with recently fledged juvenile on 15 September 2008, two seen in oak forest at Chaculá, dpto. Huehuetenango on 3 February 2015, and records from Cerro El Amay, dpto. Quiché at 1,800–2,600 m (Eisermann *et al.* 2013). New site records from the Pacific highlands include two at Volcán Pacaya, dpto. Escuintla, on 12 May 2009 (O. Barden pers. comm.), two at Volcán San Pedro, dpto. Sololá, on 21 August 2009, and singles at 1,800 m in Reserva Natural Privada Los Tarrales at Volcán Atitlán, dpto. Suchitepéquez, on 6 April and 15 April 2008, with one at 2,700 m on 21 June 2008. The westernmost record was one heard in Refugio del Quetzal, 4 km east of San Rafael Pie de la Cuesta, dpto. San Marcos, on 1 and 3 March 2010. Recently reported for the first time in Chiapas, Mexico (Hanna *et al.* 2016). Guatemalan records are from 1,400–2,700 m.

BELTED FLYCATCHER *Xenotriccus callizonus* (C, D; R)

Very local in semi-humid to arid oak forest with dense understorey, being reliably recorded in Guatemala from only five topographic units: the Lago Atitlán Valley, dpto. Sololá, the río Chixoy Valley, dpto. Alta Verapaz, Montaña Santa Rosa, dpto. Baja Verapaz, the Antigua Guatemala Valley, dpto. Sacatepéquez, and the Nentón Valley / northern foothills of Sierra Los Cuchumatanes, dpto. Huehuetenango.

Lago Atitlán Valley: new records from near the type locality in Panajachel (Dwight & Griscom 1927, Griscom 1932), include north-east of Panajachel (J. Berry *in* Eisermann & Avendaño 2007), one in Reserva Natural Privada Atitlán, north-west of Panajachel, on 17 February 2008 (A. Kling pers. comm.), one photographed at Laguna Lodge, Santa Cruz La Laguna, in August 2008 (Jones & Komar 2009b), one on the north-west slope of Volcán San Pedro on 4 January 2007 (C. Benesh pers. comm.), near San Juan La Laguna in July 2009 (Jones & Komar 2010a), west of San Juan La Laguna at nearly 2,200 m on 15 August 2014 (C. Aguilar pers. comm.), two territories at Finca Santa Victoria on 16 February 2012, one photographed at Cerro Paquisís on 12 November 2015 (M. Ovando pers. comm.) and one in Los Robles east of Lago Atitlán at 2,030 m on 28 January 2017 (E. Buchán pers. comm., eBird S33986309).

Río Chixoy Valley: recently discovered at Finca San Joaquín, 4 km south of San Cristóbal Verapaz, dpto. Alta Verapaz, where two were heard on 10 July 2007.



Figure 26. Belted Flycatcher *Xenotriccus callizonus* nests (a) near San Juan La Laguna, dpto. Sololá, 27 May 2014 (© Juan Chocoy), (b) Montaña Santa Rosa, dpto. Baja Verapaz, 27 May 2018 (Knut Eisermann)

Montaña Santa Rosa: historical records are available 8 km north-west of Purulhá, dpto. Baja Verapaz (Land & Wolf 1961), while recent reports 6 km south of there confirm its presence near Pantin (Jones & Komar 2015d), with another near La Cebadilla, dpto. Baja Verapaz, on 28 November 2015 (J. Cahill, eBird S26033869). Six territories at Montaña Santa Rosa along a 2.5 km transect on 26 July and 7 August 2017, and 11 territories along a 2 km transect on 25 / 26 May 2018. Based on a strip width of 100 m, we estimate a mean population density of four territories / 10 ha of forest in that area.

Antigua Guatemala Valley: first documented at Finca Filadelfia on 10 June 2016 (G. Seeholzer, photograph, eBird S30246483).

Nentón Valley: recently documented from the transition between the northern foothills of Sierra Los Cuchumatanes and the Nentón Valley including one photographed on 14 April 2012, one seen on 21 January 2015, two seen on 3 February 2015 and one on 13 April 2017, at Chaculá, dpto. Huehuetenango.

Guatemalan records of Belted Flycatcher are at altitudes of 1,100–2,200 m. Alvarez del Toro (1965) reported it as low as 800 m in Chiapas, Mexico. A nest with two young, c.6 days old, photographed west of San Juan La Laguna, dpto. Sololá, on 27 May 2014 (J. Chocoy pers. comm., Fig. 26a) and a nest with two chicks of the same age at Montaña Santa Rosa, dpto. Baja Verapaz, on 27 May 2018 (Fig. 26b) are the first breeding records for the country. The nest at Montaña Santa Rosa was a thin-walled cup of grass, herb stems and pine needles, with an outer diameter of 6 cm and depth of 6 cm, and was sited 2 m above ground in the fork of a shrub, similar to nests described from Chiapas, Mexico (Alvarez del Toro 1965).

At Cerro Montecristo it has been reported from the El Salvador side (Komar 2002). This flycatcher is apparently closely tied to oak-dominated forest with a dense understorey. Although this type of forest occurs only disjunctly throughout the interior mountains of Guatemala, we assume Belted Flycatcher to be more widely distributed than the sum of records suggests; it should be looked for in under-surveyed parts of dptos. Huehuetenango, El Progreso, Quiché, Chimaltenango, Guatemala, Santa Rosa, Jutiapa, Jalapa, Zacapa and Chiquimula.

WESTERN WOOD PEWEE *Contopus sordidulus* (C; RV)

A widespread transient that was thought likely to breed in the highlands by Griscom (1932) based on specimens from July and August, but nesting has not previously been reported. A territorial pair with an adult incubating or brooding on a nest, sound-recorded and photographed near Finca El Carmen, dpto. Huehuetenango, on 2 June 2017 (Fig. 27) confirms breeding. The nest was c.6 m above ground on a bare branch. June records are



Figure 27. Nesting Western Wood Pewee *Contopus sordidulus* in Guatemala, near Finca El Carmen, dpto. Huehuetenango, 2 June 2017: (a) adult in nest; (b) nest; (c) adult (Knut Eisermann)

very rare, but it has been reported from Montaña Caquipec, dpto. Alta Verapaz (Eisermann & Schulz 2005) and one was seen 5 km south-west of Esquipulas, dpto. Chiquimula, on 30 June 2005. Of 48 specimens from Guatemala registered in Vertnet (<http://portal.vertnet.org>), 37 have data on month of collection (collections and number of specimens: AMNH, 14; DMNH, 1; FMNH, 1; MCZ, 8; MVZ, 1; USNM, 5; LACM, 2; UWBM, 2; WFVZ, 1). Specimens were collected in April, July, August, September, October and November. None is from June. We consider Western Wood Pewee to be a very rare and local breeder in Guatemala. Because the migration period of this species in Guatemala is prolonged, with the first autumn transients in July and spring migration continuing until May (Howell & Webb 1995; KE pers. obs.), it is difficult to determine the status of individual birds. We suspect that most records in Guatemala, including those from May and July, are of passage migrants.

WHITE-THROATED FLYCATCHER *Empidonax albigularis* (C, D; RM)

Thought to breed based on immatures collected at Sierra de las Minas, dpto. Zacapa (Land 1962a). Forty-three broods recorded at Montaña Yalijux, dpto. Alta Verapaz, in 2013–16 (Fig. 28) are the first definite nesting records. Thirty broods for which complete clutch size could be determined were of 1–3 eggs (24 clutches with three eggs, four clutches of two eggs and two clutches of one egg; mean \pm SD: 2.7 ± 0.6 , $n = 30$). Observed or calculated breeding season (nestbuilding to fledging) at Montaña Yalijux was from mid April to late July. All nests were at 1,900–2,400 m in 1–6-year-old second growth in areas used for growing corn (*Zea mays*). Locally fairly common in the Atlantic slope highlands and territorial birds have been observed March–August. White-throated Flycatcher is apparently absent from these high elevations in September–February. Short-distance altitudinal migrations have been suggested (Griscom 1932), but the details of any such movements remain unknown.



Figure 28. Breeding White-throated Flycatcher *Empidonax albigularis*, Montaña Yalijux, dpto. Alta Verapaz: (a) lateral view of a nest with (b) complete clutch of three eggs, 26 May 2015 (© Rogelio Rax Xó); (c) adult with recently fledged juvenile, 4 June 2013 (Knut Eisermann)

VERMILION FLYCATCHER *Pyrocephalus rubinus* (D; R)

Perhaps expanding with deforestation. Its range in Guatemala now includes the savanna of central dpto. Petén, cattle pastures in north-western dpto. Petén, as well as open landscapes in the arid valley of Nentón, dpto. Huehuetenango (Eisermann & Avendaño 2007). Recent records from the interior valleys and highlands include three photographed at San Marcos, dpto. San Marcos on 23 October 2015 (E. O. Díaz, eBird S25544911), two photographed 5 km south-east of San Miguel Ixtahuacán, dpto. San Marcos, on 22 March 2017 (C. Quezada, eBird S35357682), near Sacapulas, dpto. Quiché, in May 2014 (Jones & Komar 2015b), near Salamá, dpto. Baja Verapaz, in November 2013 (Jones & Komar 2014c), one photographed in San Cristóbal Verapaz, dpto. Alta Verapaz, on 15 November 2016 (R. Botzoc, eBird S32568679) and a male seen 10 km west of Huehuetenango, dpto. Huehuetenango, on 3 February 2015 (K. Easley pers. comm.). Records range from near sea level to 2,400 m.

NUTTING'S FLYCATCHER*Myiarchus nuttingi* (D; R)

Until recently known only from the arid south and south-east (Howell & Webb 1995). Recent records from the Nentón Valley, dpto. Huehuetenango, indicate that its range extends from the central valley of Chiapas, Mexico, into western Guatemala. These include six at Finca El Carmen on 13 April 2012 (Fig. 29), one at Lagunas de Candelaria on 28 April 2015 with two there on 29 January 2016, and three near Unión on 2 June 2017.

CASSIN'S KINGBIRD *Tyrannus vociferans* (D; V)

An uncommon and irregular winter visitor. An historical record is from San Miguel Dueñas, dpto. Suchitepéquez (Salvin & Godman 1888–97). New records are from the río Chixoy Valley in dptos. Baja Verapaz and Huehuetenango (Jones & Komar 2013c, 2014c) including four seen 6 km south-east of Aguacatán, dpto. Huehuetenango, on 29 March 2014 (J. Cahill, eBird S18044305), and from the Nentón Valley, where one was seen on 20 January 2015, three on 2 February 2015 and six on 22 April 2017 at Finca El Carmen, dpto. Huehuetenango (but none seen there on 2 December 2014, 13 April 2012 and 2 June 2017), two seen on 6 March 2014 (J. Cahill, eBird S17574890, S17574791), one on 30 January 2016 and two on 28 April 2015 near Chacaj, and three seen 3 km south of La Trinidad on 3 February 2015.



Figure 29. Nutting's Flycatcher *Myiarchus nuttingi*, Finca El Carmen, dpto. Huehuetenango, 13 April 2012 (Knut Eisermann)

FORK-TAILED FLYCATCHER *Tyrannus savana* (C; RM)

An adult building a nest at El Tucán Uno, dpto. Petén, on 9 May 2008 was the first breeding record for Guatemala. The species' migrations are poorly understood (AOU 1989, Howell & Webb 1995, Eisermann & Avendaño 2007).

SPECKLED MOURNER *Laniocera rufescens* (D; r)

Rare in the Atlantic slope lowlands and known in Guatemala from just five sites. Specimens collected near Cobán, dpto. Alta Verapaz (Sclater 1857, Salvin & Godman 1888–97) lack precise locality data. Recent records include one photographed in Parque Nacional Laguna Lachuá, dpto. Alta Verapaz (Avendaño 2001, Fig. 30), with repeated records in 2002–12 during surveys at nearby Rocjá Pomtilá, dpto. Alta Verapaz (E. Caal pers. comm.), as well as Cerro San Gil, dpto. Izabal (Howell & Webb 1992, Cerezo *et al.* 2005), Sierra Santa Cruz, dpto. Izabal (Cerezo & Ramírez 2002) and Nakum archaeological site, dpto. Petén (Seavy



Figure 30. Speckled Mourner *Laniocera rufescens*, near Río Tzetoc, Parque Nacional Laguna Lachuá, dpto. Alta Verapaz, 18 November 1999 (Knut Eisermann)

et al. 1997). One was sound-recorded at 500 m at Montaña Sacranix, dpto. Alta Verapaz, on 16 March 2002.

CHESTNUT-SIDED SHRIKE-VIREO *Vireolanius melitophrys* (C, D; R)

Mainly in the semi-humid Pacific slope highlands (Howell & Webb 1995) but recently recorded from the Atlantic slope highlands in Reserva Natural Privada Chelemhá, dpto. Alta Verapaz, in July 2006 (Jones & Komar 2007a), where it was reported regularly along the entire ridge of Montaña Yalijux in 2007–14. Despite monthly bird counts at Montaña Sacranix, dpto. Alta Verapaz, since 2004 the species was not recorded there until May 2008, with subsequent records in 2009–12 (E. Col & KE pers. obs.). Other new sites in the Atlantic slope highlands include Biotopo del Quetzal, dpto. Baja Verapaz, and Finca Rubel Chahim, dpto. Alta Verapaz (Jones & Komar 2012a), one singing at Montaña Caquipic, dpto. Alta Verapaz, on 25–26 June 2009 (E. Col pers. comm.), Cerro El Amay, dpto. Quiché (Eisermann *et al.* 2013), one singing at Tontem, dpto. Alta Verapaz, on 25 February 2012, and Sierra de las Minas, dpto. El Progreso (Jones & Komar 2013c). With its distinctive and far-carrying vocalisations, it is unlikely to have been overlooked previously and we suspect that Atlantic slope records represent a recent range expansion. A nest photographed near San Lucas Tolimán, dpto. Sololá, on 2 June 2017 (R. A. Xep, R. Tol González pers. comm.) was the first breeding record.

WHITE-EYED VIREO *Vireo griseus* (D; V)

Common winter visitor to the Atlantic slope lowlands, but rare on the Pacific slope (Eisermann & Avendaño 2007). New Pacific slope records include one in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, in December 2011 (Jones & Komar 2012b) and one photographed in San Marcos La Laguna, dpto. Sololá, on 10 March 2017 (I. Soliz, eBird S35083698).

GREEN JAY *Cyanocorax yncas* (D; R)

Five seen near Limonar on 1 December 2014 and two in Chaculá on 29 April 2015 appear to be the first records for the Nentón Valley, dpto. Huehuetenango.

BUSHY-CRESTED JAY *Cyanocorax melanocyaneus* (D; R)

Common in pine–oak forest and plantations in the highlands above 800 m but recorded at the unusually low elevation of 350 m in arid scrub in Parque Regional Municipal Lo de China, dpto. El Progreso, during the breeding and non-breeding seasons, with one on 7 September 2010, four on 10 March and at least ten on 26 October 2014 (including immatures with yellow bills). The site is at the base of a mountain range with pine–oak habitat. Areas above 800 m lie just 3 km distant, and probably within the home range of a flock. Nesting has not been observed in arid scrub but cannot be ruled out. These observations suggest that Bushy-crested Jay may range throughout the year to low elevations near optimal habitat above 800 m.

COMMON RAVEN *Corvus corax* (D; R)

Reportedly common and widespread during the 19th and first half of the 20th century in the highlands and arid interior valleys, with records from Volcán Fuego, dpto. Chimaltenango, the plains near Chimaltenango, dpto. Chimaltenango, Volcán Atitlán, dpto. Sololá, San Miguel Dueñas, dpto. Sacatepéquez, Quetzaltenango, dpto. Quetzaltenango, Sierra Los Cuchumatanes, dpto. Huehuetenango, San Jerónimo, dpto. Baja Verapaz, and the arid valley of the río Motagua, dpto. Zacapa (Sclater & Salvin 1859, Salvin & Godman 1879–87, Griscom 1932, Baepler 1962, Land 1962b). Not listed by Dearborn (1907) or Wetmore (1941), but Land (1970) described it as ‘fairly common in the highlands’ and ‘especially numerous in the Altos of Huehuetenango’ (= Sierra Los Cuchumatanes).

Records post-1970 are very few but include two seen by CA in what is now Parque Regional Municipal Todos Santos Cuchumatán, dpto. Huehuetenango, on 12 April 1997, one near Nueva Santa Catarina Ixtahuacán, dpto. Sololá, on 10 February 2002 (J. Berry pers. comm.), a report without details from Montaña Yalijux, dpto. Alta Verapaz, in 2001–02 (Renner *et al.* 2006), two seen on 11 April and four on 7 May 2007 near San Pedro La Laguna, dpto. Sololá (C. Anderson pers. comm.), one at Finca Rubel Chahim, dpto. Alta Verapaz, on 15 May 2015 (J. Cahill pers. comm.), a presumed pair photographed (Fig. 31) near Chiabal, dpto. Huehuetenango and adjacent to Parque Regional Municipal Todos Santos Cuchumatán, on 5 December 2014, where two birds were seen repeatedly in 2014 (E. Matías pers. comm.), one in Parque Regional Municipal Todos Santos Cuchumatán, dpto. Huehuetenango, on 26 April 2015, with other singles on 11 and 12 April 2016, 30 April 2016, 4 June 2016, 3 July 2016 and 26 August 2016. During multiple visits to the area in 2014–18 up to three birds were seen per day (E. Matías pers. comm.). An undocumented report of eight there on 19 January 2015 (Bolaños Sittler 2016) is doubtful.

Local people in the western highlands report that ravens disappeared in the late 1970s. They were common near Sibinal, dpto. San Marcos, at 2,900 m until the 1970s, when pairs and flocks were seen regularly. Ravens were considered a pest, predated corn, and people poisoned them with baits. Subsequently, the species disappeared from there (A.



Figure. 31. Presumed pair of Common Ravens *Corvus corax*, Chiabal, dpto. Huehuetenango, 5 December 2014 (Knut Eisermann); the first documented record for Guatemala (along with a photograph and sound-recordings from January 2015; Bolaños Sittler 2016) since specimens collected in the 19th century (Bonaparte 1837) and 1958 (Baepler 1962).

Marroquín, I. Santizo & E. López pers. comm.). At Chiabal, in the Sierra Los Cuchumatanes at 3,300 m, dpto. Huehuetenango, flocks of 30–40, and sometimes 100 were seen until 1978. Ravens nested there on cliffs (I. Ramos Pérez pers. comm.). North-west of the Sierra Los Cuchumatanes, at Limonar, dpto. Huehuetenango, at 800 m in the Nentón Valley, the species was seen in flocks of up to ten mainly in June–July until the end of the 1970s. Again, local people poisoned the birds because they were preying on corn (A. Díaz Cota pers. comm.). At Volcán Siete Orejas at 3,000 m, dpto. Quetzaltenango, they were common until the second half of the 1970s; flocks of 3–20 were seen and the birds nested on cliffs. Ravens disappeared from there suddenly between 1974 and 1979 (M. Rivera pers. comm.). The western highlands of Guatemala are densely populated by farmers. It can be presumed that poisoning throughout the region led to a sudden collapse in the population. Until recently, the species had not recovered. Based on repeated recent observations of two birds in Parque Regional Municipal Todos Santos Cuchumatán and its environs, we presume that nesting may still occur there.

PURPLE MARTIN *Progne subis* (A; T)

Breeds in North America and winters in South America (Brown & Tarof 2013). Purple Martin is a fairly common transient through Guatemala, but without documentation and thus until recently was considered hypothetical (Eisermann & Avendaño 2007). One photographed in Punta de Manabique Wildlife Refuge, dpto. Izabal, in March 2012 (J. Cahill, eBird, S10403679) and another in San Benito, dpto. Petén, in September 2016 (C. Echeverría, eBird S31429440) provide documented records from spring and autumn passage.

CAVE SWALLOW *Petrochelidon fulva* (A; V)

First documented by a bird photographed near Antigua Guatemala, dpto. Sacatepéquez, in March 2008 where 55 were seen (Jones & Komar 2008d). Undocumented reports from the río Paz, dpto. Jutiapa (Eisermann & Avendaño 2007), Monterrico, dpto. Santa Rosa (Eisermann & Avendaño 2006), Cerro San Gil, dpto. Izabal (Robbins & Dowell 1995), Finca Patrocinio, dpto. Quetzaltenango (Jones & Komar 2008d), Escuintla, dpto. Escuintla (Jones & Komar 2008d) and 24 seen at Lago Atitlán, dpto. Sololá, on 14 December 2008 (R. Sigüenza pers. comm.). All records are in December–March. A common and regular winter visitor to coastal El Salvador (Jones & Komar 2008d), but it appears to be an irregular visitor and transient in Guatemala.

ROCK WREN *Salpinctes obsoletus* (C, D; R)

Associated with extensive rocky areas and is very local in northern Central America (Griscom 1932, Howell & Webb 1995). In Guatemala, recent records include one heard at Volcán Pacaya, dpto. Escuintla, on 12 May 2009 (O. Barden pers. comm.), at least one seen at Lago Atitlán near Santiago Atitlán, dpto. Sololá, on 25 February 2001 (P. Kaestner pers. comm.) and three north of Panajachel dpto. Sololá, on 22 March 2002 (M. Mathieson pers. comm.). Unrecorded for more than a century in the arid interior valley of Nentón, dpto. Huehuetenango (Nelson 1897), where a population was relocated in April 2012, with two at Finca El Carmen on 13 April 2012 and at least nine territories (13 individuals) at seven of nine sample points along a 10 km transect south of La Trinidad on 15 April 2012. At the same site, an active nest with at least two nearly fledged young on 27 April 2015 (Fig. 32a) confirms breeding. Another active nest with three c.8 day-old juveniles was observed at Finca El Carmen on 2 June 2017 (Fig. 32b). Both nests were in natural rock cavities, but another observed on 25 August 2017 held nearly fledged juveniles and was in the wall of a house 5 km east of San Andrés Sajcabajá, dpto. Quiché, where 19 individuals were

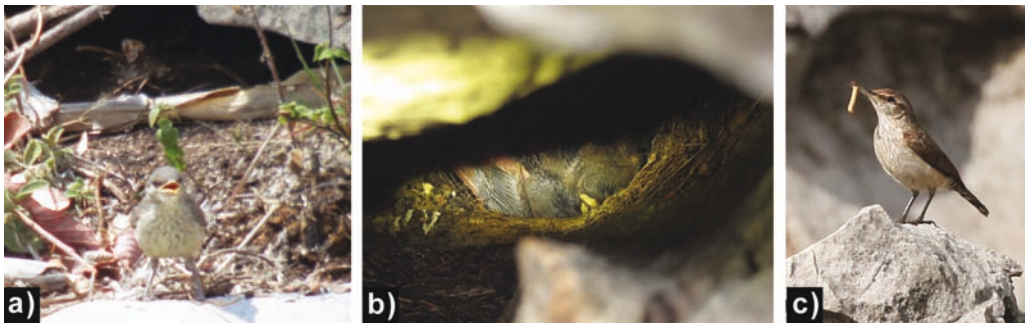


Figure 32. Nesting evidence of Rock Wren *Salpinctes obsoletus* in Guatemala: (a) fledgling in front of nest cavity, 3 km south of Trinidad, dpto. Huehuetenango, 27 April 2015; (b) nest with c.8 day-old juveniles, (c) food-carrying adult about to enter nest cavity, Finca El Carmen, dpto. Huehuetenango, 2 June 2017 (Knut Eisermann)

seen (M. E. Chocoy pers. comm.). Records from the upper Sierra Los Cuchumatanes, dpto. Huehuetenango, including one near La Capellanía on 4 March 2014 (J. Cahill, eBird S17553926) and two near Paquix on 3 September 2017 (E. Matías, eBird S38975603) confirm its presence at historical collection localities (Nelson 1897). In dpto. Quetzaltenango, Rock Wren was recorded several times at Volcán Cerro Quemado in December 2014 (Jones *et al.* 2016a). In dpto. Baja Verapaz, one was photographed at Chixoy dam 10 km south of San Cristóbal Verapaz on 13 November 2012 (Jones & Komar 2013c). In dpto. San Marcos, 5 km south-east of San Miguel Ixtahuacán, the species was photo-documented for the first time on 29 January 2017 (C. Quezada, eBird, S34046193). Historical (Salvin & Godman 1879–87, Nelson 1897, Griscom 1932) and recent records in Guatemala are from elevations of 1,000–3,200 m. We consider it a rare to common but very local resident.

SEDGE WREN *Cistothorus platensis* (C, D; R)

Very local in savanna and grasslands, and recorded from six sites in the Pacific slope highlands and in lowlands of central dpto. Petén at 200–3,700 m. Historical records are from San Miguel Dueñas and Volcán Agua, dpto. Sacatepéquez (Salvin & Godman 1879–87, Griscom 1932). Recently a resident population was reported by J. Berry from Quetzaltenango, dpto. Quetzaltenango (Eisermann & Avendaño 2007), where the species was also reported in 2012 (Jones & Komar 2013b), in Fraijanes, dpto. Guatemala (Jones & Komar 2009b) and 5 km north of San Francisco El Alto, dpto. Totonicapán (Jones & Komar 2011c). A report of six with photographs and observations of copulation and collecting nest material in Santa Ana, dpto. Petén, on 14 June 2017 (C. Echeverría, eBird S37587495) was the first breeding record.

CAROLINA WREN *Thryothorus ludovicianus* (D; R)

Fairly common in northern dpto. Petén. A report from near Salamá, dpto. Baja Verapaz, in May 2015 (Jones *et al.* 2016b) confirms historical records of an isolated population in the arid interior valley of the río Chixoy (Griscom 1932).

GIANT WREN *Campylorhynchus chiapensis* (A, C, D; R)

Long considered a Mexican endemic and confined mainly to the Pacific slope lowlands of Chiapas (Howell & Webb 1995). First reported from the río Suchiate near Limones, dpto. San Marcos, on the Mexico / Guatemala border, in March 2014 (Cahill 2014, Jones & Komar 2015b). Subsequent records include birds 4 km east of the border in La Blanca, dpto. San Marcos, in October and December 2014 (Jones & Komar 2015d, Jones *et al.* 2016a) and three

territories in Salinas Dos on 24 March 2015. A bird carrying nest material near La Blanca in October 2014 (Jones & Komar 2015d) and a pair photographed nestbuilding in a mistletoe in a *Salix* tree 16 m above ground in Salinas Dos, dpto. San Marcos, on 25 April 2015 confirms breeding in Guatemala. Two photographed near Catarina, dpto. San Marcos, on 26 December 2015 (J. Monzón pers. comm.) represents the easternmost record.

BANDED WREN *Thryophilus pleurostictus* (C, D; R)

Previously unrecorded in the Nentón Valley, dpto. Huehuetenango (Howell & Webb 1995) but observations in 2012–17 indicate it is common there. Nests observed at Finca El Carmen on 13 April 2012 and 7 km north of Nentón on 29 April 2017 confirm breeding.

BLUE-GREY GNATCATCHER *Poliioptila caerulea* (D; rm)

A fairly common Nearctic migrant in Guatemala, which also breeds locally in the region (Jones 2003a). Spring and summer records in Guatemala include territorial pairs, with the male in breeding plumage, photographed in Chaculá, dpto. Huehuetenango, on 13 April 2017 and 2 June 2017 (Fig. 33), five seen near Sayaxché in central dpto. Petén, on 5 July 2015 (A. B. Lucas, eBird S24187929), four near San Francisco, dpto. Petén, on 26 June 2017 (J. Dangel, eBird S37796876), and one or two on the south shore of Lago Petén Itzá, in June and July 2014–17 (J. Dangel, eBird S37781379, A. B. Lucas S24570138, S37813803, M. García, S37580712, and M. Rodríguez, S19192390). The only historical summer record is a specimen from El Remate, dpto. Petén, taken on 30 July (van Tyne 1935). These records suggest breeding in central dpto. Petén and in northern dpto. Huehuetenango, but nests have not been reported.



Figure 33. Male Blue-grey Gnatcatcher *Poliioptila caerulea*, Chaculá, dpto. Huehuetenango, 13 April 2017 (Knut Eisermann)

WHITE-LORED GNATCATCHER

Poliioptila albiloris (D; R)

Found in arid to semi-humid scrub and forest, and until recently known only from the arid south-east (Howell & Webb 1995, Dickerman 2007). Recent records in the Nentón Valley, dpto. Huehuetenango, indicate that its range in the central valley of Chiapas, Mexico, extends into western Guatemala. These include one near La Mesilla on 17 February 2002 (P. Kaestner pers. comm.), six on 13 April 2012, three on 2 December 2014, six on 20 January 2015, five on 2 February 2015, two on 22 April 2017 and two on 2 June 2017 at Finca El Carmen, two near Unión on 2 June 2017, two at Lagunas de Candelaria on 2 December 2014 with four on 28 April 2015 and two on 29 January 2016, one 3 km south of La Trinidad on 15 April 2012, seven at Limonar on 1 December 2014, and two near Chacaj on 28 April 2015 and 30 January 2016. Reports of lone birds in the Lago Atitlán Valley, dpto. Sololá, including singles on 24 October 2006 and 24 January 2007 at San Pedro La Laguna (C. Anderson pers. comm.) may have been vagrants. There seem to be no historical or more recent records (2007–16) from this locality.



Figure 34. Adult American Dipper *Cinclus mexicanus* with two dependent juveniles, Reserva Ranchitos del Quetzal, 18 May 2018 (Knut Eisermann)

AMERICAN DIPPER *Cinclus mexicanus* (C, D; R)

Uncommon in the highlands. An active nest photographed in Reserva Natural Privada Posada Montaña del Quetzal, dpto. Baja Verapaz, in February 2008 (T. Janson pers. comm.) and a pair with two dependent juveniles in Reserva Ranchitos del Quetzal on 18 May 2018 (Fig. 34) confirm breeding. Observations at the río Polochic near Tamahú, at the unusually low elevation of 650 m, in March 2014 (Jones & Komar 2015b) and on 8 October 2014 suggest that the species ranges locally below 1,000 m year-round.

GOLDEN-CROWNED KINGLET *Regulus satrapa* (C; R)

Locally fairly common resident in high-elevation (>2,500 m) coniferous forest and woodland. A pair was observed tending juveniles in Parque Regional Municipal Todos Santos Cuchumatán on 5 June 2017. Both adults repeatedly entered a dense, 3 m-tall juniper (*Juniperus standleyi*) shrub from where begging calls could be heard. We could not determine if the young were in a nest or fledged. This is the first observation of breeding in Guatemala.

RUBY-CROWNED KINGLET *Regulus calendula* (D; vagM)

Rare winter visitor (Eisermann & Avendaño 2007). Several specimens were collected at unknown sites in the 19th century by G. U. Skinner (Sclater & Salvin 1859, Salvin &



Figure 35. Ruby-crowned Kinglet *Regulus calendula*, Parque Regional Municipal de San Pedro Sacatepéquez, dpto. San Marcos, 6 February 2012; the first documented site record for Guatemala (Knut Eisermann)

Godman 1879–87). One of these is a male taken in 1859 now in the Smithsonian Institution, Washington DC (USNM 13631). Several sightings lack documentation, including from Totonicapán, dpto. Totonicapán (Salvin & Godman 1879–87, Ridgway 1904), one at Finca Chancol (Hotel Unicornio Azul), dpto. Huehuetenango, at 3,100 m on 16 February 2002 (P. Kaestner pers. comm.) and one at Volcán Tolimán, dpto. Sololá, on 24 February 2001 (P. Kaestner pers. comm.). Another was heard in Parque Regional Municipal de San Marcos, dpto. San Marcos, at 2,800 m on 9 February 2012, and one seen at Cerro Tecpán, dpto. Chimaltenango, on 2 January 2014 (Jones & Komar 2015a). A bird photographed in a mixed-species flock with Pink-headed Warbler *Cardellina versicolor*, Townsend's Warbler *Setophaga townsendi* and Wilson's Warbler *Cardellina pusilla* in an 8 m-tall pine plantation at 3,100 m in Parque Regional Municipal de San Pedro Sacatepéquez, dpto. San Marcos, on 6 February 2012 (Fig. 35) was the first documented site-specific record.

BLACK CATBIRD *Melanoptila glabrirostris* (D; r)

Poorly known endemic to the Yucatán Peninsula. Studies in Belize and Mexico (Morgenthaler 2003, Roldán-Clarà 2009, Roldán-Clarà *et al.* 2013) indicate that breeding occurs April–August. With few available records (van Tyne 1935), status in Guatemala was uncertain (Land 1970, Eisermann & Avendaño 2007). New records are from central dpto. Petén during the breeding season including ten near Santa Anta in May 2014 (Jones & Komar 2015b) plus three in June and eight in July 2014 (Jones & Komar 2015c), three on 13 August 2015 (A. B. Lucas, eBird S24780214), seven on 14 May 2016 (M. García, eBird S29661709), three on 23 June 2017 (A. B. Lucas, eBird S37768931) and one on 29 June 2017 (J. Madrid, eBird S37869445), and one near San Miguel in July 2014 (Jones & Komar 2015c) with three there on 26 May 2017 (C. Echeverría, photograph, eBird S37169870). Based on these data, we suspect that Black Catbird breeds in the area, but nesting has not been reported.

TRICOLOURED MUNIA *Lonchura malacca* (A, D; ?)

Native to India and Sri Lanka, and recently introduced in the Caribbean and Venezuela (Banks *et al.* 2000), with recent records throughout Central America (Jones 2003a, 2004b, Funes & Herrera 2006). An adult photographed by M. Rivera at Lago Petén Itzá, dpto.



Figure 36. Part of a flock of 25 Tricoloured Munias *Lonchura malacca*, near Monterrico, dpto. Santa Rosa, 9 January 2018 (Knut Eisermann)

Petén, on 29 September 2009 (Jones & Komar 2010b) was the first documented record. A pair photographed near Puerto Quetzal, dpto. Escuintla, in January 2015 (Jones *et al.* 2016a) was the second. A flock of 25 photographed in reed swamps near Monterrico, dpto. Santa Rosa on 9 January 2018 (Fig. 36) is the largest concentration reported. The agricultural fields favoured by this species are rarely surveyed and it is uncertain if it is established in Guatemala.

CHESTNUT MUNIA *Lonchura atricapilla* (B; ?, H)

Native to south Asia and recently introduced in the West Indies (Banks *et al.* 2000). It is unknown if the species is established in South America, where it has been reported in Ecuador (Restall *et al.* 2006). An adult 6 km north-west of Villa Canales, dpto. Guatemala, on 27 June 2007 (K. Duchez pers. comm.) was the first report for Guatemala, but the bird's origin is uncertain and we are not aware of any other reports.

HOUSE SPARROW *Passer domesticus* (D; R)

An Old World species introduced into the eastern USA during the 19th century, which has expanded throughout North and Middle America (AOU 1998). In Guatemala, House Sparrow was still unknown in the 1960s (Land 1970) but during the 1970s it became widespread in the highlands (Thurber 1972, 1986). Dpto. Petén, covering large parts of the Atlantic slope lowlands, was colonised more recently with the first record there in 2011. New records from urban areas in the deforested southern and central parts of the department (in chronological order) include 30 in El Subín in February 2011 (Jones & Komar 2011c), three in La Libertad on 27 March 2013, two in Poptún in September 2013 (Jones & Komar 2014c), 20 in Santa Elena in October 2014 (Jones & Komar 2015d), eight in Vista Hermosa on 5 May 2015 (M. García, eBird S26549685), two in San Andrés on 1 January 2016 (C. Chablé, eBird S26572819) and seven photographed in San Luis on 18 March 2017 (B. Mes, eBird S35270885).

WHITE-VENTED EUPHONIA *Euphonia minuta* (D; r)

Rare to locally uncommon in the Atlantic slope lowlands and foothills. A specimen reported to be from Cobán, dpto. Alta Verapaz (Salvin & Sclater 1860b) was probably collected at a lower elevation north of the city. Reliable site records are from Cerro San Gil, Las Escobas, Cimarrón, Santo Tomás, Sierra del Caral, and El Estor in dpto. Izabal (Wendelken & Martin 1989, Howell & Webb 1992, Seglund & Conner 1997, Cerezo & Ramírez 2003). New records include one in Selemín, dpto. Izabal, on 25 April 2002 (J. Berry pers. comm.) and a pair near Río Tzetoc in Parque Nacional Laguna Lachuá, dpto. Alta Verapaz, on 23 November 1999. Reports from Bonampak in adjacent Chiapas, Mexico (Gómez de Silva 2010, 2011a,b, 2012) suggest that it may also occur in dpto. Petén. Nesting is assumed but has not been reported.

HOUSE FINCH *Haemorhous mexicanus* (B; r, H)

Ranges from North America to southern Mexico, with a disjunct population in the central valley of Chiapas (Howell & Webb 1995). Several were observed singing persistently in Tzisco, Chiapas, Mexico, on the border with Guatemala and two were heard in the village of El Quetzal, dpto. Huehuetenango, on 9 July 2017 (E. Hernández Molina, eBird S38059548). This is the first report for Guatemala and Central America. The presence of territorial birds suggests it is now a resident breeder in the area.



Figure 37. Juvenile plumage of grey morphs in the Black-capped Siskin *Spinus atriceps* / Pine Siskin *S. pinus perplexus* complex: (a) dependent juvenile with adult (above), 5 km north of San Francisco El Alto, dpto. Totonicapán, 11 September 2014; (b) dependent juvenile (left) and adult, (c) lateral view of same juvenile, Chichim, dpto. Huehuetenango, 3 July 2016 (Knut Eisermann)

BLACK-CAPPED SISKIN *Spinus atriceps* (C; R) / **PINE SISKIN** *Spinus pinus perplexus* (D; R)

The taxonomy of *S. atriceps* and the southernmost race of Pine Siskin *S. p. perplexus* is vexed. *S. atriceps* was described based on two male specimens, one olive-coloured with a black cap and the other mainly grey with a black cap (Salvin 1863, Salvin & Godman 1879–1904, Valley *et al.* 2014). *S. p. perplexus* was described based on a mainly greyish bird with dark dorsal and ventral streaks (van Rossem 1938, Valley *et al.* 2014). Valley *et al.* (2014) discussed the existing confusion in the literature from 1863 to 2008 regarding the taxonomic status of the different forms, which includes olive-coloured birds with a dark cap referred to *S. atriceps*, greyish birds with a dark cap that have been considered either to be *S. atriceps* or *S. p. perplexus*, greyish birds with dark streaks considered to be *S. p. perplexus* and greyish birds with a dark cap that have been regarded as hybrids between the two species, as well as the possibility of all these forms being conspecific.

Based on measurements of specimens belonging to all of these morphological variants, Valley *et al.* (2014) determined there to be differences in bill shape and wing length that permit definition of two groups: (1) olive birds (males and females) and (2) greyish birds and streaked birds. A more recent molecular study is congruent with these results, as olive birds grouped together vs. grey and streaked birds (Alvarez *et al.* 2016). Both studies shed light on the taxonomic relationships between the different morphotypes, but the nomenclatural confusion remains unresolved, because grey-coloured birds with a dark cap were originally described as *S. atriceps* (Salvin 1863, Salvin & Godman 1879–1904), meaning that using the name *S. pinus perplexus* for grey birds with a dark cap violates the *International code of zoological nomenclature* (ICZN 1999, Dickinson *et al.* 2011).

The olive form is locally common in the western highlands of Guatemala, but nesting has apparently not been described (Howell & Webb 1995). We observed an active nest at 3,170 m at Volcán Siete Orejas, dpto. Quetzaltenango, on 12–14 February 2012 during the final phase of construction. The nest was an open cup placed 5.5 m above ground on the dense branch of a 7 m cypress *Neocupressus lusitanica*. The pair flew back and forth and the female, identified by its duller olive plumage, entered the nest with material and remained up to 70 minutes inside it, probably indicating the onset of incubation. The male fed the female in the nest. Surrounding habitat was open woodland with cypress, pine (*Pinus* sp.), arrayán (*Baccharis* sp.), agave (*Agave* sp.) and some alder trees (*Alnus* sp.). At the same site a female was seen nestbuilding on 16 April 2013. Birds with streaked juvenile plumage were observed there on 14 May 2012. Juveniles were also seen at Volcán Atitlán, in Reserva

Natural Privada Los Tarrales, dpto. Suchitepéquez, on 7 June 2008, at Cerro Tecpán, dpto. Chimaltenango, on 18 April 2009, and Unión Reforma, dpto. San Marcos, on 2 April 2012. Nesting appears to be synchronised with the dry season, which in the Pacific slope highlands is in December–April.

We observed grey birds, and grey birds with dark streaks, in flocks of up to more than 50 individuals, in pairs, and in family groups of adults with dependent juveniles at two sites: Sierra Los Cuchumatanes, dpto. Huehuetenango, and 5 km north of San Francisco El Alto, dpto. Totonicapán. Juveniles of grey birds were previously unknown (Vallely *et al.* 2014). Near Chichim, adjacent to Parque Regional Municipal Todos Santos Cuchumatán, we observed a family group with dependent juveniles on 3 July 2016 (Fig. 37b,c), as well as 5 km north of San Francisco El Alto, dpto. Totonicapán, on 11 September 2014 (Fig. 36a). The juvenile at San Francisco El Alto was heavily streaked, similar to the image labelled ‘unknown juvenile’ in Fig. 2b in Vallely *et al.* (2014). The streaking on the juvenile near Chichim was less pronounced. Two nests of grey birds were observed in Chiabal, dpto. Huehuetenango: one with two young less than a week old on 23 September 2016, and one with two eggs on 27 September 2016 (E. Matías pers. comm.). Based on the observations of dependent juveniles and nests, the breeding season seems to be synchronised with the wet season. Although most siskins we saw in Parque Regional Municipal Todos Santos Cuchumatán and environs in 2014–17 were grey and streaked birds, we also saw pairs and small groups of olive birds, sometimes in mixed flocks with grey birds.

OLIVE SPARROW *Arremon rufivirgatus* (D; r)

Long known in Guatemala only from a specimen taken in 1956 near La Libertad in central dpto. Petén (Smithe & Paynter 1963). Two were seen at the same site in November 2012 (Jones & Komar 2013c). Other documented records from dpto. Petén include two photographed



Figure 38. Olive Sparrow *Arremon rufivirgatus*, Chaculá, dpto. Huehuetenango, 13 April 2017 (Knut Eisermann)

near La Libertad on 23 August 2017 (I. Morataya, eBird S38786303), one photographed 8 km north-east of La Libertad on 31 December 2014 (C. Echeverría, eBird S21099506), one photographed near Santa Ana on 14 May 2016 (A. B. Lucas, eBird S29664052) and two photographed there on 17 March 2016 (C. Echeverría, eBird S28334488).

Recent observations in the Nentón Valley, dpto. Huehuetenango, indicate a slight extension of the range from the central valley of Chiapas, Mexico. These include several 8 km north of Nentón and near Lagunas de Candelaria in May 2014 (Jones & Komar 2015b), two near Lagunas de Candelaria on 28 April 2015, two photographed on 2 December 2014, two seen on 20 January 2015 and one singing on 2 June 2015 at Finca El Carmen, one 2 km east of Unión on 2 June 2017, one on 1 February 2015, six photographed and sound-recorded on 13 April 2017 (Fig. 38), two each on 22 April 2017, 2 June 2017 and 8 October 2017 at Chaculá, one 7 km south of La Trinidad on 4 June 2017, two near Nentón on 4 June 2017, one 12 km south-west of Nentón on 4 June 2017, and one 3 km north of Camojá Grande on 27 April 2015 (H. Barnard pers. comm.). Nesting has not been reported but we assume it is a breeding resident in the valley of Nentón and in central dpto. Petén.

WHITE-FACED GROUND SPARROW *Melozone biarcuata* (C; R)

Previously considered conspecific with the Costa Rican endemic Cabanis's Ground Sparrow *M. cabanisi* under the name 'Prevost's Ground Sparrow' *M. biarcuata* (e.g. AOU 1998, Eisermann & Avendaño 2007) but now treated separately following Sandoval *et al.* (2014). Juveniles reported by Griscom (1932) suggested that White-faced Ground Sparrow is a breeding resident in the highlands and foothills, but a nest photographed at Montaña Yalijux, dpto. Alta Verapaz at 1,950 m, on 21 July 2006 was the first confirmed nesting record. The nest was an open cup constructed mainly of sedge (*Carex* sp.) leaves, with some rootlets and inflorescences of *Plantago* sp., and lined with fine rootlets. It was placed 50 cm above ground in a tussock of a 1 m-tall sedge *Carex donnell-smithii* at the edge of a corn field (Fig. 39a). Nest dimensions were: 14.0 cm outer diameter, 13.0 cm depth, 7.5 cm cup diameter and 6.0 cm cup depth. An adult was photographed incubating two eggs, which were whitish with reddish-brown mottling (Fig. 39b). Egg dimensions were 23.4 × 16.8 mm and 22.6 × 16.5 mm. The nest and eggs were similar to five nests described from Chiapas, Mexico (Danner *et al.* 2008).



Figure 39. Nesting evidence of White-faced Ground Sparrow *Melozone biarcuata* in Guatemala: (a) adult in nest, (b) nest with two eggs, Montaña Yalijux, dpto. Alta Verapaz, 21 July 2006 (Knut Eisermann)

STRIPE-HEADED SPARROW *Peucaea ruficauda* (D; R)

Formerly thought to be confined to the south-east (Howell & Webb 1995), recent records indicate it is widespread on the entire arid and semi-humid Pacific slope from sea level to 1,500 m, with records from Tilapa, dpto. San Marcos (Eisermann & Avendaño 2007), one at Panajachel, dpto. Sololá, on 23 April 2008, one at San Pedro La Laguna, dpto. Sololá on 12 June 2009 (C. Anderson pers. comm.) and two 6 km north-east of Champerico, dpto. Retalhuleu, on 10 March 2011 and 4 March 2012 (T. Fjesme pers. comm.).



Figure 40. Chipping Sparrow *Spizella passerina*, Chaculá, dpto. Huehuetenango: (a) nest with two juveniles, 28 April 2015; (b) nest with two juveniles and an egg, 3 June 2017; (c) adult outside nest, 3 June 2017 (Knut Eisermann)

CHIPPING SPARROW *Spizella passerina* (C; R)

Resident populations in northern Central America are at the southern limit of the species' range (Middleton 1998), where it is confined to lowland pine savanna and highland pine-oak woodland (Griscom 1932). A nest with two *c.*7 day-old young photographed on 28 April 2015 (Fig. 40a) and one with two *c.*5 day-old young and an egg photographed on 3 June 2017 (Fig. 40b) at Chaculá, dpto. Huehuetenango, confirm breeding. These open-cup nests were 2.2 m and 2.5 m above ground, respectively, in 3 m-tall cypress (*Neocupressus* sp.) trees. Nesting appears to be synchronised with the start of the wet season. In Chiapas, Mexico, egg laying was reported in April (Miller *et al.* 1957). In Belize the nesting season is April–July based on specimens in breeding condition and observations of adults carrying nest material (Russell 1964). Although considered locally common in Nicaragua (Howell 2010), Honduras (Monroe 1968, Gallardo 2014), El Salvador (Dickey & van Rossem 1938) and Belize (Russell 1964), our nest documentation from Chaculá appears to be the first for northern Central America. It is unknown if two broods are produced per season as in northern populations (Middleton 1998).

CLAY-COLOURED SPARROW *Spizella pallida* (D; vagM)

A vagrant documented by a historical specimen from Sacapulas, dpto. Quiché (Griscom 1932) and photographs taken in Tikal, dpto. Petén, in October 2008 (Jones & Komar 2009b). One photographed at Chiabal, dpto. Huehuetenango, on 5 December 2014 (Fig. 41) was the third country record.



Figure 41. Clay-coloured Sparrow *Spizella pallida*, Chiabal, dpto. Huehuetenango, 5 December 2014; the third record for Guatemala (Knut Eisermann)

LARK SPARROW *Chondestes grammacus* (D; vagM)

Breeds in southern Canada, the USA and northern Mexico (Martin & Parrish 2000) and is a vagrant to Central America. A specimen was taken near Alotenango, dpto. Sacatepéquez, in 1873 (Salvin & Godman 1879–87). Following another specimen, collected near Sacapulas, dpto. Quiché, in 1928 (Griscom 1932) it went unrecorded for 88 years. Six seen near Salamá, dpto. Baja Verapaz on 3 April 2016 (J. Cahill, eBird S28778078) was the third record.

SAVANNAH SPARROW *Passerculus sandwichensis* (C, D; RM)

Rare winter visitor and very local resident breeder. Nearctic migrants are rare winter visitors throughout the country (Howell & Webb 1995, Eisermann & Avendaño 2007). One seen in Tikal, dpto. Petén, in December 2010 (Jones & Komar 2011c) was the first there. The resident race *wetmorei* (van Rossem 1938) endemic to the west Guatemalan highlands went unreported for more than a century following collection of the type series (Eisermann *et al.* 2017a). Breeding was erroneously reported by Jones (2002), based on a report wherein the observer assumed nesting but did not observe it (J. Berry pers. comm.). Resident Savannah Sparrows are known from the Sierra Los Cuchumatanes, dpto. Huehuetenango, and the Sierra Madre in dpto. Totonicapán (van Rossem 1938, Eisermann & Avendaño 2007, Eisermann *et al.* 2017a).

GRASSHOPPER SPARROW *Ammodramus savannarum* (D; V)

Nearctic migrants and resident breeders potentially occur, but status uncertain and all records are in September–April (Dearborn 1907, Griscom 1932, van Tyne 1935, Eisermann & Avendaño 2007). There are no summer records, but a resident population in Belize (Russell 1964, Howell & Webb 1995) suggests that it may breed in Guatemala as well. New site records include Panajachel, dpto. Sololá, in November 2007 (Jones & Komar 2008b), Punta de Manabique Wildlife Refuge, dpto. Izabal, in March 2012, Sipacate, dpto. Escuintla (Jones & Komar 2013a), one photographed in Tikal, dpto. Petén, on 28 January 2008 (B. Frenz pers. comm.) and 16 at Finca Cataluña, dpto. Retalhuleu, on 16 December 2010 (J. Berry pers. comm.). Another was seen near Chacaj, in the Nentón Valley, dpto. Huehuetenango, on 28 April 2015 (H. Barnard pers. comm.).

EASTERN MEADOWLARK *Sturnella magna* (C, D; R)

Historically reported from savannas in central dpto. Petén, the arid interior valleys and the highlands (Salvin & Godman 1879–87, Griscom 1932, Land 1962b, Howell & Webb 1995). New sites reported in the Pacific slope lowlands since Eisermann & Avendaño (2007) include two at Manchón-Guamuchal, dpto. Retalhuleu, in December 2009 (Jones & Komar 2010c) and 13 at Finca Cataluña, dpto. Retalhuleu, in December 2010 (Jones & Komar 2011c). New sites in the Atlantic slope lowlands include seven near Morales, dpto. Izabal, in December 2010 (Jones & Komar 2011c), four in Punta de Manabique Wildlife Refuge, dpto. Izabal, in March 2014 (Jones & Komar 2015b), nine near Chisec, dpto. Alta Verapaz, in December 2010 (Jones & Komar 2011c), one at Mucbilhá, dpto. Alta Verapaz, in October 2013 (Jones & Komar 2014c) and five in Parque Nacional Laguna del Tigre, dpto. Petén, in December 2010 (Jones & Komar 2011c). New records in the highlands include six in Parque Ecológico Cerro Alto, dpto. Jalapa, in January 2014 (Jones & Komar 2015a). A nest found at 3,750 m in Parque Regional Municipal Todos Santos Cuchumatán, dpto. Huehuetenango, on 3 July 2016, confirms breeding. We regard it as widespread and increasing due to deforestation.



Figure 42. Yellow-winged Caciue *Cassiculus melanicterus*, Nentón Valley, dpto. Huehuetenango, 28 April 2015: (a) pair; (b) female nestbuilding (Knut Eisermann)

YELLOW-WINGED CACIQUE *Cassiculus melanicterus* (D; R)

Endemic to the Pacific slope of Mexico, Guatemala and El Salvador (Howell & Webb 1995, Komar 1998, Ibarra Portillo 2009), and previously known in Guatemala only from the coastal lowlands (Eisermann & Avendaño 2007). A pair (Fig. 42a), including a nestbuilding female (Fig. 42b), photographed at Río Jordán (= Finca Potrero del Morro) on 28 April 2015 shows that its range extends from the central valley of Chiapas, Mexico (Alvarez del Toro 1971, Howell & Webb 1995) to interior western Guatemala in the Nentón Valley, dpto. Huehuetenango.

BAR-WINGED ORIOLE *Icterus maculialatus* (C, D; R)

Observations in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, confirm breeding and appear to be the first ever (Howell & Webb 1995, Jaramillo & Burke 1999). These include a nest with an incubating male photographed on 17 July 2007 (G. López pers. comm., J. de León Lux). The nest was a thin-walled cup of thin rootlets, c.2 m above ground, attached pendulously to the underside of leaves of an *Inga micheliana* tree by some rootlets 'sewn' into the nest rim through the leaves. A second nest placed in a cypress *Neocupressus lusitanica* tree, 2.5 m above ground, held newly hatched young on 23–25 July 2012. A third nest, on 10 June 2015, with four young, c.10 days old, and both adults in attendance, was 1.7 m above ground in a 2.5 m *Inga micheliana* tree (Fig. 43). The cup was 8.5 cm deep (from the lowest point of the rim) and 8 cm wide, and the longest attachments from the nest rim to the leaf were c.11 cm long. All three nests were in shade-coffee plantations within 20–70 m of humid broadleaf forest edge, at 1,350–1,600 m. A fledged juvenile was photographed in Reserva Natural Privada Los Tarrales on 30 August 2009. Breeding seems to be synchronised with the wet season, in May–November.

Bar-winged Oriole has been thought to range as high as 1,800 m (Howell & Webb 1995). New records including a male in cloud forest at 2,400 m on 26 April 2017, and pairs on 29 July 2017 and 5 August 2012, in pine–oak forest at 2,200 m in Finca El Pilar, dpto. Sacatepéquez, one in cloud forest at 2,500 m at Volcán Atitlán in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 16 January 2015, and a male in an orchard at 3,300 m

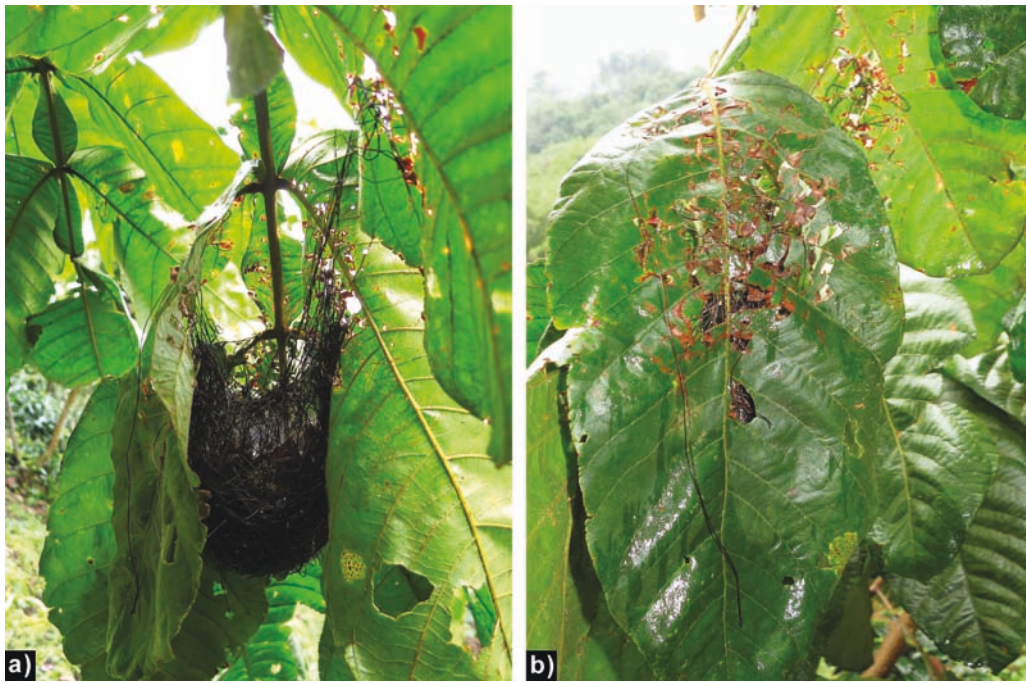


Figure 43. Nest of Bar-winged Oriole *Icterus maculialatus*, Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, 10 June 2015: (a) lateral view of the pendulous nest below the leaflets of *Inga micheliana*; (b) one of the leaflets securing the nest, showing the stitching by which the nest was anchored (Knut Eisermann)

in Chiabal, dpto. Huehuetenango, on 31 January 2015, show that it occurs at least locally or temporally at higher elevations.

HOODED ORIOLE *Icterus cucullatus* (A, D; r)

An adult male at El Mirador archaeological site, dpto. Petén, on 1 March 2008 (Budney *et al.* 2008) was the first country record. An immature male photographed in Tikal, dpto. Petén, on 13 March 2017 (G. Lin, eBird S35480320, photo ML53497781) was the first documented record. A recent colonist in Palenque, Chiapas, Mexico (Patten *et al.* 2011), it can be expected in Parque Nacional Laguna del Tigre, dpto. Petén.

YELLOW-BACKED ORIOLE *Icterus chrysater* (D; R)

Commonest at mid elevations (500–1,500 m) but found locally on the Atlantic slope near sea level. At least one was at the río Dulce on 29 January 2008 (J. & M. Hubinger pers. comm.), two at the río La Pasión between Sayaxché and río Usumacinta, dpto. Petén, on 5 July 1963 (L. Warren pers. comm.) and one was carefully observed in Tikal, dpto. Petén, on 14 March 1993 (W. Nezdal pers. comm.). In the Pacific slope highlands, found locally at higher altitudes than previously reported, i.e. 2,500 m (Howell & Webb 1995, Jaramillo & Burke 1999) including four at 2,900 m in Parque Regional Municipal Los Altos de San Miguel Totonicapán, dpto. Totonicapán, on 22 July 2001 (J. Berry pers. comm.), two at 2,750 m in Parque Chajil Siwan, dpto. Totonicapán, on 12 September 2014, four on 16 January 2011, singles on 2 and 4 February 2012 and 25 and 27 August 2014, four on 27 March 2015, one on 23 March 2016 and six on 8 April 2017 at 3,000 m near Unión Reforma, dpto. San Marcos. Several adults and a dependent juvenile seen there on 30 June 2015 suggest it is a breeding resident at that elevation. In Parque Regional Municipal Canjulá, dpto. San Marcos, at 2,700

m, two were seen on 17 January 2011, one on 28 August 2014 and one on 29 March 2015. In Vega del Volcán, dpto. San Marcos, at 2,700 m, singles were seen on 30 August 2014, 31 March 2015 and 21 March 2016, with two on 9 April 2017, and two were seen at 2,800 m on Volcán Siete Orejas, dpto. Quetzaltenango, on 30 January 2015. Thus, nominate *I. chrysater* ranges in altitude from sea level to 3,000 m.

STREAK-BACKED ORIOLE *Icterus pustulatus* (D; R)

Long known only from the arid south-east (Howell & Webb 1995). Recent records in the Nentón Valley, dpto. Huehuetenango, including 20 at Finca El Carmen on 13 April 2012, with two there on 2 February 2015, seven in Limonar on 1 December 2014, and four 7 km north-west of Santa Ana Huista on 31 January 2016, show that its distribution extends from the central valley of Chiapas, Mexico, into western Guatemala.

SHINY COWBIRD *Molothrus bonariensis* (A, D; vagR)

A mainly South American species thought to be expanding north in Central America (Jones & Komar 2008b, 2010a, 2011b). The first report involved four seen by R. Fergus at Jocotán, dpto. Chiquimula, in September 2006 (Jones & Komar 2007b). Two immature males photographed at Marajuma, dpto. El Progreso, on 14 September 2010 (Jones & Komar 2011b) was the first documented record. Breeding has not been reported and we regard it as a vagrant.

BROWN-HEADED COWBIRD *Molothrus ater* (A; vagR)

Two males and two females found near Nentón, dpto. Huehuetenango, in May 2014 (Jones & Komar 2015b) represented the first country record. Several reports from the Yucatán Peninsula, Mexico (Gómez de Silva 2002, 2005, McKinnon *et al.* 2011) and three records in Belize (Jones *et al.* 2002, Jones & Komar 2008b, 2010d) are the only others south-east of the Isthmus of Tehuantepec. We consider it a rare vagrant.

VIRGINIA'S WARBLER *Oreothlypis virginiae* (D; vagM, H)

A rare winter vagrant known from just two reports, with the first from northern Petén (Beavers *et al.* 1991). One seen in coastal thorn scrub at Tilapa, dpto. San Marcos, on 13 March 2002 (J. Berry pers. comm.) was the second. There is no documented record for the country.

CAPE MAY WARBLER *Setophaga tigrina* (A, D; vagM)

Rare and irregular winter visitor with records from near Lago Atitlán, dpto. Sololá, in 1970 and 1974 (Mason 1976), and Tikal, dpto. Petén, in 1975 (Beavers 1992). Unrecorded in Guatemala for 30 years until a male was seen in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, in April 2005 (Jones 2005b) and a female in Quetzaltenango, dpto. Quetzaltenango, in December 2011 (Jones & Komar 2012b). Males photographed at Panajachel, dpto. Sololá, in March and April 2014, and Tikal, dpto. Petén, in April 2014 (Jones & Komar 2015b) were the first documented records.

TROPICAL PARULA *Setophaga pitiayumi* (D; r)

Only recently recorded in adjacent Belize (Jones *et al.* 2000) and at Yaxchilán, Chiapas, Mexico (Puebla-Olivares *et al.* 2002). One photographed in Parque Nacional Laguna del Tigre, in February 2014 (Jones & Komar 2015a) was the first documented record for dpto. Petén. Recently also documented at Tikal, dpto. Petén, including three on 1 May 2018 (Fig. 44) and two sound-recorded on 8 May 2018. Rather local in Guatemala, but given records

in the Atlantic slope lowlands and Atlantic and Pacific slope highlands (Eisermann & Avendaño 2007) it can be expected in broadleaf forest throughout the country. Residency status of local populations is poorly known, but altitudinal migrations have been reported in Mexico (Howell & Webb 1995). We assume it is a resident breeder in Guatemala, but nesting has not been reported.



Figure 44. Tropical Parula *Setophaga pitiayumi*, Tikal, dpto. Petén, 1 May 2018 (Knut Eisermann)

PALM WARBLER *Setophaga palmarum*

(D; V)

A rare winter visitor reported from the Atlantic coast in Punta de Manabique Wildlife Refuge, dpto. Izabal (Eisermann & Avendaño 2007). One was seen inland at Cobán, dpto. Alta Verapaz, in November 2010–March 2011 (Jones & Komar 2011b,c; J. Cahill pers. comm.), and another was photographed at Yaxhá, dpto. Petén, in November 2010 (Jones & Komar 2011b).

GOLDMAN’S WARBLER *Setophaga goldmani* (C, D; R)

Endemic to the highlands of Chiapas, Mexico, and western Guatemala, but often considered conspecific with Nearctic migrant taxa under the name Yellow-rumped Warbler *S. coronata* (e.g. AOU 1998, Eisermann & Avendaño 2007). Known from just six sites in country.

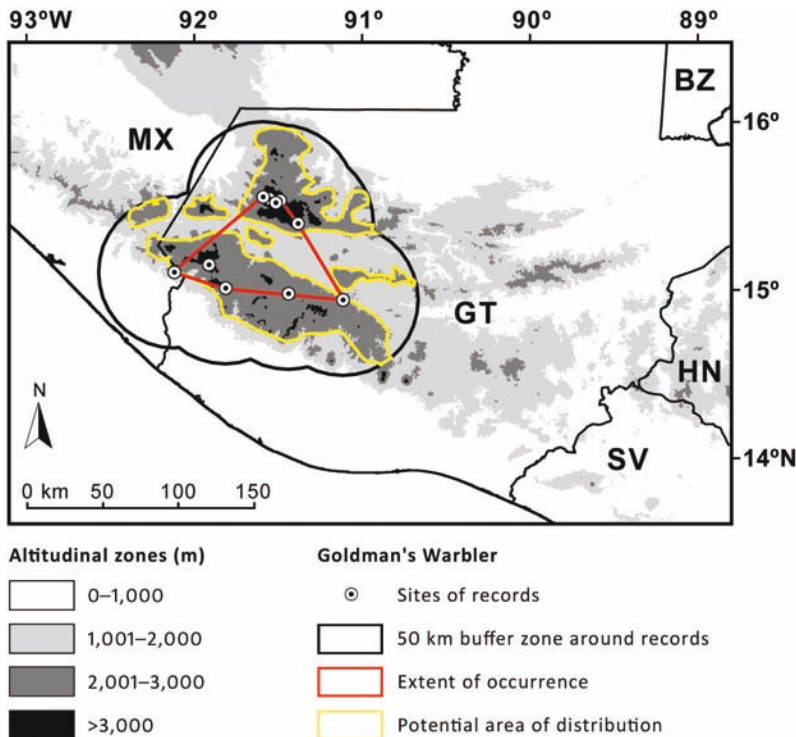


Figure 45. Distribution of Goldman’s Warbler *Setophaga goldmani*: sites, extent of occurrence and potential area of distribution. Country codes: BZ = Belize, GT = Guatemala, HN = Honduras, MX = Mexico, SV = El Salvador.



The easternmost record is from Chichicastenango, dpto. Quiché (Griscom 1932). In dpto. Totonicapán, it was reported from Momostenango (Griscom 1932), from where there were also several observations in 2001 and 2002 (J. Berry pers. comm.). At Sierra Los Chuchumatanes, dpto. Huehuetenango, it was reported from Finca Chancol, in the eastern part of the tableland (Nelson 1897), and at least nine were seen around Hotel Unicornio Azul on 26 February 2011. In the environs of Parque Regional Municipal Todos Santos Cuchumatán it was reported by Milá *et al.* (2007) and we found it to be common there in 2014–17, with several breeding records. In dpto. San Marcos it was reported from Ixchiguán (Milá *et al.* 2007) and at least six were recorded in Parque Regional Municipal de San Pedro Sacatepéquez on 8 February 2012. Guatemalan records are from elevations of 2,000–3,750 m. In Mexico, Goldman's Warbler has been reported only from Volcán Tacaná (Hubbard 1969). The total extent of occurrence for this taxon (minimum convex polygon encompassing all sites of occurrence) is just 3,900 km². The potential area of distribution may cover 9,350 km², which includes areas above 2,000 m altitude in the 50 km buffer zone around all sites of occurrence (Fig. 45).

GRACE'S WARBLER *Setophaga graciae* (C, D; R)

Closely associated with pine forest and fairly common in the highlands. One seen at Finca Ixobel south of Poptún, dpto. Petén, on 29 January 2008 (J. & M. Hubinger pers. comm.) and one photographed 4 km south-west of Poptún on 14 September 2017 (E. Salvatierra, eBird S39192998) indicate that the range in the Maya Mountains of Belize (Howell & Webb 1995) extends west into dpto. Petén. Adults with a dependent juvenile at Chaculá, dpto. Huehuetenango, on 1 June 2017 confirm breeding.

HEPATIC TANAGER *Piranga flava* (D; rm)

Represented by several subspecies from the south-west USA to northern South America (Hellmayr 1936, Hilty 2017). In Guatemala, the resident race *albifacies* is widespread in highland pine forest (Griscom 1932) and race *figlina* is known from lowland pine savannas on the Atlantic slope (Griscom 1932, Russell 1964). Birds from northern populations belonging to race *dextra* reach the country rarely in winter (Griscom 1932, Hellmayr 1936). A female, apparently of a northern migrant race based on its extensively greyish face, neck

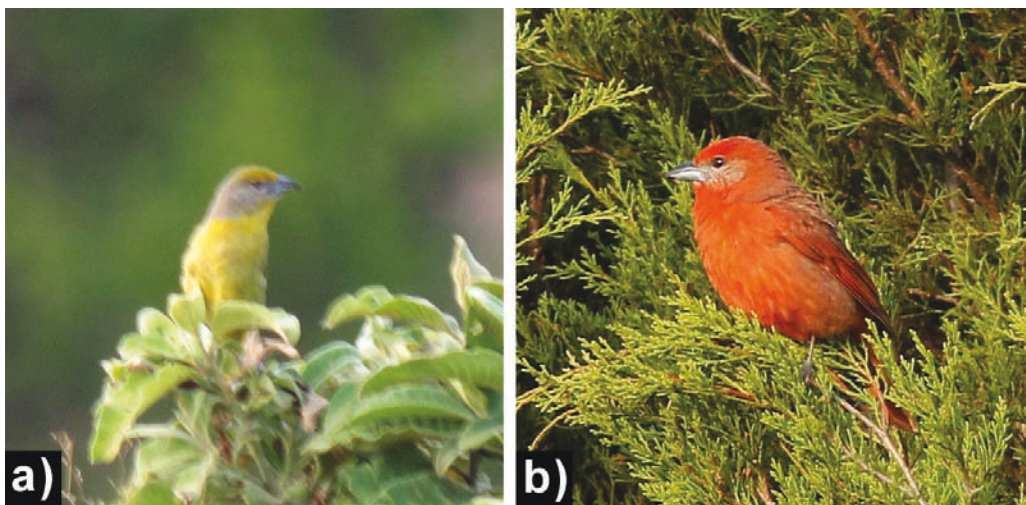


Figure 46. Hepatic Tanager *Piranga flava*, Chaculá, dpto. Huehuetenango: (a) female apparently of northern race *dextra*, 12 April 2012; (b) male of resident race *albifacies*, 12 April 2017 (Knut Eisermann)

and back was photographed at Chaculá, dpto. Huehuetenango, on 12 April 2012 (Fig. 46a). Resident *albifacies* also occurs at the same site (Fig. 46b).

NORTHERN CARDINAL *Cardinalis cardinalis* (D; R)

Reaches its southernmost limit in northern dpto. Petén and is uncommon near the border with Mexico in Parque Nacional Mirador-Río Azul (Radachowsky *et al.* 2004, Budney *et al.* 2008). Rare elsewhere, with records from near Flores (Taibel 1955), Tikal (Smithe & Paynter 1963) where one was also seen on 22 December 2009 (C. Artuso pers. comm.), Laguna Yaxhá, where a male was seen on 26 April 2003, a pair photographed 14 km north-west of Melchor de Mencos (J. Cahill, eBird S21026256) and at the south-east edge of Parque Nacional Laguna del Tigre, where a male was photographed near the río Sacluc, 7 km south-west of Paso Caballo, on 14 May 2013 (Fig. 47).



Figure 47. First documented record of Northern Cardinal *Cardinalis cardinalis* for Parque Nacional Laguna del Tigre, río Sacluc, 7 km south-west of Paso Caballo, 14 May 2013 (Knut Eisermann)

YELLOW GROSBEAK *Pheucticus chrysopheplus* (C, D; R)

Thought to reach 2,500 m (Howell & Webb 1995) but recently found in cloud forest to 3,000 m at several sites on the Pacific slope in dpto. San Marcos. These include three on 16 January 2012, a pair on 1 February 2011 (Fig. 48), one on 27 March 2015, two on 8 April and two on 21 April 2017 at Unión Reforma at 2,950–3,000 m. In Vega del Volcán, it was seen



Figure 48. Yellow Grosbeak *Pheucticus chrysopheplus*, Unión Reforma, dpto. San Marcos, at 3,000 m, 1 February 2012: (a) male; (b) female (Knut Eisermann)

repeatedly in cloud forest at 2,700 m including one on 29 and 31 August 2014, pairs on 30–31 March 2015, and one on 9 April 2017. One was seen at 2,700 m in Parque Regional Municipal Canjulá on 28 August 2014. Also found locally on the Atlantic slope in the río Motagua Valley (dptos. El Progreso and Zacapa) as indicated by Dearborn (1907), Griscom (1932), Land (1970) and Eisermann & Avendaño (2007). A. W. Anthony observed young in dpto. El Progreso, providing the country's only breeding record (Griscom 1932). Recent records confirm its presence there with five in Parque Regional Municipal Niño Dormido, dpto. Zacapa, on 6 September 2010 and one in Parque Regional Municipal Lo de China, dpto. El Progreso, on 7 September 2010.



Figure 49. Red-breasted Chat *Granatellus venustus*, Nentón Valley, dpto. Huehuetenango: (a) pair, 28 April 2015; (b) immature male, 29 January 2016 (Knut Eisermann)

RED-BREASTED CHAT *Granatellus venustus* (A, D; r)

Long considered a Mexican endemic. Two at Lagunas de Candelaria in the Nentón Valley, dpto. Huehuetenango, in May 2014 (Cahill 2014, Jones & Komar 2015b) was the first country record. At the same site, c.2 km from the Mexico border, a pair was photographed on 28 April 2015 (Fig. 49a), two, including an immature male, were photographed on 29 January 2016 (Fig. 49b) and a pair was seen on 20 April 2018. Three were found 6 km from the Mexican border and 2 km east of Unión on 22 April 2017, with singles there on 2 June 2017, 7 October 2017 and 1 February 2018. A pair was photographed c.1 km north-west of Unión on 13 December 2015 (O. Komar, eBird S33008738). These records indicate that its range extends from the central valley of Chiapas, Mexico, into western Guatemala. Nesting has not been reported but observations of immatures and records year-round suggest it is probably a resident breeder in the Nentón Valley.

BLUE SEEDEATER *Amaurospiza concolor* (C, D; R)

Poorly known but often found with mast-flowering bamboo (Stiles & Skutch 1989, Howell & Webb 1995). Recorded several times at Volcán Atitlán (Jones & Komar 2009b,c, 2011a). An adult male feeding a juvenile in humid broadleaf forest at 850 m in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 28 August 2009 (Fig. 50a) was the first documented breeding.

Including observations compiled by Eisermann & Avendaño (2007), it has been recorded at ten sites in Guatemala. New sites include a male photographed in Reserva Natural Privada Atitlán, Panajachel, dpto. Sololá, on 2 February 2008 (Jones & Komar 2008c), one in Reserva Natural Privada Pachuj, dpto. Sololá, on 14 December 2008, a female photographed at Laguna Lodge, Santa Cruz La Laguna, dpto. Sololá, on 30 April 2014 (J.

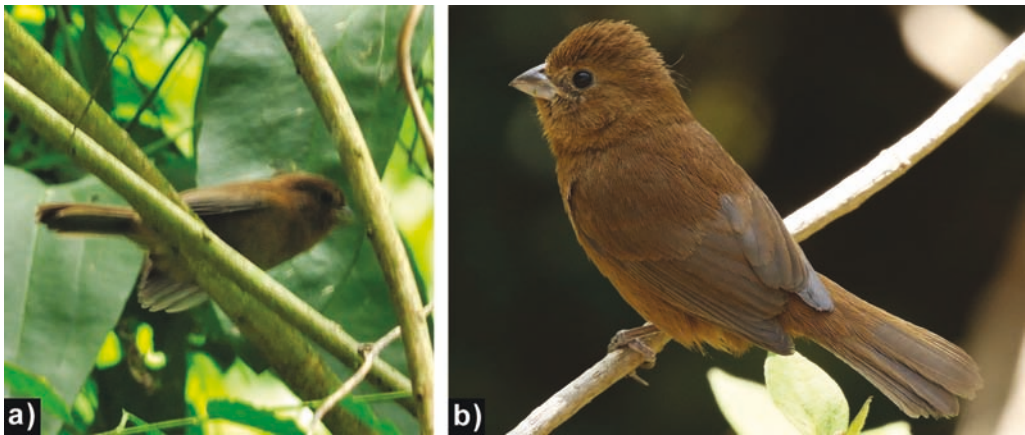


Figure 50. First breeding record in Guatemala and highest-altitude record of Blue Seedeater *Amaurospiza concolor*: (a) dependent juvenile, Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, 28 August 2009; (b) female near Vega del Volcán, dpto. San Marcos, at 2,850 m, 10 April 2017 (Knut Eisermann)

Cahill pers. comm.), a male at Finca Chajbaoc, dpto. Alta Verapaz, on 13 April 2013 (Jones & Komar 2014a), a female photographed in cloud forest at 2,800 m near Vega del Volcán, dpto. San Marcos, on 30 March 2015 with a female there on 10 April 2017 at 2,850 m (Fig. 50b), an immature male photographed on 29 July 2016 and a pair photographed and sound-recorded on 2 July 2017 at Finca El Pilar, dpto. Sacatepéquez, and a male sound-recorded on the slopes of Volcán Agua, dpto. Escuintla, on 20 March 2016 (D. Aldana, eBird S28494229). Elevational range reported as 450–2,700 m (Rising & Jaramillo 2011) but records in Guatemala are from 400 to 2,850 m and records are available from 200 m in Yaxchilán, Chiapas, Mexico (Puebla-Olivares *et al.* 2002), and near sea level at Bermudian Landing, Belize District, Belize (Howell *et al.* 1992, Vallely & Aversa 1997) showing that its overall elevational range encompasses 0–2,850 m.

VARIED BUNTING *Passerina versicolor* (D; R)

Long known in Guatemala only from the arid valley of the río Motagua in dptos. El Progreso, Zacapa and Chiquimula (Howell & Webb 1995). Recent records in the Nentón Valley, dpto. Huehuetenango show that it also extends from the central valley of Chiapas, Mexico, into adjacent western Guatemala. These include a male near Lagunas de Candelaria on 28 April 2015, a pair near Chacaj on 28 April 2015, a male at Finca El Carmen on 22 April 2017, and four near Unión on 22 April 2017 with one on 2 June 2017.

AZURE-RUMPED TANAGER *Tangara cabanisi* (D; R)

Endangered (IUCN 2017) and endemic to Pacific slope highlands of Guatemala and Chiapas, Mexico. Since the summary of Guatemalan distribution by Eisermann *et al.* (2011a) it has been reported at three new sites. A bird photographed in humid forest on the south slope of Volcán Agua, dpto. Escuintla, in April 2013 (Jones & Komar 2014a; A. Duarte pers. comm.) was the first documented record within the potential range east of the known area of distribution (Eisermann *et al.* 2011a). A bird seen in cloud forest at 1,700 m, 5 km south of Santiago Atitlán (south of Mirador Rey Tepepul), dpto. Sololá, on 2 April 2014 was the first record for the site. Seven photographed at Volcán Tacaná, near Yalú, dpto. San Marcos, on 5 September 2014 also documented a new site. Azure-rumped Tanager is locally common in Reserva Natural Privada Los Tarrales (Eisermann *et al.* 2011a,b). Two seen there at 850 m on 15 March 2013 (J. de León Lux pers. comm.) represents the lowest-altitude record.

GRASSLAND YELLOW FINCH*Sicalis luteola* (D; vagR)

Rare and irregular in Central America and known from just three sites in Guatemala: San Miguel Dueñas, dpto. Sacatepéquez, where an immature was collected (Salvin 1866), near San Juan del Obispo, dpto. Sacatepéquez, where one was seen in January 1988 (Wendelken & Martin 1989), and near Salamá, dpto. Baja Verapaz, where five were seen in April 2008 (Jones & Komar 2008d) and four photographed on 25 October 2017 (Fig. 51; A. Larios pers. comm.).

**SLATY FINCH** *Haplospiza rustica* (C; R)

Considered nomadic and reported reliably at only three sites in Guatemala: Biotopo del Quetzal, dpto. Baja Verapaz (Eisermann & Avendaño 2007), Fuentes Georginas, dpto. Quetzaltenango (Jones & Komar 2015d) and Sierra de las Minas, dpto. El Progreso. At the latter site it was recorded in September 2003 (Nájera Acevedo 2004), May 2013 (Jones & Komar 2014a) and March 2014, when a male was seen with nesting material (Jones & Komar 2015b). These records, together with a male in breeding condition at Cerro Montecristo, El Salvador, near the Guatemalan border (Komar 2002), suggest that it is a rare breeder in Guatemala.

Figure 51. Grassland Yellow Finch *Sicalis luteola*, near Salamá, dpto. Baja Verapaz, 25 October 2017; only the second documented record for Guatemala (© Alberto Larios)

SHINING HONEYCREEPER *Cyanerpes lucidus* (D; r)

Rare in Guatemala where known from only six sites. Records are from near Cubihuitz, dpto. Alta Verapaz at 350 m (Salvin & Godman 1879–87), Cerro San Gil, dpto. Izabal at 300–1,200 m (Cerezo *et al.* 2005), Reserva Ranchitos del Quetzal, dpto. Baja Verapaz at 1,700 m, in September 2010 (Jones & Komar 2011b), as well as two on 12 December 2010, a female on 24 January 2015, a male photographed on 15 June 2015, and four males and one female on 20 July 2017, near Purulhá, dpto. Baja Verapaz, in September 2014 (Jones & Komar 2015d), and one at 1,000 m at Montaña Sacranix, dpto. Alta Verapaz, on 14 October 2001 with a pair seen there on 28 August 2003 at 1,300 m. A bird seen in Finca Las Nubes, dpto. Alta Verapaz, on 24 February 2015 (M. Rodríguez, eBird S22059325) was just 8 km south-east of Cubihuitz. Nesting is presumed but has not been reported.

YELLOW-FACED GRASSQUIT *Tiaris olivaceus* (D; R)

Fairly common in open habitats on the Atlantic slope. Recent records from the Pacific foothills suggest it may be expanding including two near Retalhuleu, dpto. Retalhuleu, on 9 March 2008 (A. Jaramillo, eBird S23701611), one on the south-east slope of Volcán Atitlán in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 14 July 2008 with nesting seen there in August 2008 (G. López pers. comm.), at Volcán Agua, dpto. Escuintla, in May 2013 (D. Aldana, eBird S14085817), two in Finca Patrocinio, dpto. Quetzaltenango, in February 2014 (Jones & Komar 2015a), one in Finca Las Nubes, dpto. Suchitepéquez, in February 2014 (Jones & Komar 2015a), one in Guatemala City, dpto. Guatemala, on 10 May 2015 (A. Sagone, eBird S23398137), and two photographed near San José Pinula, dpto. Guatemala, on 26 July 2015 (M. J. Lou, eBird S24413850).

BLACK-HEADED SALTATOR *Saltator atriceps* (D; R)

Common on both slopes below 1,800 m. An active nest with at least one nestling a few days old was at the unusually high altitude of 2,050 m in Reserva Natural Privada Chelemhá, dpto. Alta Verapaz, on 28 August 2012.

Several widespread and common species were listed as 'resident, breeding suspected' in Eisermann & Avendaño (2007). Table 1 summarises information on first nesting records for 12 of these species, which are not included in the species accounts.

TABLE 1
First breeding records in Guatemala of common species within their known ranges.

Species	Observation
Emerald-chinned Hummingbird <i>Abeillia abeillei</i>	Female incubating two white eggs in a nest 1 m above ground on a dead fern leaf at 1,500 m near La Gloria, dpto. Quiché, on 16 April 2011 (Fig. 52a).
Violet Sabrewing <i>Campylopterus hemileucurus</i>	In Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, incubating female on 18 July 2007 at 900 m (J. de León Lux & E. Buchán pers. comm.) and another female incubating two eggs in a nest 1.6 m above ground on 3 September 2009 at 1,400 m (Fig. 52b)
Blue-tailed Hummingbird <i>Amazilia cyanura</i>	Nests in Takalik Abaj, dpto. Retalhuleu, and El Palmar, dpto. Quetzaltenango (Eisermann & Avendaño 2007), with an active nest at 1,400 m in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 11 November 2006 (Fig. 52c), and another with two young photographed there at 1,200 m on 6 December 2010.
Blue-throated Goldentail <i>Hylocharis eliciae</i>	Female nestbuilding in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 28 October 2009 (J. de León Lux pers. comm.).
White-necked Puffbird <i>Notharchus hyperrhynchus</i>	Nest on 10 May 2008 in a termitary at Tikal, dpto. Petén.
Couch's Kingbird <i>Tyrannus couchii</i>	Adult with nesting material in an open agricultural area with some trees at 900 m in La Gloria, dpto. Quiché, on 18 April 2011, one nestbuilding on 8 May 2014 and one on 2 May 2018 in Tikal (Fig. 52e), dpto. Petén.
Grey-collared Becard <i>Pachyrhamphus major</i>	In Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, two adults feeding juveniles on 7 July 2006 at 900 m (J. de León Lux pers. comm.) and adult female feeding a fledged juvenile in a shade-coffee plantation at 1,050 m on 5 September 2009 (Fig. 52d), plus two adults with two dependent juveniles in Finca El Pilar, dpto. Sacatepéquez, on 9 August 2016.
Long-tailed Manakin <i>Chiroxiphia linearis</i>	Nest video-recorded in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 26 May to 25 June 2008 in a shade-coffee plantation at 900 m (J. de León Lux pers. comm.).
Brown-capped Vireo <i>Vireo leucophrys</i>	In Reserva Natural Privada Chelemhá, dpto. Alta Verapaz, at 2,000 m, two recently fledged juveniles on 17 July 2006, an adult feeding a fledgling on 24 July 2010, and two adults with a recently fledged juvenile on 25 July 2012.
Blue-crowned Chlorophonia <i>Chlorophonia occipitalis</i>	In Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez: a pair nestbuilding on 20 May 2008, an adult with three recently fledged juveniles on 14 July 2008, a pair nestbuilding at 1,800 m on 6 June 2009 and 4 May 2010 (G. López & J. de León Lux pers. comm.), and a pair nestbuilding at 1,400 m on 9 June 2009, 18 March 2011 and 16 May 2012. In Reserva Natural Privada Chelemhá, dpto. Alta Verapaz, a pair nestbuilding on 30 May 2015 in cloud forest at 2,100 m. Nesting appears to be synchronised with the wet season.
Elegant Euphonia <i>Euphonia elegantissima</i>	A pair nestbuilding in a hanging bromeliad clump c.10 m above ground, at 2,000 m in Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, on 6 April 2008, and at the same site a nest under construction on 3 February and incubating on 3 March 2010 in a bromeliad 13 m above ground in a cypress <i>Neocupressus lusitanica</i> tree at 1,400 m (J. de León Lux pers. comm.).
Blue Bunting <i>Cyanocompsa parellina</i>	A juvenile photographed in Biotopo Cerro Cahuí, dpto. Petén, on 14 August 2017 (C. Echeverría, eBird S38641345).

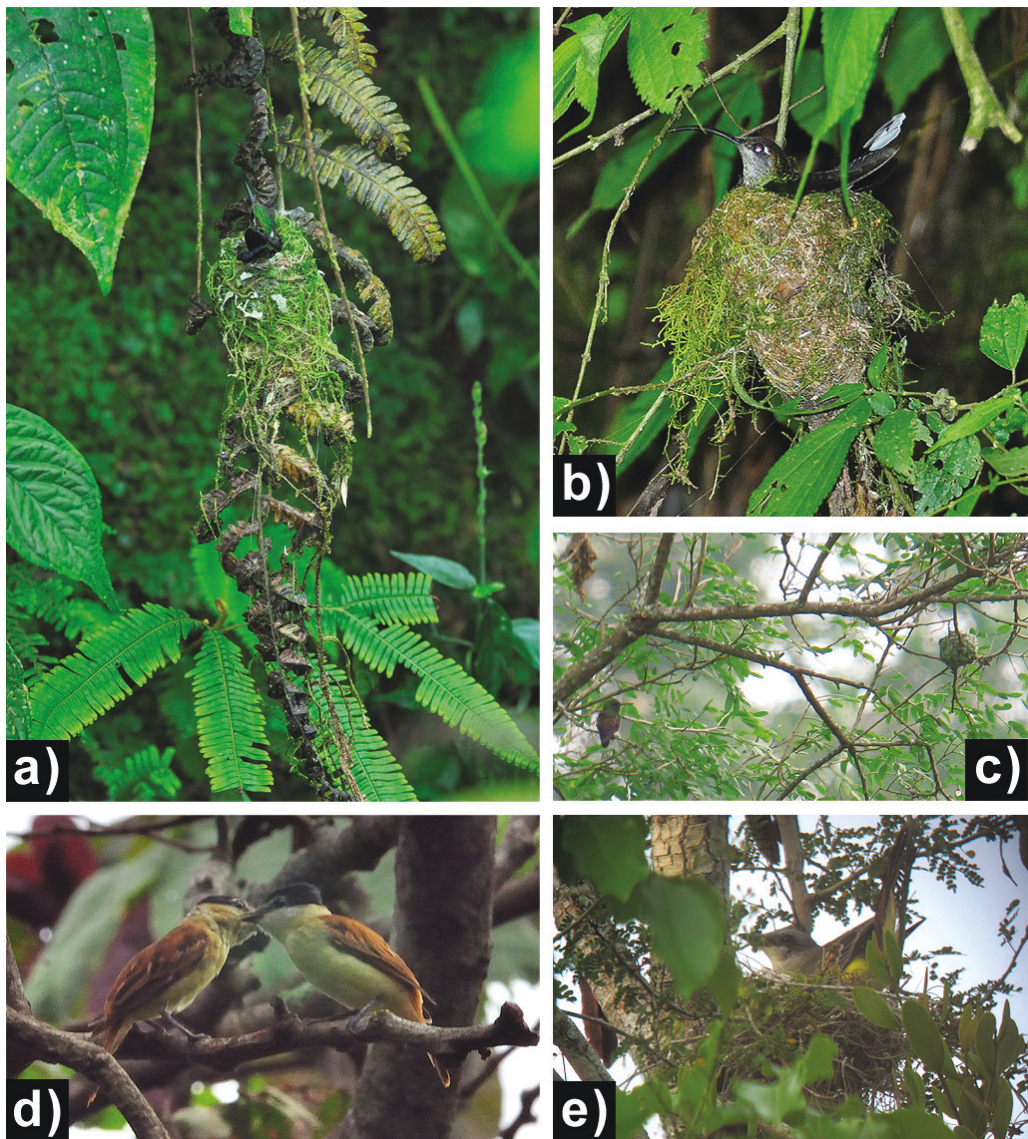


Figure 52. First documented nesting records of some widespread species: (a) nest of Emerald-chinned Hummingbird *Abeillia abeillei*, La Gloria, dpto. Quiché, 16 April 2011, (b) nest of Violet Sabrewing *Campylopterus hemileucurus*, Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, 3 September 2009, (c) Blue-tailed Hummingbird *Amazilia cyanura* perched beside its nest, Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, 11 November 2006, (d) adult female and dependent juvenile Grey-collared Becard *Pachyramphus major*, Reserva Natural Privada Los Tarrales, dpto. Suchitepéquez, 5 September 2009; the first documented breeding record for Guatemala, (e) nestbuilding Couch's Kingbird *Tyrannus couchii*, Tikal, dpto. Petén, 2 May 2018 (Knut Eisermann)

In addition to residency status updates compared to Eisermann & Avendaño (2007) based on new information, we correct the status of the following nine species. Band-tailed Pigeon *Patagioenas fasciata* is a resident in Guatemala without visiting non-breeding populations, thus status corrected from RM to R. Specimens of Heermann's Gull *Larus heermanni* collected by Salvin (1866) are the only records for Guatemala indicating a status correction from vagM, H to vagM. Zone-tailed Hawk *Buteo albonotatus* is mainly a winter

visitor, but local summer records (Vannini 1989) indicate that while breeding has not been confirmed, it may nest locally, thus status changed from V to rm. Red-tailed Hawks *Buteo jamaicensis* from northern populations winter in Guatemala (Griscom 1932), thus status is corrected from R to RM. Several records of Yellow-lored Parrot *Amazona xantholora* in north-west Petén (Eisermann & Avendaño 2007) indicate that it is probably a resident breeder (status: r). The only record of Thick-billed Kingbird *Tyrannus crassirostris* was a specimen collected near Escuintla, dpto. Escuintla, in January 1860 (Salvin & Godman 1860c), thus the status is corrected from V to vagM. American Robin *Turdus migratorius* breeds in North America and the only documented site record for Guatemala was a specimen from near Cobán, dpto. Alta Verapaz (Salvin & Sclater 1860c). Griscom (1935) reported two specimens from Guatemala lacking date and location in what is now the Natural History Museum, Tring (NHMUK) and Wetmore (1941) reported sightings from San Miguel Dueñas, dpto. Sacatepéquez, and near Tecpán, dpto. Chimaltenango, from 1936; thus, status corrected from vagR to vagM. Juveniles of Botteri's Sparrow *Peucaea botterii* were reported by van Tyne (1935), thus status corrected from r to R. Brewer's Blackbird *Euphagus cyanocephalus* breeds mainly in North America and winters in the southern USA and northern Mexico (Howell & Webb 1995). A specimen collected in Finca Chancol at Sierra Los Chuchumatanes, dpto. Huehuetenango, pre-1905 (Salvin & Godman 1904) is the only record for Guatemala, thus status corrected from vagR to vagM.

Discussion

New information on the distribution of birds in Guatemala updates the residency status of birds in the country (Eisermann & Avendaño 2007) as follows. Based on the taxonomic list of the AOU (1998 and supplements, including Chesser *et al.* 2017), except the Sharp-shinned Hawk and Yellow-rumped Warbler species complexes (see Methods), the number of bird species recorded in Guatemala is 758. Of these, 23 lack documentation via specimens, photographs or sound-recordings. First documented country records were recently reported for 50 species and first undocumented country records for 11 species. Breeding has been confirmed recently for 58 species. Table 2 summarises the number of species in each category of residency. This summary also reflects the recently revised taxonomic treatments of Audubon's Puffinus *lherminieri* and Galapagos Shearwaters *P. subalaris*, Eastern *Antrostomus vociferus* and Mexican Whip-poor-wills *A. arizonae*, as well as the merging of 'Mangrove Black Hawk' *Buteogallus subtilis* in Common Black Hawk *B. anthracinus* (Banks *et al.* 2008, Chesser *et al.* 2010, 2012).

For 18 species there is no reliable record since 1980 and 15 of these have not been recorded in Guatemala for more than 80 years (Table 3). Most of these are vagrants, but Red-throated Caracara *Ibycter americanus*, Black Rail *Laterallus jamaicensis*, Virginia Rail *Rallus limicola* and Bare-crowned Antbird *Gymnocichla nudiceps* are species that were previously considered resident. Most of these are difficult to detect owing to their cryptic behaviour, and thus may be overlooked. Red-throated Caracara, however, is a large and noisy bird, and we consider it extirpated (Howell & Webb 1995, Eisermann & Avendaño 2007).

Records of Caribbean Dove, Yucatan Woodpecker, Ladder-backed Woodpecker, Yucatan Nightjar and Turquoise-browed Motmot from Laguna del Tigre National Park in north-western dpto. Petén are noteworthy because they extend the known ranges of these species further south on the Yucatán Peninsula than previously reported (Howell & Webb 1995) and indicate a general pattern of Yucatán avifauna that has either recently expanded or been newly documented in northern Petén. Similarly, new distributional records for Northern Bobwhite, Lesser Ground Cuckoo, Buff-collared Nightjar, Plain-capped

TABLE 2
Residency status of bird species in Guatemala.

Residency status	Number of species
Breeding resident, without migratory populations	393 (including 1 extinct)
Breeding resident, in part migratory	36
Breeding visitor	7
Resident, breeding presumed	62 (including 1 extirpated)
Resident, in part migratory, breeding presumed	9
Visitor, breeding presumed	2
Subtotal breeding species	509
Non-breeding visitor	151
Transient	33
Migratory vagrant	52
Non-migratory vagrant	4
Subtotal non-breeding species	240
Status uncertain	9
Total	758

Starthroat, Green-fronted Hummingbird, Russet-crowned Motmot, Nutting's Flycatcher, Banded Wren, White-lored Gnatcatcher, House Finch, Olive Sparrow, Yellow-winged Cacique, Streak-backed Oriole, Red-breasted Chat and Varied Bunting from the poorly explored Nentón Valley, dpto. Huehuetenango, document a general pattern of arid habitat species extending from the central valley of Chiapas into west Guatemala.

Most of the new site records and range extensions reported here fill gaps in the distributions of widespread species but, for some, new records appear to document recent range expansions driven by increased habitat availability following large-scale deforestation, conversion of forest to woodland, and urbanisation. These include Eurasian Collared Dove, Plain-breasted Ground Dove, White-winged Dove, Yellow-faced Grassquit, Southern Lapwing, Striped Owl, Ladder-backed Woodpecker, Aplomado Falcon, Vermilion Flycatcher, Tricoloured Munia, House Sparrow and Eastern Meadowlark. Less readily explained are new data that seem to document recent expansions for species such as Double-crested Cormorant, Glossy Ibis, Barred Forest Falcon and Chestnut-sided Shrike-Vireo in areas where apparently favourable habitat already existed.

Two corrections. A photographed bird reported as a Long-tailed Jaeger *Stercorarius longicaudus* from Puerto Barrios, dpto. Izabal, in January 2009 (Jones & Komar 2009c) is misidentified and should be regarded as *Stercorarius* sp., probably Parasitic Jaeger *S. parasiticus* (S. N. G. Howell pers. comm.). We did not take into account an undocumented report of Ashy Storm Petrel *Oceanodroma homochroa* (Sigüenza *et al.* 2008, Velásquez Jofre 2008a,b) because it is restricted to near-coast pelagic waters of California and Baja California (Howell 2012), and observations far outside this range should be well documented photographically.

TABLE 3
Species not reported from Guatemala for more than 30 years.

Species	Residency status*	Year of last record	Source
Ruff <i>Calidris pugnax</i>	vagM, H	1974	Dickerman (1975)
White-tailed Tropicbird <i>Phaethon lepturus</i>	vagM, H	1936	Wetmore (1941)
Red-throated Caracara <i>Ibycter americanus</i>	ex (r)	1920s	Griscom (1932)
Black Rail <i>Laterallus jamaicensis</i>	?	1874 or before	Salvin & Godman (1897–1904)
Virginia Rail <i>Rallus limicola</i>	R	1874 or before	Salvin & Godman (1897–1904)
Eskimo Curlew <i>Numenius borealis</i>	ex (vagM)	1860	Salvin (1861)
Heermann's Gull <i>Larus heermanni</i>	vagM	1863	Salvin (1866)
Short-eared Owl <i>Asio flammeus</i>	vagM	1863	(Salvin 1866), reported in Belize in 1999 (Jones <i>et al.</i> 2000)
Burrowing Owl <i>Athene cucularia</i>	vagM	1920s	Griscom (1932)
Eastern Whip-poor-will <i>Antrostomus vociferus</i>	vagM	1959	Land (1963)
Red-naped Sapsucker <i>Sphyrapicus nuchalis</i>	vagM	1895 or before	Salvin & Godman (1879–87)
Bare-crowned Antbird <i>Gymnocichla nudiceps</i>	r	1932	Taibel (1955)
Thick-billed Kingbird <i>Tyrannus crassirostris</i>	vagM	1860	Salvin & Sclater (1860c)
Loggerhead Shrike <i>Lanius ludovicianus</i>	vagM	1979	Ericsson (1981)
American Robin <i>Turdus migratorius</i>	vagM	1936	Wetmore (1941) but only documented site record from 19th century (Salvin & Sclater (1860c))
Black-throated Grey Warbler <i>Setophaga nigrescens</i>	vagM, H	1936	Wetmore (1941)
Vesper Sparrow <i>Poocetes gramineus</i>	vagM	pre-1880	Salvin & Godman (1904)
Brewer's Blackbird <i>Euphagus cyanocephalus</i>	vagM	pre-1880	Salvin & Godman (1904)

* ex—extirpated, H—hypothetical record, R—breeding resident, r—resident, breeding suspected, vagM—migratory vagrant, ?—status uncertain.

Acknowledgements

We dedicate this paper to our friend Jason Berry, who contributed numerous noteworthy records to the ornithology of Guatemala, gone too soon. We thank Christopher M. Milensky for reviewing specimens of Ruby-crowned Kinglet in the Smithsonian Institution, Steve N. G. Howell for identifying the Tahiti Petrel, and Lisa T. Ballance, Trevor W. Joyce and Michael P. Force for providing data for some pelagic birds from the database of the Southwest Fisheries Science Center (National Oceanic and Atmospheric Administration—NOAA, Fisheries). We appreciate contributions of unpublished observations and records published in eBird (cited in text with eBird list number) by Carlos Aguilar, Daniel Aldana, Fernando Aldana, Carol Anderson, Juan Antonio, Christian Artuso, Olivier Barden, Harry Barnard, Román Bartolón, Chris Benesh, Jason Berry, Rudy Botzoc, Vinicio Bravo, Everilda Buchán, Andy Burge, Efraín Caal, John Cahill, Cornelio Chablé, Juan Chocoy, Miguel Evaristo Chocoy, Steve Clark, Ernesto Col, Lori Conrad, Frank Cummings, Jorge Dangel,

Josué de León Lux, Aaron de León Lux, Léster de León Lux, Edgardo O. Díaz, Angel Díaz Cota, Andrés Duarte, Kurt Duchez, Kevin Easley, Carlos Echeverría, Rafael Esquivel, Rob Fergus, Tor Fjesme, Bert Frenz, Marlo García, Luis F. Garma, Geremías Gonzáles, Jeff Harding, Eric Hernández Molina, Joanie Hubinger, Mark Hubinger, Thor Janson, Alvaro Jaramillo, Rosa Alicia Jiménez, Peter Kaestner, Anders Kling, Oliver Komar, Alberto Larios, George Lin, Coré López, Elvira López, Gerardo López, María José Lou, Adalberto B. Lucas, Julio Madrid, Andrés Marroquín, Michael Mathieson, Esteban Matías, Fernando Mazarriegos, Tim Mitzen, Basilio Mes, Juan Mez Saquí, José Monzón, Isaias Morataya, Werner Nezadal, Max Noack, Maynor Ovando, Guillaume Péron, Carlos Quezada, Miguel Ramírez, Ignacia Ramos Pérez, Rogelio Rax Xó, Michael Retter, Camilo Rivera, Marcelino Rivera, Moisés Rodríguez, Alejandro Sagone, Elías Salvatierra, Isaias Santizo, Glenn Seeholzer, Isaias Soliz, Helen Stohman, Charles Swift, Rolando Tol González, Luis Trujillo, Lemuel Valle, Andrew C. Vallely, Kevin Vande Vusse, Louis Warren and Rony Anibal Xep. We thank Juan Chocoy and Alberto Larios for providing photographs. Brian Sullivan, Marshall Illif and Chris Wood of the Cornell Lab of Ornithology deserve thanks for developing eBird (<http://ebird.org>), an online database of bird records which brought to our attention several of the noteworthy records and helped us to contact the observers. We appreciate logistical support by and / or hours together in the field with: Guillermo Aguirre, René Aldana, Edna Alvarez, Susanne Arbeiter, Misael Baltazar, Harry Barnard, Elías Barrera López, Mónica Barrios, Román Bartolón, Rómulo Bedoya, Andrea Berry, Jason Berry, Vinicio Bravo, Ottilio Bravo, Forrest & Barbara Bottomley, Everilda Buchán, Andy Burge, Efraín Caal, Alfonso Chávez, Steve Clark, Ernesto Col, Lori & Mark Conrad, Ismary Cruz, Axel Cuellar, Federico J. Fahsen, Eugenio Gobbato, Vera Hurschler, Aaron de León Lux, Josué de León Lux, Léster de León Lux, Simón de León, Angel Díaz Cota, Juan Alberto Droege, Kevin Easley, Rafael Esquivel, Pedro Gómez, José Monzón, Marcos González Morales, Max Hesse, Gerald Jordan, Louis Libert, Gerardo López, Carsten Loth, Esteban Matías, David McDonald, Juan Mez Saquí, Mike Mulligan, Luis Oliveros, Roberto Olmos, Cesar Paz, Markus Reinhard, Marcelino Rivera, Rogelio Rax Xó, Armin Schumacher, Dennis Shirley, Rolando Tol González, Jeovany Tut, Andrew C. Valley, and Lotario Vidaurre. We appreciate comments on the manuscript and editorial input by Andrew C. Valley, Steve N. G. Howell and Guy Kirwan. This study was supported by Cayaya Birding. Some data were collected during projects funded by the US Fish & Wildlife Service and the Austrian Development Agency.

References:

- Alvarez, S., Salter, J. F., McCormack, J. E. & Milá, B. 2016. Speciation in mountain refugia: phylogeography and demographic history of the Pine Siskin and Black-capped Siskin complex. *J. Avian Biol.* 47: 335–345.
- Alvarez del Toro, M. 1965. The nesting of the Belted Flycatcher. *Condor* 67: 339–343.
- Alvarez del Toro, M. 1971. *Las aves de Chiapas*. Gobierno del Estado de Chiapas, Tuxtla Gutierrez.
- Anon. 2010. Photo salon: pelagic seabirds of Middle America. *N. Amer. Birds* 64: 350–351.
- American Ornithologists' Union (AOU). 1985. Thirty-fifth supplement to the American Ornithologists' Union *Check-list of North American birds*. *Auk* 102: 680–686.
- American Ornithologists' Union (AOU). 1998. *Check-list of North American birds*. Seventh edn. American Ornithologists' Union, Washington DC.
- Angehr, G. R., Engleman, D. & Engleman, L. 2008. *A bird-finding guide to Panama*. Cornell Univ. Press, Ithaca, NY.
- Avendaño, C. 2001. Caracterización de la avifauna del Parque Nacional Laguna Lachuá y su zona de influencia, Cobán, Alta Verapaz. Thesis. Univ. San Carlos, Guatemala.
- Baepler, D. H. 1962. The avifauna of the Soloma region in Huehuetenango, Guatemala. *Condor* 64: 140–153.
- Ballance, L. T., Pitman, R. L. & Joyce, T. W. 2018. Unpublished database of pelagic bird records. National Oceanic and Atmospheric Administration (NOAA), Fisheries, Southwest Fisheries Science Center, La Jolla, CA.
- Banks, R. C., Cicero, C., Dunn, J. L., Kratter, A. W., Ouellet, H., Rasmussen, P. C., Remsen, J. V., Rising, J. D. & Stotz, D. F. 2000. Forty-second supplement to the American Ornithologists' Union *Check-list of North American birds*. *Auk* 117: 847–858.
- Banks, R. C., Chesser, R. T., Cicero, C., Dunn, J. L., Kratter, A. W., Lovette, I. J., Rasmussen, P. C., Remsen, J. V., Rising, J. D., Stotz, D. F. & Winker, K. 2008. Forty-ninth supplement to the American Ornithologists' Union *Check-list of North American birds*. *Auk* 125: 758–769.
- Beason, J. P., Gunn, C., Potter, K. M., Sparks, R. A. & Fox, J. W. 2012. The northern Black Swift: migration path and wintering area revealed. *Wilson J. Orn.* 124: 1–8.
- Beavers, R. A. 1992. *The Birds of Tikal: an annotated checklist for Tikal National Park and Peten, Guatemala*. Texas A&M University Press, College Station.
- Beavers, R. A., Delaney, D. J., Leahy, C. W. & Oatman, G. F. 1991. New and noteworthy bird records from Petén, Guatemala, including Tikal National Park. *Bull. Brit. Orn. Cl.* 111: 77–90.
- Bildstein, K. L. & Zalles, J. I. 2001. Raptor migration along the Mesoamerican land corridor. Pp. 119–141 in Bildstein, K. L. & Klem, D. (eds.) *Hawkwatching in the Americas*. Hawk Migration Association of North America, North Wales, PA.
- BirdLife International. 2012. Species factsheet: *Oreophasis derbianus*. www.birdlife.org (accessed 24 September 2012).

- Bolaños Sittler, P. R. 2016. Recent sightings of Common Raven *Corvus corax* in the highlands of Guatemala. *Cotinga* 38: 88–89.
- Bonaparte, C. L. J. L. 1837. Report on a collection of birds formed by Colonel Velasquez de Leon during a fortnight's scientific tour in Guatemala. *Proc. Zool. Soc. Lond.* 1837: 114–119.
- Brigham, R. M., Ng, J., Poulin, R. G. & Grindal, S. D. 2011. Common Nighthawk (*Chordeiles minor*) In Rodewald, P. G. (ed.) *The birds of North America Online*. Cornell Lab of Ornithology, Ithaca, NY. <https://birdsna-org.bnaproxy.birds.cornell.edu/Species-Account/bna/species/comnig> (accessed 24 March 2017).
- Brooks, T. & Gee, B. 2006. Horned Guans and other birds at Fuentes Georginas, Guatemala. *Pato-Poc* 3: 3–9.
- Brown, C. R. & Tarof, S. 2013. Purple Martin (*Progne subis*). In Rodewald, P. G. (ed.) *The birds of North America Online*. Cornell Lab of Ornithology, Ithaca, NY. <https://birdsna-org.bnaproxy.birds.cornell.edu/Species-Account/bna/species/purmar> (accessed 13 September 2017).
- Budney, G. F., Iliff, M. J., Iñigo-Elias, E. E., Schulenberg, T. S. & Wood, C. 2008. *Rapid bird surveys at the El Mirador and Tintal archaeological sites in the Maya Biosphere Reserve, Departamento del Petén, República de Guatemala*. Cornell Lab of Ornithology, Ithaca, NY.
- Cahill, J. 2014. Un año grande en Guatemala. *Birder's Guide* 26(3): 10–18.
- Carboneras, C. & Kirwan, G. M. 2017. Fulvous Whistling-duck (*Dendrocygna bicolor*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/52796 (accessed 13 September 2017).
- Carboneras, C., Jutglar, F. & Kirwan, G. M. 2018a. Juan Fernandez Petrel (*Pterodroma externa*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/52539 (accessed 5 June 2018).
- Carboneras, C., Jutglar, F. & Kirwan, G. M. 2018b. Tahiti Petrel (*Pseudobulweria rostrata*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/52521 (accessed 5 June 2018).
- Carriker, M. A. 1910. An annotated list of the birds of Costa Rica, including Cocos Island. *Ann. Carnegie Mus.* 6: 314–915.
- Carriker, M. A. & Meyer de Schauensee, R. 1935. An annotated list of two collections of Guatemalan birds in the Academy of Natural Sciences of Philadelphia. *Proc. Acad. Nat. Sci. Philadelphia* 87: 411–455.
- Cerezo, A. & Ramirez, M. 2002. Evaluación de las comunidades de aves de dos zonas núcleo propuestas para el Area de Protección Especial Sierra Santa Cruz. Unpubl. rep. Fundación para el Ecodesarrollo y la Conservación, Guatemala.
- Cerezo, A. & Ramírez, M. 2003. Evaluación de la avifauna de dos zonas núcleo propuestas para el área de protección especial Sierra Caral. Unpubl. rep. Fundación para el Ecodesarrollo y la Conservación, Guatemala.
- Cerezo, A., Ramírez, M. & Enríquez, H. 2005. *Aves de Cerro San Gil, listado de campo*. Fundación para el Ecodesarrollo y la Conservación, Guatemala.
- Chantler, P. & Driessens, G. 2000. *Swifts: a guide to the swifts and tree swifts of the world*. Second edn. Yale Univ. Press, New Haven, CT.
- Chesser, R. T., Banks, R. C., Barker, F. K., Cicero, C., Dunn, J. L., Kratter, A. W., Lovette, I. J., Rasmussen, P. C., Remsen, J. V., Rising, J. D., Stotz, D. F. & Winker, K. 2010. Fifty-first supplement to the American Ornithologists' Union *Check-list of North American birds*. *Auk* 127: 726–744.
- Chesser, R. T., Banks, R. C., Barker, F. K., Cicero, C., Dunn, J. L., Kratter, A. W., Lovette, I. J., Rasmussen, P. C., Remsen, J. V., Rising, J. D., Stotz, D. F. & Winker, K. 2012. Fifty-third supplement to the American Ornithologists' Union *Check-list of North American birds*. *Auk* 129: 573–588.
- Chesser, R. T., Burns, K. J., Cicero, C., Dunn, J. L., Kratter, A. W., Lovette, I. J., Rasmussen, P. C., Remsen, J. V., Rising, J. D., Stotz, D. F. & Winker, K. 2017. Fifty-eighth supplement to the American Ornithological Society's *Check-list of North American birds*. *Auk* 134: 751–773.
- Cleere, N. 1999. Family Caprimulgidae. Pp. 302–386 in del Hoyo, J., Elliott, A. & Sargatal, J. (eds.) *Handbook of the birds of the world*, vol. 5. Lynx Edicions, Barcelona.
- Cóbar Carranza, A. J. & Rivas Romero, J. A. 2005. Distribución actual y selección de sitios para el estudio y conservación del Pavo de Cacho (*Oreophasis derbianus* G. R. Gray, 1844) en los departamentos de San Marcos y Huehuetenango, Guatemala. Pp. 8–13 in Rivas, J., Secaira, E. & Cornejo, J. (eds.) *Mem. II Simp. Intern. Oreophasis derbianus, 7–9 Abril 2005, Reserva Los Tarrales, Patulul, Suchitepéquez, Guatemala*. The Nature Conservancy, Guatemala.
- Cooper, D. S. 2003. New distributional and ecological information on birds in south-western Guatemala. *Cotinga* 19: 61–63.
- Cotí Lux, P. 2010. Caracterización del pavo de cacho en el bosque nuboso de Cerro Cruz Maltín en Soloma y Xapper-Yoltziblac en San Mateo Ixtatán, Huehuetenango. Unpubl. rep. Fundaeco, Embajadores de las Nubes, Guatemala.
- Danner, R. M., Langridge, S. & Dietsch, T. 2008. The nest and eggs of Prevost's Ground-Sparrow (*Melospiza biarcuata*), group *biarcuata*. *Orn. Neotrop.* 19: 283–285.

- Davis, S. E., Maftei, M. & Mallory, M. L. 2016. Migratory connectivity at high latitudes: Sabine's Gulls (*Xema sabini*) from a colony in the Canadian high Arctic migrate to different oceans. *PLoS ONE* 11(12): e0166043.
- Dearborn, N. 1907. Catalogue of a collection of birds from Guatemala. *Field Mus. Nat. Hist., Orn. Ser.* 1: 67–138.
- Dickerman, R. W. 1975. Nine new specimen records for Guatemala. *Wilson Bull.* 87: 412–413.
- Dickerman, R. W. 2007. Birds of the southern Pacific lowlands of Guatemala, with a review of *Icterus gularis*. *Mus. Southwestern Biol. Spec. Publ.* 7: 1–45.
- Dickey, D. R. & van Rossem, A. J. 1938. The birds of El Salvador. *Publ. Field Mus. Nat Hist. Zool. Ser.* 23: 1–609.
- Dickinson, E. C., Overstreet, L. K., Dowsett, R. J. & Bruce, M. D. 2011. *Priority! The dating of scientific names in ornithology*. Aves Press, Northampton.
- Dwight, J. & Griscom, L. 1927. A new and remarkable flycatcher from Guatemala. *Amer. Mus. Novit.* 254: 1–2.
- Eisermann, K. 2001. Caracterización de la avifauna del Área de Protección Especial Punta de Manabique, Izabal, Guatemala. Unpubl. rep. Fundación Mario Dary, Guatemala.
- Eisermann, K. 2003. First records of the White-crowned Pigeon (*Columba leucocephala*), the Rufous-necked Wood-Rail (*Aramides axillaris*), and the Snowy Cotinga (*Carpodectes nitidus*) for Guatemala. *Orn. Neotrop.* 14: 127–128.
- Eisermann, K. 2013. Vocal field marks of Unspotted Saw-whet Owl and Guatemalan Pygmy-Owl. *Neotrop. Birding* 13: 8–13.
- Eisermann, K. & Avendaño, C. 2006. Diversidad de aves en Guatemala, con una lista bibliográfica. Pp. 525–623 in Cano, E. (ed.) *Biodiversidad de Guatemala*, vol. 1. Univ. del Valle de Guatemala.
- Eisermann, K. & Avendaño, C. 2007. *Lista comentada de las aves de Guatemala / Annotated checklist of the birds of Guatemala*. Lynx Edicions, Barcelona.
- Eisermann, K. & Avendaño, C. 2015. Los búhos de Guatemala. Pp. 381–434 in Enríquez, P. L. (ed.) *Los búhos neotropicales: diversidad y conservación*. ECOSUR, San Cristóbal de las Casas.
- Eisermann, K. & Avendaño, C. 2017. The owls of Guatemala. Pp. 447–515 in Enríquez, P. L. (ed.) *Neotropical owls: diversity and conservation*. Springer, Cham.
- Eisermann, K. & Howell, S. N. G. 2011. Vocalizations of the Guatemalan Pygmy-Owl (*Glaucidium cobanense*). *J. Raptor Res.* 45: 304–314.
- Eisermann, K. & Schulz, U. 2005. Birds of a high-altitude cloud forest in Alta Verapaz, Guatemala. *Rev. Biol. Trop.* 53: 577–594.
- Eisermann, K., Herrera, N. & Komar, O. 2006. Highland Guan (*Penelopina nigra*). Pp. 85–90 in Brooks, D. M. (ed.) *Conserving cracids: the most threatened family of birds in the Americas*. Misc. Publ. Houston Mus. Nat. Sci. 6.
- Eisermann, K., Burge, A. & López, G. 2007. Nesting records of Horned Guan (*Oreophaps derbianus*) on Atitlán volcano, Guatemala. *Bull. IUCN / BIRDLIFE / WPA Cracid Specialist Group* 23: 13–24.
- Eisermann, K., Arbeiter, S., López, Avendaño, C. & de León Lux, J. 2011a. Distribution, habitat use, and implications for the conservation of the globally threatened Azure-rumped Tanager *Tangara cabanisi* in Guatemala. *Bird Conserv. Intern.* 21: 423–437.
- Eisermann, K., Arbeiter, S., López, G., Avendaño, C., de León Lux, J., Burge, A., de León Lux, A. & Buchán, E. 2011b. Nesting ecology of the Endangered Azure-rumped Tanager (*Tangara cabanisi*) in Guatemala. *Orn. Neotrop.* 22: 39–57.
- Eisermann, K., Avendaño, C. & Tanimoto, P. 2013. Birds of the Cerro El Amay Important Bird Area, Quiché, Guatemala. *Cotinga* 35: 81–93.
- Eisermann, K., Avendaño, C. & Matías, E. 2017a. Nesting evidence, density and vocalisations in a resident population of Savannah Sparrow *Passerculus sandwichensis wetmorei* in Guatemala. *Bull. Brit. Orn. Cl.* 137: 37–45.
- Eisermann, K., Avendaño, C. & Matías, E. 2017b. Primer registro de anidación de *Psiloscops flammeolus* en Guatemala. *Cotinga* 39: 53–59.
- Eitnienar, J. C. & Eisermann, K. 2009. Status and recent sightings of Ocellated Quail. *Intern. J. Galliformes Conserv.* 1: 85–93.
- Ericsson, S. 1981. Loggerhead Shrike in Guatemala in December 1979. *Dutch Birding* 3: 27–28.
- Escobar Anleu, B. I. 2012. Diversidad (riqueza y abundancia relativa) de aves acuáticas en época no migratoria y migratoria en el Lago de Atitlán. Unpubl. rep. Univ. San Carlos, Guatemala.
- FAOSTAT. 2012. Online database, Food and Agriculture Organization of the United Nations. <http://faostat.fao.org/site/567/default.aspx#ancor> (accessed 23 November 2012).
- Frederick, P. C., Sandoval, J. C., Luthin, C. & Spalding, M. 1997. The importance of the Caribbean coastal wetlands of Nicaragua and Honduras to Central American populations of waterbirds and Jabiru Storks (*Jabiru mycteria*). *J. Field Orn.* 68: 287–295.
- Funes, C. & Herrera, N. 2006. Primer registro del Capuchino de Cabeza Negra (*Lonchura malacca*, Estrilidae) en El Salvador. *Bol. Soc. Antioqueña Orn.* 15: 37–41.

- Furness, R. W., Boesman, P. & Garcia, E. F. J. 2017a. South Polar Skua (*Catharacta maccormicki*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/53955 (accessed 24 October 2017).
- Furness, R. W., Kirwan, G. M., de Juana, E. & Garcia, E. F. J. 2017b. Long-tailed Jaeger (*Stercorarius longicaudus*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/53960 (accessed 24 October 2017).
- Gallardo, R. 2014. *Guide to the birds of Honduras*. Mountain Gem Tours, Honduras.
- van Gils, J., Wiersma, P. & Kirwan, G. M. 2017. Red Phalarope (*Phalaropus fulicarius*) In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/53946 (accessed 24 October 2017).
- Gochfeld, M., Burger, J., Christie, D. A. & Kirwan, G. M. 2018. Common White Tern (*Gygis alba*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/54054 (accessed 5 June 2018).
- Gómez de Silva, H. 2002. The winter season, December 2002 through February 2003: Mexico. *N. Amer. Birds* 56: 228–232.
- Gómez de Silva, H. 2005. The winter season, December 2004 through February 2005: Mexico. *N. Amer. Birds* 59: 331–236.
- Gómez de Silva, H. 2010. The nesting season, June through July 2009: Mexico. *N. Amer. Birds* 63: 659–662.
- Gómez de Silva, H. 2011a. The winter season, December 2010 through February 2011: Mexico. *N. Amer. Birds* 65: 347–350.
- Gómez de Silva, H. 2011b. The spring migration, March through May 2011: Mexico. *N. Amer. Birds* 65: 525–528.
- Gómez de Silva, H. 2012. The winter season, December 2011 through February 2012: Mexico. *N. Amer. Birds* 66: 350–353.
- Gómez de Silva, H. 2013. The spring migration, March through May 2012: Mexico. *N. Amer. Birds* 66: 560–562.
- Gómez Ventura, J. A. & de Mendoza, Z. R. 1982. General aspects of the reproduction of *Dendrocygna bicolor* in Jocotol Lagoon, El Salvador. Pp. 807–820 in Salinas, P. J. (ed.) *Zoología Neotropical: Actas del VIII Congreso Latinoamericano de Zoología*. Producciones Alfa, Mérida.
- González-García, F., Brooks, D. M. & Strahl, S. D. 2001. Historia natural y estado de conservación de los crácidos en México y Centroamérica. Pp. 1–50 in Brooks, D. M. & González-García, F. (eds.) *Cracid ecology and conservation in the new millennium*. Misc. Publ. Houston Mus. Nat. Sci. 2.
- Griscom, L. 1929. A review of *Eumomota superciliosa*. *Proc. New England Zool. Cl.* 11: 51–56.
- Griscom, L. 1932. Distribution of bird-life in Guatemala: a contribution to a study of the origin of Central American bird-life. *Bull. Amer. Mus. Nat. Hist.* 64: 1–439.
- Griscom, L. 1935. Critical notes on Central American birds in the British Museum. *Ibis* 77: 541–554.
- Hanna, Z. R., Ortiz-Ramírez, M. F., Ríos-Múñoz, C. A., Cayetano-Rosas, H., Bowie, R. C. K. & Navarro-Sigüenza, A. G. 2016. Phylogenetic and morphological evidence confirm the presence of a new montane cloud forest associated bird species in Mexico, the Mountain Elaenia (*Elaenia frantzii*; Aves: Passeriformes: Tyrannidae). *PeerJ* 4: e1598.
- Harrison, P. 1983. *Seabirds: an identification guide*. Houghton Mifflin, Boston, MA.
- Heinrichs, N., Eisermann, K. & Avendaño, C. 2006. Conteo de aves rapaces migratorias en la vertiente pacífica de Guatemala en octubre y noviembre 2005. *Pato-Poc* 3: 10–17.
- Hellmayr, C. E. 1936. Catalogue of birds of the Americas and related islands, pt. 9. *Publ. Field Mus. Nat. Hist. Publ., Zool. Ser.* 13(9): 1–458.
- Herrera, N. 2005. First record of Spotted Rail *Pardirallus maculatus* in Guatemala. *Cotinga* 24: 108.
- Herrera, N. & Ibarra Portillo, R. 2005. Aves acuáticas del Lago de Güija, El Salvador y Guatemala. *Pato-Poc* 2: 2–8.
- Hilty, S. L. 2017. Hepatic Tanager (*Piranga hepatica*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/61822 (accessed 13 September 2017).
- Holt, D. W., Yuxó, J. L., Hiro, S. & Méndez, O. 2014. Nest record of the Stygian Owl (*Asio stygius*) in Guatemala. *Spizaetus* 17: 14–17.
- Howell, S. N. G. 1994. Magnificent and Great Frigatebirds in the eastern Pacific. *Birding* 26: 400–415.
- Howell, S. N. G. 2012. *Petrels, albatrosses and storm-petrels of North America: a photographic guide*. Princeton Univ. Press.
- Howell, S. N. G. & Dunn, J. 2007. *A reference guide to the gulls of the Americas*. Houghton Mifflin, Boston & New York.
- Howell, S. N. G. & de Montes, B. M. 1989. Status of Glossy Ibis in Mexico. *Amer. Birds* 43: 43–45.
- Howell, S. N. G. & Webb, S. 1990. The seabirds of Las Islas Revillagigedo, Mexico. *Wilson Bull.* 102: 140–146.
- Howell, S. N. G. & Webb, S. 1992. New and noteworthy bird records from Guatemala and Honduras. *Bull. Brit. Orn. Cl.* 112: 42–49.
- Howell, S. N. G. & Webb, S. 1995. *A guide to the birds of Mexico and northern Central America*. Oxford Univ. Press, New York.

- Howell, S. N. G., Dowell, B. A., James, D. A., Behrstock, R. A. & Robbins, C. 1992. New and noteworthy bird records from Belize. *Bull. Brit. Orn. Cl.* 112: 235–244.
- Howell, T. 2010. Thomas R. Howell's check-list of the birds of Nicaragua as of 1993. *Orn. Monogr.* 68: 1–108.
- del Hoyo, J., Collar, N. & Garcia, E. F. J. 2018. Nazca Booby (*Sula granti*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/467294 (accessed 5 June 2018).
- Hubbard, J. P. 1969. The relationships and evolution of the *Dendroica coronata* complex. *Auk* 86: 393–432.
- Ibarra Portillo, R. 2009. Registro de "Cacique Mexicano" (*Cacicus melanicterus*) en El Salvador. *Zeledonia* 13(1): 6–15.
- International Commission for Zoological Nomenclature (ICZN). 1999. *International code of zoological nomenclature*. Fourth edn. International Trust for Zoological Nomenclature, London.
- IUCN. 2017. The IUCN Red List of threatened species. Version 2017.2. www.iucnredlist.org (accessed 20 October 2017).
- Jaramillo, A. & Burke, P. 1999. *New World blackbirds*. Princeton Univ. Press.
- Jones, H. L. 2002. The nesting season, June through July 2003: Central America. *N. Amer. Birds* 56: 494–495.
- Jones, H. L. 2003a. The nesting season, June through July 2003: Central America. *N. Amer. Birds* 57: 554–555.
- Jones, H. L. 2003b. *Birds of Belize*. Univ. of Texas Press, Austin.
- Jones, H. L. 2004a. Fall migration, August through November 2003. *N. Amer. Birds* 58: 155–157.
- Jones, H. L. 2004b. The nesting season, June through July 2004: Central America. *N. Amer. Birds* 58: 611–612.
- Jones, H. L. 2005a. The winter season, December 2004 through February 2005: Central America. *N. Amer. Birds* 59: 337–340.
- Jones, H. L. 2005b. The spring migration, March through May 2005: Central America. *N. Amer. Birds* 59: 506–510.
- Jones, H. L. & Komar, O. 2007a. The nesting season, June through July 2006: Central America. *N. Amer. Birds* 60: 587–588.
- Jones, H. L. & Komar, O. 2007b. The fall migration, August through November 2006: Central America. *N. Amer. Birds* 61: 155–159.
- Jones, H. L. & Komar, O. 2007c. The winter season, December 2006 through February 2007: Central America. *N. Amer. Birds* 61: 340–344.
- Jones, H. L. & Komar, O. 2007d. The spring migration, March through May 2007: Central America. *N. Amer. Birds* 61: 521–525.
- Jones, H. L. & Komar, O. 2008a. The nesting season, June through July 2007: Central America. *N. Amer. Birds* 61: 648–651.
- Jones, H. L. & Komar, O. 2008b. The fall migration, August through November 2007: Central America. *N. Amer. Birds* 62: 163–170.
- Jones, H. L. & Komar, O. 2008c. The winter season, December 2007 through February 2008: Central America. *N. Amer. Birds* 62: 314–318.
- Jones, H. L. & Komar, O. 2008d. The spring migration, March through May 2008: Central America. *N. Amer. Birds* 62: 487–491.
- Jones, H. L. & Komar, O. 2009a. The nesting season, June through July 2008: Central America. *N. Amer. Birds* 62: 626–628.
- Jones, H. L. & Komar, O. 2009b. The fall migration, August through November 2008: Central America. *N. Amer. Birds* 63: 167–172.
- Jones, H. L. & Komar, O. 2009c. The winter season, December 2008 through February 2009: Central America. *N. Amer. Birds* 63: 335–339.
- Jones, H. L. & Komar, O. 2009d. The spring migration, March through May 2009: Central America. *N. Amer. Birds* 63: 513–518.
- Jones, H. L. & Komar, O. 2010a. The nesting season, June through July 2009: Central America. *N. Amer. Birds* 63: 662–663.
- Jones, H. L. & Komar, O. 2010b. The fall migration, August through November 2009: Central America. *N. Amer. Birds* 64: 164–168.
- Jones, H. L. & Komar, O. 2010c. The winter season, December 2009 through February 2010: Central America. *N. Amer. Birds* 64: 333–336.
- Jones, H. L. & Komar, O. 2010d. The spring migration, March through May 2010: Central America. *N. Amer. Birds* 64: 507–510.
- Jones, H. L. & Komar, O. 2011a. The nesting season, June through July 2010: Central America. *N. Amer. Birds* 64: 654–655.
- Jones, H. L. & Komar, O. 2011b. The fall migration, August through November 2010: Central America. *N. Amer. Birds* 65: 174–180.
- Jones, H. L. & Komar, O. 2011c. The winter season, December 2010 through February 2011: Central America. *N. Amer. Birds* 65: 350–356.
- Jones, H. L. & Komar, O. 2011d. The spring migration, March through May 2011: Central America. *N. Amer. Birds* 65: 528–534.

- Jones, H. L. & Komar, O. 2012a. The fall migration, August through November 2011: Central America. *N. Amer. Birds* 66: 182–187.
- Jones, H. L. & Komar, O. 2012b. The winter season, December 2011 through February 2012: Central America. *N. Amer. Birds* 66: 353–359.
- Jones, H. L. & Komar, O. 2013a. The spring migration, March through May 2012: Central America. *N. Amer. Birds* 66: 562–566.
- Jones, H. L. & Komar, O. 2013b. The nesting season, June through July 2012: Central America. *N. Amer. Birds* 66: 739–742.
- Jones, H. L. & Komar, O. 2013c. The fall migration, August through November 2012: Central America. *N. Amer. Birds* 67: 169–173.
- Jones, H. L. & Komar, O. 2013d. The winter season, December 2012 through February 2013: Central America. *N. Amer. Birds* 67: 349–356.
- Jones, H. L. & Komar, O. 2014a. The spring migration, March through May 2013: Central America. *N. Amer. Birds* 67: 525–531.
- Jones, H. L. & Komar, O. 2014b. The nesting season, June through July 2013: Central America. *N. Amer. Birds* 67: 656–658.
- Jones, H. L. & Komar, O. 2014c. The fall migration, August through November 2013: Central America. *N. Amer. Birds* 68: 157–161.
- Jones, H. L. & Komar, O. 2015a. The winter season, December 2013 through February 2014: Central America. *N. Amer. Birds* 68: 284–289.
- Jones, H. L. & Komar, O. 2015b. The spring migration, March through May 2014: Central America. *N. Amer. Birds* 68: 435–440.
- Jones, H. L. & Komar, O. 2015c. The nesting season, June through July 2014: Central America. *N. Amer. Birds* 68: 559–562.
- Jones, H. L. & Komar, O. 2015d. The fall migration, August through November 2014: Central America. *N. Amer. Birds* 69: 163–168.
- Jones, H. L. & Valley, A. C. 2001. *Annotated checklist of the birds of Belize*. Lynx Edicions, Barcelona.
- Jones, H. L., Komar, O. & van Dort, J. 2016a. The winter season, December 2014 through February 2015: Central America. *N. Amer. Birds* 69: 302–305.
- Jones, H. L., Komar, O. & van Dort, J. 2016b. The spring migration, March through May 2015, nesting season, June through July 2015: Central America. *N. Amer. Birds* 69: 503–508.
- Jones, H. L., McRae, E., Meadows, M. & Howell, S. N. G. 2000. Status updates for selected bird species in Belize, including several species previously undocumented from the country. *Cotinga* 13: 17–31.
- Jones, H. L., Calderamos, P., Caulfield, J., Caulfield, A., Crawford, G., Donegan, T. M., McRae, E., Meadows, M., Muschamp, M., Saqui, P., van der Spek, V., Urbina, J. & Zimmer, B. 2002. Fourteen new bird species for Belize. *Cotinga* 17: 33–42.
- Juárez-Jovel, R. C. & Komar, O. 2012. Nuevos sitios de anidación para Chorlito Piquigrueso (*Charadrius wilsonia*) y Chotacabras Menor (*Chordeiles acutipennis*) en El Salvador y Guatemala. *Bol. Soc. Antioqueña Orn.* 21: 7–12.
- Komar, O. 1998. Avian diversity in El Salvador. *Wilson Bull.* 110: 511–533.
- Komar, O. 2002. Birds of Montecristo Nationalpark, El Salvador. *Orn. Neotrop.* 13: 167–193.
- Land, H. C. 1962a. A collection of birds from the Sierra de las Minas, Guatemala. *Wilson Bull.* 74: 267–283.
- Land, H. C. 1962b. A collection of birds from the arid interior of eastern Guatemala. *Auk* 79: 1–11.
- Land, H. C. 1963. A collection of birds from the Caribbean lowlands of Guatemala. *Condor* 65: 49–65.
- Land, H. C. 1970. *Birds of Guatemala*. Livingston, Wynnewood, PA.
- Land, H. C. & Wolf, L. L. 1961. Additions to the Guatemalan bird list. *Auk* 78: 94–95.
- Lawrence, G. N. 1863. Descriptions of new species of birds of the families Vireonidae and Rallidae. *Proc. Acad. Nat. Sci. Philadelphia* 15: 106–107.
- Lockwood, M. & Freeman, B. 2014. *The TOS handbook of Texas birds*. Second edn. Texas A&M University Press, College Station.
- Marín, M. & Stiles, G. F. 1992. On the biology of five species of swifts (Apodidae, Cypseloidinae) in Costa Rica. *Proc. Western Found. Vert. Zool.* 4: 285–351.
- Martin, J. W. & Parrish, J. R. 2000. Lark Sparrow (*Chondestes grammacus*). No. 488 in Poole, A. & Gill, F. (eds.) *The birds of North America*. The Birds of North America, Inc., Philadelphia, PA.
- Mason, C. R. 1976. Cape May Warbler in Middle America. *Auk* 93: 167–169.
- McKinnon H., B., Deppe, J. & Celis-Murillo, A. 2011. Birds of the Yucatan Peninsula in Mexico: an update on the status and distribution of selected species. *N. Amer. Birds* 65: 538–552.
- Méndez, O. 2000. Conducta de anidación del Pavo de Cacho *Oreophasis derbianus* en el Volcán Tolimán, Guatemala. Pp. 67–68 in *Libro Resúmenes IV Congr. Soc. Mesoamericana Biol. Conserv.*, 4–8 de Septiembre 2000. Fundación Natura, Panamá City.
- Middleton, A. L. 1998. Chipping Sparrow (*Spizella passerina*). No. 334 in Poole, A. & Gill, F. (eds.) *The birds of North America*. The Birds of North America, Inc., Philadelphia, PA.

- Milá, B., Smith, T. B. & Wayne, R. K. 2007. Speciation and rapid phenotypic differentiation in the Yellow-rumped Warbler (*Dendroica coronata*) complex. *Mol. Ecol.* 16: 159–173.
- Miller, A. H., Friedmann, H., Griscom, L. & Moore, R. T. 1957. *Distributional check-list of the birds of Mexico*, pt. 2. Pacific Coast Avifauna no. 30. Cooper Orn. Soc., Berkeley, CA.
- Monroe, B. L. 1968. A distributional survey of the birds of Honduras. *Orn. Monogr.* 7: 1–458.
- Morgenthaler, A. 2003. Ecology of the Black Catbird, *Melanoptila glabrirostris*, at Shipstern Nature Reserve (Belize), and distribution in Yucatan. Thesis. Univ. of Neuchâtel.
- Nájera Acevedo, A. 2004. Diversidad y estructura de la avifauna en el bosque nuboso primario de Albores, Sierra de las Minas, Guatemala. Thesis. Univ. del Valle de Guatemala.
- Nelson, E. W. 1897. Preliminary descriptions of new birds from Mexico and Guatemala in the collection of the United States Department of Agriculture. *Auk* 14: 42–75.
- Patten, M. A. & Lasley, G. W. 2000. Range expansion of Glossy Ibis in North America. *N. Amer. Birds* 54: 241–247.
- Patten, M. A., Gómez de Silva, H., Ibarra, A. C. & Smith-Patten, B. S. 2011. An annotated list of the avifauna of Palenque, Chiapas. *Rev. Mex. Biodiver.* 82: 515–537.
- Pérez, E. S. & Castillo, M. L. 2000. A rapid assessment of avifaunal diversity in aquatic habitats of Laguna del Tigre National Park, Petén, Guatemala. Pp. 56–60, 208–214 in Bestelmeyer, B. T. & Alonso, L. A. (eds.) *A biological assessment of Laguna del Tigre National Park, Petén, Guatemala*. RAP Bull. Biol. Assessment 16. Conservation International, Washington DC.
- Pérez León, R., Vega, I. & Herrera, N. 2015. Los búhos de El Salvador. Pp. 357–377 in Enríquez, P. L. (ed.) *Los búhos neotropicales: diversidad y conservación*. ECOSUR, San Cristóbal de las Casas.
- Pineda, L. & Herrera, N. 2014. Nota sobre la anidación del Milano Caracolero (*Rostrhamus sociabilis*) en el lago de Güija, El Salvador y Guatemala. *Rev. Bioma* 2(23): 50–55.
- Pineda, L., Tenez, E. D. & Herrera, N. 2006. Nuevos registros de aves acuáticas para el Lago de Güija, El Salvador y Guatemala. *Pato-Poc* 3: 30–33.
- Pitman, R. L. 1986. *Atlas of seabird distribution and relative abundance in the eastern tropical Pacific*. National Marine Fisheries Series Administrative Report LJ-86-02C. Southwest Fisheries Center, La Jolla, CA.
- Pitman, R. L. & Ballance, L.T. 1992. Parkinson's Petrel distribution and foraging ecology in the eastern Pacific: aspects of an exclusive feeding relationship with dolphins. *Condor* 94: 825–835.
- Pitman, R. L. & Jehl, J. R. 1998. Geographic variation and reassessment of species limits in the "Masked" Boobies of the eastern Pacific Ocean. *Wilson Bull.* 110: 155–170.
- Pranty, B. & Ponzio, V. 2012. First winter records in Florida of Common Nighthawk (*Chordeiles minor*), Cliff Swallow (*Petrochelidon pyrrhonota*), Red-eyed Vireo (*Vireo olivaceus*), and Bobolink (*Dolichonyx oryzivorus*), and first recent winter record of Mississippi Kite (*Ictinia mississippiensis*). *Fla. Field Natur.* 40: 41–74.
- Puebla-Olivares, F., Rodríguez-Ayala, E., Hsu, Y. C. & Palleroni, A. 2002. Status and conservation of the avifauna of the Yachilán Natural Monument, Chiapas, México. *Orn. Neotrop.* 13: 365–379.
- Quiñónez-Guzmán, J. M. 2011. Densidad poblacional e historia natural del Pavo de Cacho (*Oreophasis derbianus*), en la Reserva de Biosfera Sierra de las Minas, El Progreso, Guatemala. Thesis. Univ. San Carlos, Guatemala.
- Quiñónez-Guzmán, J. M., González-García, F., Cobar-Carranza, A. J. & Martínez-Morales, M. A. 2017. Densidad poblacional e historia natural del pavo de cacho (*Oreophasis derbianus*) en la Reserva de la Biosfera Sierra de las Minas, Guatemala. *Orn. Neotrop.* 28: 155–162.
- Radachowsky, J., Aguirre, O., Córdova, M., Marroquín, C., Dubón, T., García, G. & Tut, J. 2004. Birds. Pp. 61–78 in García, R. & Radachowsky, J. (eds.) *Ecological evaluation of the Mirador-Río Azul National Park, Petén, Guatemala*. Wildlife Conservation Society, Flores.
- Renner, S. C., Waltert, M. & Mühlberg, M. 2006. Comparison of bird communities in primary vs. young secondary tropical montane cloud forest in Guatemala. *Biodiver. Conserv.* 15: 1545–1575.
- Restall, R., Rodner, C. & Lentino, M. 2006. *Birds of northern South America*, vol. 1. Yale Univ. Press, New Haven, CT.
- Ridgway, R. 1904. The birds of North and Middle America, pt. 3. *Bull. US Natl. Mus.* 50(3).
- Rising, J. D. & Jaramillo, A. 2011. Blue Seedeater *Amaurospiza concolor*. P. 665 in del Hoyo, J., Elliott, A. & Christie, D. A. (eds.) *Handbook of the birds of the world*, vol. 16. Lynx Edicions, Barcelona.
- Rivas Romero, J. A. 2006a. Distribución actual y selección de sitios para el estudio y conservación del pavo de cacho (*Oreophasis derbianus* G. R. Gray 1844) en Guatemala. Unpubl. rep. The Nature Conservancy, Guatemala.
- Rivas Romero, J. A. 2006b. Distribución y conservación del pavo de cacho (*Oreophasis derbianus* G. R. Gray 1844) en los departamentos de Quetzaltenango y Quiché. Unpubl. rep. CONCYT, Guatemala.
- Rivas Romero, J. A. 2008. Densidad poblacional y fenología de las plantas alimenticias del pavo de cacho (*Oreophasis derbianus* G. R. Gray 1844) en el Parque Regional Chuwanimajuyu, Sololá. Unpubl. rep. CONCYT, SENACYT, FONACYT, Guatemala.
- Rivas Romero, J. A. & Cobar Carranza, A. J. 2005. Distribución actual del Pavo de Cacho (*Oreophasis derbianus*) en la Reserva de Biosfera Sierra de las Minas. Pp. 3–7 in Rivas, J., Secaira, E. & Cornejo, J. (eds.) *Mem. II*

- Simp. Intern. Oreophasis derbianus*, 7–9 Abril 2005, Reserva Los Tarrales, Patulul, Suchitepéquez, Guatemala. The Nature Conservancy, Guatemala.
- Rivas Romero, J. A. & Cobar Carranza, A. J. 2007. Distribución y conservación del pavo de cacho (*Oreophasis derbianus*) en Guatemala. Pp. 10–14 in Cornejo, J. & Sequeira, E. (eds.) *Mem. III Simp. Intern. sobre Oreophasis derbianus. Comité Internacional para la Conservación de Oreophasis derbianus y su hábitat*. Veracruz.
- Roberson, D. 1998. Sulids unmasked: which large booby reaches California? *Field Notes* 53: 276–287.
- Robbins, C. S & Dowell, B. A. 1995. Informe sobre el reconocimiento del habitat por las aves del Cerro San Gil, Guatemala, 9 febrero – 17 marzo de 1995. Unpubl. rep. National Biological Service, Patuxent Environmental Science Center, Laurel, MA.
- Roldán-Clarà, B. 2009. Morfometría, historia natural, abundancia y éxito reproductivo de *Melanoptila glabrirostris* y el efecto antropogénico en la Reserva de la Biosfera Sian Ka'an, México. Thesis. El Colegio de la Frontera Sur, Chetumal, Quintana Roo.
- Roldán-Clarà, B., LaPergola, J. B., Chapa-Vargas, L. & Calmè S. 2013. Nest survival in the Neotropical Black Catbird (*Melanoptila glabrirostris*). *J. Orn.* 154: 491–499.
- Romagosa, C. M. 2012. Eurasian Collared-Dove (*Streptopelia decaocto*) In Rodewald, P. G. (ed.) *The birds of North America Online*. Cornell Lab of Ornithology, Ithaca, NY. <http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/630> (accessed 24 March 2017).
- van Rossem, A. J. 1938. Descriptions of twenty-one new races of Fringillidae and Icteridae from Mexico and Guatemala. *Bull. Brit. Orn. Cl.* 58: 124–138.
- Rotenberg, J. A., Marlin, J. A., Pop, L. & García, W. 2012. First record of a Harpy Eagle (*Harpia harpyja*) nest in Belize. *Wilson J. Orn.* 124: 292–297.
- Ruelas Inzunza, E., Goodrich, L. J., Hoffman, S. W., Martínez Leyva, E., Smith, J. P., Peresbarbosa Rojas, E., Rodríguez Mesa, R., Scheuermann, K. L., Mesa Ortiz, S. L., Cebrera Carrasco, Y., Ferriz, N., Straub, R., Peñaloza Pérez, M. M. & Barrios, J. G. 2009. Long-term conservation of migratory birds in México: the Veracruz River of Raptors Project. Pp. 577–589 in Rich, T. D., Arizmendi, C., Demarest, D. W. & Thompson, C. (eds.) *Tundra to tropics: connecting birds, habitat, and people. Proc. 4th Intern. Partners in Flight Conf., 13–16 February 2008*. Partners in Flight, Texas.
- Russell, S. M. 1964. A distributional study of the birds of British Honduras. *Orn. Monogr.* 1: 1–195.
- Russell, S. M. 1966. Status of the Black Rail and the Gray-breasted Crake in British Honduras. *Condor* 68: 105–107.
- Ryder, R. A. & Manry, D. E. 1994. White-faced Ibis (*Plegadis chihi*). No. 130 in Poole, A. F. & Gill, F. B. (eds.) *The birds of North America*. The Birds of North America, Inc., Philadelphia, PA.
- Salvin, O. 1860. Letter to the editor. *Ibis* 2: 193–197.
- Salvin, O. 1861. A list of species to be added to the ornithology of Central America. *Ibis* 3: 351–357.
- Salvin, O. 1863. Description of thirteen new species of birds discovered in Central America. *Proc. Zool. Soc. Lond.* 1863: 186–192.
- Salvin, O. 1866. A further contribution to the ornithology of Guatemala. *Ibis* 8: 188–206.
- Salvin, O. 1874. Letter to the editor. *Ibis* 16: 188.
- Salvin, O. & Godman, F. D. 1879–87. *Biologia Centrali-Americana. Aves*, vol. 1. Privately published, London.
- Salvin, O. & Godman, F. D. 1879–1904. *Biologia Centrali-Americana. Aves*, vol. 4. Privately published, London.
- Salvin, O. & Godman, F. D. 1888–97. *Biologia Centrali-Americana. Aves*, vol. 2. Privately published, London.
- Salvin, O. & Godman, F. D. 1897–1904. *Biologia Centrali-Americana. Aves*, vol. 3. Privately published, London.
- Salvin, O. & Godman, F. D. 1904. *Biologia Centrali-Americana. Aves*, vol. 1. Privately published, London.
- Salvin, O. & Hartert, E. 1892. *Catalogue of birds in the British Museum*, vol. 16. Trustees of the Brit. Mus. (Nat. Hist.), London.
- Salvin, O. & Sclater, P. L. 1860a. Contributions to the ornithology of Guatemala. *Ibis* 2: 28–45.
- Salvin, O. & Sclater, P. L. 1860b. Contributions to the ornithology of Guatemala. Part II. *Ibis* 2: 272–278.
- Salvin, O. & Sclater, P. L. 1860c. Contributions to the ornithology of Guatemala. Part III. *Ibis* 2: 396–402.
- Sandoval, K. J. 2000. *Biodiversidad de Huehuetenango*. Centro de Datos para la Conservación, Centro de Estudios Conservacionistas, Univ. San Carlos, Guatemala.
- Sandoval, L., Bitton, P.-P., Doucet, S. M. & Mennill, D. J. 2014. Analysis of plumage, morphology and voice reveals species-level differences between two subspecies of Prevost's Ground-sparrow *Melospiza biarctuata* (Prevost and Des Murs) (Aves: Emberizidae). *Zootaxa* 3895: 103–116.
- Saunders, G. B. (1950) The game birds and shorebirds of Guatemala. Pp. 2–98 in Saunders, G. B., Holloway, A. D. & Handley, C. O. (eds.) *A fish and wildlife survey of Guatemala*. US Dept. of Interior Fish & Wildlife Service Spec. Sci. Rep. 5, Washington DC.
- Schmitt, F. Barros R. & Norambuena, H. 2015. Markham's Storm-Petrel breeding colonies discovered in Chile. *Neotrop. Birding* 17: 5–10.
- Sclater, P. L. 1857. Description of eleven new species of birds from tropical America. *Proc. Zool. Soc. Lond.* 1857: 271–277.
- Sclater, P. L. & Salvin, O. 1859. On the ornithology of Central America. *Ibis* 1: 1–22.

- Seavy, N. E., Whitacre, D. F. & Córdova Alvarez, M. 1997. *Yaxhá / Nakum area of the Maya Biosphere Reserve, Guatemala: baseline ecological assessment, establishment of a framework for ecological monitoring, and training of local personnel*. Peregrine Fund, Boise, ID.
- Seglund, A. & Conner, S. 1997. Bird survey of the Bocas del Polochic Wildlife Refuge and surrounding areas, Izabal, Guatemala. Unpubl. rep. Cuerpo de Paz, Defensores de la Naturaleza, Guatemala.
- Sibley, D. A. 2000. *The Sibley guide to birds*. A. Knopf, New York.
- Sigüenza, R., Velásquez Jofre, P. & Dávila, C. V. 2008. Aves pelágicas de la costa pacífica de la República de Guatemala. Unpub. rep. CONCYT, Guatemala.
- Skutch, A. 1983. *Birds of tropical America*. Univ. of Texas Press, Austin.
- Smith, N. G. 1980. Hawk and vulture migration in the Neotropics. Pp. 51–65 in Keast, A. & Morton, E. S. (eds.) *Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation*. Smithsonian Institution Press, Washington DC.
- Smithe, F. B. & Paynter, R. A. 1963. Birds of Tikal, Guatemala. *Bull. Harvard Univ. Mus. Comp. Zool.* 128: 245–324.
- Snow, D. & Kirwan, G. M. 2018. Tody Motmot (*Hylomanes motmotula*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the world Alive*. Lynx Edicions, Barcelona. www.hbw.com/node/55818 (accessed 5 June 2018).
- Stenhouse, I. J., Egevang, C. & Phillips, R. A. 2012. Trans-equatorial migration, staging sites and wintering area of Sabine's Gulls *Larus sabini* in the Atlantic Ocean. *Ibis* 154: 42–51.
- Stiles, F. G. & Negret, A. J. 1994. The nonbreeding distribution of the Black Swift: a clue from Colombia and unsolved problems. *Condor* 96: 1091–1094.
- Stiles, F. G. & Skutch, A. F. 1989. *A guide to the birds of Costa Rica*. Cornell Univ. Press, Ithaca, NY.
- Sullivan, B. L. 2009. First documented record of Black-vented Shearwater (*Puffinus opisthomelas*) for Costa Rica. *N. Amer. Birds* 63: 202–205.
- Sullivan, B. L., Wood, C. L., Iliff, M. J., Bonney, R.E., Fink, D. & Kelling, S. 2009. eBird: a citizen-based bird observation network in the biological sciences. *Biol. Conserv.* 142: 2282–2292.
- Taibel, A. M. 1955. Uccelli del Guatemala con speciale riguardo alla regione del Peten raccolti dal Maggio al Settembre 1932. *Atti. Soc. Italiana Sci. Nat.* 94: 15–84.
- Tashian, R. E. 1953. The birds of southeastern Guatemala. *Condor* 55: 198–210.
- Taylor, B. & van Perlo, B. 1998. *Rails: a guide to the rails, crakes, gallinules and coots of the world*. Yale Univ. Press, New Haven, CT.
- Tenez, D. 2005. Avifauna del volcán Lacandón, Quetzaltenango. Unpubl. rep. Consejo Nacional de Áreas Protegidas (CONAP), Guatemala Ciudad.
- Thurber, W. A. 1972. House Sparrows in Guatemala. *Auk* 89: 200.
- Thurber, W. A. 1986. Range expansion of the House Sparrow through Guatemala and El Salvador. *Amer. Birds* 40: 341–350.
- Thurber, W. A., Serrano, J. F., Sermeño, A. & Benitez, M. 1987. Status of uncommon and previously unreported birds of El Salvador. *Proc. Western Found. Vert. Zool.* 3: 111–293.
- Torres-Mura, J. C. & Lemus, M. L. 2013. Breeding of Markham's Storm-Petrel (*Oceanodroma markhami*, Aves: Hydrobatidae) in the desert of northern Chile. *Rev. Chilena Hist. Nat.* 86: 497–499.
- van Tyne, J. 1935. The birds of northern Peten, Guatemala. *Univ. Mich. Mus. Zool., Misc. Publ.* 27: 1–46.
- Valdez, O. I., Marroquín, D. E., Orellana, R. E., Pérez, S. G., Sandoval, K. J., Villar, L., Godínez, C. V., Acevedo, M. E., Morales, J. E. & Reyes, L. E. 1999. Fauna en peligro de extinción de Guatemala: inventarios rápidos para la conservación. Unpubl. rep. Centro de Estudios Conservacionistas, Univ. San Carlos, Guatemala.
- Vallely, A. C. & Aversa, T. 1997. New and noteworthy bird records from Belize including the first record of Chestnut-collared Swift *Cypseloides rutilus*. *Bull. Brit. Orn. Cl.* 117: 272–274.
- Vallely, A. C. & Gallardo, R. J. 2013. First documented record of Black Rail *Laterallus jamaicensis* in Honduras. *Bull. Brit. Orn. Cl.* 133: 319–321.
- Vallely, A. C., Dyer, D. & Perktas, U. 2014. Perplexing siskins: a review of the *Spinus pinus*-*S. atriceps* problem. *Bull. Brit. Orn. Cl.* 134: 259–269.
- Vannini, J. P. 1989. Neotropical raptors and deforestation: notes on diurnal raptors at Finca El Faro, Quetzaltenango, Guatemala. *J. Raptor Res.* 23: 27–38.
- Vargas G., J. d. J., Whitacre, D., Mosquera, R., Albuquerque, J., Piana, R., Thiollay, J.-M., Márquez, C., Sánchez, J. E., Lezama-López, M., Midence, S., Matola, S., Aguilar, S., Retting, N. & Sanaiotti, T. 2006. Estado y distribución actual del águila arpía (*Harpia harpyja*) en Centro y Sur America. *Orn. Neotrop.* 17: 39–55.
- Velásquez Jofre, P. 2008a. Análisis de la riqueza y distribución de aves pelágicas presentes entre la línea costera en bajamar y las 60 millas náuticas del Pacífico de Guatemala. Thesis. Univ. San Carlos, Guatemala.
- Velásquez Jofre, P. 2008b. Nuevos registros de aves pelágicas en el Pacífico de Guatemala. *Yu'am* 1: 26–33.
- Véliz Pérez, M. E. 2000. La vegetación del volcán Acatenango, Guatemala. *Ciencia y Tecnología* 5: 3–166.
- Weidensaul, S. 2015. *Owls of North America and the Caribbean*. Houghton Mifflin Harcourt, Boston & New York.

- Wendelken, P. W. & Martin, R. F. 1986. Recent data on the distribution of birds in Guatemala. *Bull. Brit. Orn. Cl.* 106: 16–21.
- Wendelken, P. W. & Martin, R. F. 1989. Recent data on the distribution of birds in Guatemala, 2. *Bull. Brit. Orn. Cl.* 109: 31–36.
- Wetmore, A. 1941. Notes on the birds of the Guatemala highlands. *Proc. US Natl. Mus.* 89: 523–581.
- Whitacre, D. F. & Thorstrom, R. K. (eds.) 1992. *Maya Project: use of raptors and other fauna as environmental indicators for design, management, and monitoring of protected areas and for building local capacity for conservation in Latin America. Progress report V.* Peregrine Fund, Boise, ID.
- Whitacre, D., Bjork, R. D., Aguirre B., O., Córdova A., M. & López A., J. 2002. Current status and distribution of the Harpy Eagle in Guatemala. Pp. 76–77 in Anon. (ed.) *Conferencia sobre aves rapaces neotropicales y simposio del águila arpía*. Fondo Peregrino Panamá, Panamá City.
- White, C. M., Clum, N. J., Cade, T. J. & Hunt, W. G. 2002. Peregrine Falcon (*Falco peregrinus*). No. 660 in Poole, A. F. & Gill, F. G. (eds.) *The birds of North America*. The Birds of North America, Inc., Philadelphia, PA.
- White, C. M., Cade, T. J. & Enderson, J. H. 2013. *Peregrine Falcons of the world*. Lynx Edicions, Barcelona.

Address: Knut Eisermann and Claudia Avendaño, PROEVAL RAXMU Bird Monitoring Program, Cobán, dpto. Alta Verapaz, Guatemala, e-mails: knut.eisermann@proeval-raxmu.org, claudia@proeval-raxmu.org

Appendix 1: Geographic coordinates of sites mentioned in the text.

Sites in Guatemala

Dpto.	Site	Latitude	Longitude
Alta Verapaz	Chamelco	15°25'24.6"N	90°19'46.1"W
Alta Verapaz	Chiquibul	15°55'58"N	90°30'36.2"W
Alta Verapaz	Chisec	15°48'47.3"N	90°17'29.1"W
Alta Verapaz	Cobán	15°28'20.8"N	90°22'45"W
Alta Verapaz	Cubihuitz	15°40'31"N	90°25'25.6"W
Alta Verapaz	Finca Chajbaoc	15°29'10.5"N	90°21'38.8"W
Alta Verapaz	Finca La Aurora	15°22'45.9"N	90°26'9.7"W
Alta Verapaz	Finca Rubel Chahím	15°22'34.1"N	90°20'44.7"W
Alta Verapaz	Laguna Chichoj	15°21'41.2"N	90°28'29.9"W
Alta Verapaz	Laguna Lachuá	15°55'13.4"N	90°40'22.4"W
Alta Verapaz	Montaña Caquiepec	15°22'24.9"N	90°10'37.6"W
Alta Verapaz	Montaña Sacranix	15°30'44.5"N	90°29'0.3"W
Alta Verapaz	Montaña Xucaneb	15°21'16.4"N	90°14'53.5"W
Alta Verapaz	Montaña Yalijux	15°23'44.4"N	90°03'50.1"W
Alta Verapaz	Mucbilhá	15°52'5"N	90°08'14.1"W
Alta Verapaz	Panzós	15°23'54.8"N	89°38'26.2"W
Alta Verapaz	Parque Nacional Laguna Lachuá	15°55'13.4"N	90°40'22.4"W
Alta Verapaz	Reserva Natural Privada Chelemhá	15°23'9.4"N	90°04'23.3"W
Alta Verapaz	Río Tzetoc	15°54'38.1"N	90°36'32.1"W
Alta Verapaz	Rocjá Pomtilá	15°51'45.1"N	90°37'7.8"W
Alta Verapaz	Rubelsanto	15°59'20.7"N	90°26'51"W
Alta Verapaz	San Cristóbal Verapaz	15°22'7.1"N	90°28'7.9"W
Alta Verapaz	Tamahú	15°18'26.8"N	90°14'2.5"W
Alta Verapaz	Tontem	15°24'18.1"N	90°24'40.2"W
Alta Verapaz	Tucurú	15°17'36.3"N	90°07'07.1"W
Baja Verapaz	Biotopo del Quetzal	15°12'51.4"N	90°13'21.7"W
Baja Verapaz	La Cebadilla	15°12'30.1"N	90°17'51.6"W
Baja Verapaz	Montaña Santa Rosa	15°13'32.4"N	90°16'28.3"W
Baja Verapaz	Pantín	15°15'05.1"N	90°17'8"W

Baja Verapaz	Purulhá	15°14'11.7"N	90°14'8.4"W
Baja Verapaz	Reserva Natural Privada Posada Montaña del Quetzal	15°12'31.3"N	90°12'15.5"W
Baja Verapaz	Reserva Natural Privada Santa Rosa Llano Largo	15°13'43.5"N	90°16'52.9"W
Baja Verapaz	Reserva Ranchitos del Quetzal	15°12'59"N	90°13'12.9"W
Baja Verapaz	Reserva Sachut	15°14'26.6"N	90°11'52.7"W
Baja Verapaz	Salamá	15°06'13.2"N	90°19'0.3"W
Baja Verapaz	San Jerónimo	15°03'38.7"N	90°14'17.4"W
Chimaltenango	Cerro Tecpán	14°47'18.3"N	91°01'24.4"W
Chimaltenango	Chimaltenango	14°39'41.9"N	90°49'12.5"W
Chimaltenango	Volcán Fuego	14°28'19.1"N	90°52'52.8"W
Chiquimula	Cerro Montecristo	14°26'36"N	89°21'55.2"W
Chiquimula	Esquipulas	14°33'53.3"N	89°20'55.2"W
Chiquimula	Jocotán	14°49'13.3"N	89°23'20.8"W
Chiquimula	Sabana Grande	14°44'26.3"N	89°32'27"W
El Progreso	Marajuma	14°55'36.6"N	90°06'4.6"W
El Progreso	Parque Regional Municipal Lo de China	14°54'20.9"N	89°50'26.2"W
El Progreso	Sierra de las Minas	15°05'59.7"N	89°56'40"W
El Progreso	Tulumajillo	14°55'36.2"N	90°2'49.3"W
Escuintla	Escuintla	14°18'20.3"N	90°46'48.7"W
Escuintla	Iztapa	13°55'55.6"N	90°42'50.8"W
Escuintla	Puerto Quetzal	13°55'32.2"N	90°47'40.9"W
Escuintla	Puerto San José	13°55'28.4"N	90°49'17.8"W
Escuintla	Sipacate	13°55'49.2"N	91°08'51.6"W
Escuintla	Volcán Pacaya	14°23'2.1"N	90°36'6.9"W
Guatemala	Fraijanes	14°27'58.3"N	90°26'31.7"W
Guatemala	Guatemala City	14°36'47.8"N	90°32'4.5"W
Guatemala	Lago Amatitlán	14°28'22"N	90°34'51.5"W
Guatemala	San José Pinula	14°32'46.9"N	90°24'44.5"W
Guatemala	Santa Catarina Pinula	14°34'19.3"N	90°29'30"W
Guatemala	Villa Canales	14°28'57"N	90°31'57.7"W
Huehuetenango	Aguacatán	15°20'33.7"N	91°18'43"W
Huehuetenango	Barillas	15°48'16.1"N	91°18'51.2"W
Huehuetenango	Camojá Grande	15°38'14.4"N	91°55'8.5"W
Huehuetenango	Cerro Cruz Maltín	15°40'50.3"N	91°14'25.8"W
Huehuetenango	Cerro Yaxcalaté	15°43'53.9"N	91°22'10.1"W
Huehuetenango	Chacaj	15°54'30.5"N	91°48'33.4"W
Huehuetenango	Chaculá	15°58'30.7"N	91°38'59.7"W
Huehuetenango	Chiabal	15°27'48.4"N	91°30'49.6"W
Huehuetenango	Chichim	15°33'1"N	91°33'57.2"W
Huehuetenango	El Quetzal	16°04'10.4"N	91°40'43.6"W
Huehuetenango	Finca Chancol	15°23'40.2"N	91°22'54.1"W
Huehuetenango	Finca El Carmen	15°54'58.9"N	91°43'42.7"W
Huehuetenango	Huehuetenango	15°19'11.5"N	91°28'15.7"W
Huehuetenango	La Capellanía	15°24'38.7"N	91°25'55.3"W
Huehuetenango	La Mesilla	15°38'27.4"N	91°58'54.9"W
Huehuetenango	La Trinidad	16°01'14.3"N	91°40'47.2"W

Huehuetenango	Lagunas de Candelaria	15°57'4.1"N	91°46'56.6"W
Huehuetenango	Limonar	15°46'8"N	91°49'16.4"W
Huehuetenango	Nentón	15°48'4.4"N	91°45'16.6"W
Huehuetenango	Paquix	15°26'27.8"N	91°27'45.7"W
Huehuetenango	Parque Regional Municipal Todos Santos Cuchumatán	15°31'21.8"N	91°34'4.3"W
Huehuetenango	Río Jordán	15°56'42.3"N	91°48'7.8"W
Huehuetenango	Santa Ana Huista	15°40'54.6"N	91°49'16.6"W
Huehuetenango	Sierra Los Cuchumatanes	15°28'41.8"N	91°28'22"W
Huehuetenango	Soloma	15°39'29.1"N	91°25'54.4"W
Huehuetenango	Unión	15°55'20.8"N	91°46'33.5"W
Huehuetenango	Yalambojoch	15°58'51.7"N	91°34'20.4"W
Izabal	Bahía de Amatique	15°49'39.5"N	88°37'47.5"W
Izabal	Biotopo Chocón-Machacas	15°44'54.4"N	88°54'8.6"W
Izabal	Boca Ancha	15°30'32.6"N	88°58'55.7"W
Izabal	Cerro San Gil	15°40'58.8"N	88°45'28.4"W
Izabal	Cimarrón	15°34'38.5"N	88°38'12.1"W
Izabal	Delta of río Polochic	15°27'52.4"N	89°21'15"W
Izabal	El Estor	15°31'30.7"N	89°20'5.3"W
Izabal	El Golfete	15°44'24.1"N	88°51'54.1"W
Izabal	Finca El Higuero	15°42'53.7"N	88°50'22.9"W
Izabal	Hacienda Tijax	15°39'50.3"N	89°00'16.1"W
Izabal	Lago Izabal	15°29'16.5"N	89°11'0.5"W
Izabal	Las Escobas	15°41'20.9"N	88°38'33.5"W
Izabal	Livingston	15°49'42.4"N	88°45'5.8"W
Izabal	Morales	15°28'18"N	88°50'12.5"W
Izabal	Puerto Barrios	15°43'33.1"N	88°35'37.8"W
Izabal	Punta de Manabique Wildlife Refuge	15°56'30.4"N	88°34'55.3"W
Izabal	Quetzalito	15°42'48.1"N	88°17'34.7"W
Izabal	Quineles	15°41'27.7"N	88°16'30.4"W
Izabal	río Dulce	15°46'52.9"N	88°47'56.1"W
Izabal	Santo Tomás	15°41'26.5"N	88°37'01.3"W
Izabal	Selempin	15°19'00.7"N	89°24'14.5"W
Izabal	Sierra del Caral	15°22'55.8"N	88°41'5.9"W
Izabal	Sierra Santa Cruz	15°39'45.7"N	89°14'8.4"W
Jalapa	Parque Ecológico Cerro Alto	14°44'3.5"N	89°57'7.5"W
Jutiapa	Lago de Güija	14°16'4.2"N	89°33'11.6"W
Jutiapa	Laguna de Retana	14°25'00.1"N	89°51'1"W
Jutiapa	río Paz	13°44'45.9"N	90°7'56.7"W
Petén	Biotopo Cerro Cahuí	17°00'02.8"N	89°43'0.4"W
Petén	Biotopo Dos Lagunas	17°45'9.9"N	89°35'1.1"W
Petén	Biotopo San Miguel La Palotada - El Zotz	17°13'52.6"N	89°48'52.6"W
Petén	Cancuén	16°00'56.8"N	90°02'22.3"W
Petén	Dolores	16°30'46.3"N	89°24'59.6"W
Petén	El Caoba	17°01'26.5"N	89°40'28.6"W
Petén	El Mirador archaeological site	17°45'10.9"N	89°55'8.7"W
Petén	El Perú archaeological site	17°15'50.7"N	90°21'12.6"W

Petén	El Ramonal	16°54'13.5"N	89°44'43"W
Petén	El Remate	16°59'30"N	89°41'28.9"W
Petén	El Subín	16°38'17.3"N	90°10'52.3"W
Petén	El Tintal	17°34'34.9"N	90°00'13.5"W
Petén	El Tucán Uno	16°05'09.1"N	90°10'47.4"W
Petén	Finca Ixobel	16°18'13.4"N	89°25'12.2"W
Petén	Flores	16°55'50"N	89°53'29.5"W
Petén	Ixpanpajul	16°52'30.2"N	89°48'45"W
Petén	La Corona archaeological site	17°26'27.8"N	90°23'13.7"W
Petén	La Libertad	16°47'18.1"N	90°07'01.2"W
Petén	La Pólvora	17°00'30.3"N	89°18'51.3"W
Petén	Lago Petén Itzá	16°59'39.3"N	89°49'17.9"W
Petén	Laguna Petexbatún	16°25'45.7"N	90°11'16.5"W
Petén	Laguna Yaxhá	17°03'58.8"N	89°24'44"W
Petén	Melchor de Mencos	17°03'37.8"N	89°09'14"W
Petén	Nakum archaeological site	17°10'33.7"N	89°24'19.7"W
Petén	Parque Nacional El Rosario	16°31'11.4"N	90°9'29.6"W
Petén	Parque Nacional Laguna del Tigre	17°30'0"N	90°45'0"W
Petén	Parque Nacional Mirador-Río Azul	17°45'15"N	89°24'17.5"W
Petén	Paso Caballo	17°15'36.6"N	90°14'10"W
Petén	Poptún	16°19'45.9"N	89°25'14.9"W
Petén	Reserva Natural Privada Finca AA	16°57'7.3"N	89°32'46.3"W
Petén	Sacpuy	16°59'13.9"N	90°03'01.1"W
Petén	San Andrés	16°58'5"N	89°54'39.6"W
Petén	San Benito	16°55'25.7"N	89°55'4.5"W
Petén	San Francisco	16°47'56.5"N	89°56'4.6"W
Petén	San Luis	16°11'57.3"N	89°26'31.6"W
Petén	San Miguel	16°56'12.6"N	89°53'14.4"W
Petén	Santa Ana	16°48'32"N	89°49'34.4"W
Petén	Santa Elena	16°55'5.2"N	89°53'40.5"W
Petén	Sayaxché	16°31'40.5"N	90°11'20.7"W
Petén	Tikal	17°13'30"N	89°36'55.2"W
Petén	Uaxactún	17°23'38.5"N	89°38'1"W
Petén	Vista Hermosa	16°41'55.2"N	90°35'12.8"W
Petén	Yaxhá	17°04'7.5"N	89°23'30.6"W
Quetzaltenango	Coatepeque	14°42'11.3"N	91°51'47.2"W
Quetzaltenango	El Palmar	14°39'4.3"N	91°35'20.1"W
Quetzaltenango	Finca Patrocinio	14°39'43.2"N	91°36'23.4"W
Quetzaltenango	Fuentes Georginas	14°44'53.4"N	91°28'47.2"W
Quetzaltenango	Loma Linda	14°43'40.7"N	91°37'35"W
Quetzaltenango	Quetzaltenango	14°50'16.4"N	91°31'4.5"W
Quetzaltenango	Volcán Cerro Quemado	14°47'48.2"N	91°31'7.9"W
Quetzaltenango	Volcán Chicabal	14°47'17.5"N	91°39'26"W
Quetzaltenango	Volcán Lacandón	14°48'55.2"N	91°43'3"W
Quetzaltenango	Volcán Santa María	14°45'22.1"N	91°33'8.9"W
Quetzaltenango	Volcán Santo Tomás	14°42'42.4"N	91°29'12.9"W

Quetzaltenango	Volcán Siete Orejas	14°48'49.4"N	91°35'40.5"W
Quiché	Acul	15°24'23.6"N	91°11'16.7"W
Quiché	Cerro El Amay	15°29'14.3"N	90°47'17.8"W
Quiché	Chajul	15°29'6.9"N	91°02'02"W
Quiché	Chichicastenango	14°56'34.3"N	91°6'39.9"W
Quiché	Cunén	15°20'15.2"N	91°01'38.3"W
Quiché	La Gloria	15°32'1.7"N	90°50'0.5"W
Quiché	Nebaj	15°24'25.5"N	91°08'48.7"W
Quiché	Sacapulas	15°17'15.9"N	91°05'27.2"W
Quiché	San Andrés Sajcabajá	15°10'32.1"N	90°56'32.5"W
Quiché	San Juan Cotzal	15°26'6.7"N	91°02'3.4"W
Quiché	Santa María Tzejá	15°51'44.7"N	90°53'18.5"W
Retalhulehu	Champerico	14°17'39.3"N	91°54'41.5"W
Retalhulehu	Finca Cataluña	14°28'24.2"N	92°01'29.4"W
Retalhulehu	Manchón-Guamuchal	14°28'28.5"N	92°07'12.5"W
Retalhulehu	Retalhulehu	14°32'16.7"N	91°40'37.7"W
Retalhulehu	Takalik Abaj	14°38'55.3"N	91°44'13.2"W
Sacatepéquez	Alotenango	14°29'11"N	90°48'18.9"W
Sacatepéquez	Antigua Guatemala	14°33'33.2"N	90°44'1.3"W
Sacatepéquez	Cerro Alux	14°36'58.2"N	90°37'59.6"W
Sacatepéquez	Cerro El Hato	14°34'51.7"N	90°42'40.8"W
Sacatepéquez	Finca El Pilar	14°32'30.2"N	90°42'3"W
Sacatepéquez	Finca Filadelfia	14°35'2.3"N	90°44'1.5"W
Sacatepéquez	Jocotenango	14°34'29.4"N	90°44'29.3"W
Sacatepéquez	Magdalena Milpas Altas	14°32'50.8"N	90°40'29.6"W
Sacatepéquez	Montaña de Carmona	14°31'30"N	90°41'39.4"W
Sacatepéquez	San Juan del Obispo	14°31'25.3"N	90°43'40.8"W
Sacatepéquez	San Miguel Dueñas	14°31'23"N	90°47'54.6"W
Sacatepéquez	Volcán Acatenango	14°30'2.1"N	90°52'30.6"W
Sacatepéquez	Volcán Agua	14°28'1.2"N	90°44'29.8"W
San Marcos	Catarina	14°51'13"N	92°04'37.1"W
San Marcos	Finca Dos Marías	14°49'8.7"N	91°48'15.6"W
San Marcos	Ixchigán	15°09'50.4"N	91°55'59.1"W
San Marcos	La Blanca	14°34'31.2"N	92°08'31.2"W
San Marcos	La Haciendita	15°08'32.5"N	92°05'2.9"W
San Marcos	Las Pilas	15°09'28"N	92°06'59.4"W
San Marcos	Limones	14°35'25"N	92°10'30.4"W
San Marcos	Ocós	14°30'33.2"N	92°11'31.3"W
San Marcos	Parque Regional Municipal Canjalá	15°07'47.8"N	92°3'39.5"W
San Marcos	Parque Regional Municipal de San Marcos	14°58'33.3"N	91°50'7.7"W
San Marcos	Parque Regional Municipal de San Pedro Sacatepéquez	15°00'30.9"N	91°47'56.8"W
San Marcos	Refugio del Quetzal	14°56'24"N	91°52'26.5"W
San Marcos	Salinas Dos	14°32'5.7"N	92°09'26.3"W
San Marcos	San Marcos	14°57'51"N	91°47'41.1"W
San Marcos	San Miguel Ixtahuacán	15°16'17.5"N	91°44'52"W
San Marcos	San Rafael Pie de la Cuesta	14°55'53.8"N	91°54'48.2"W

San Marcos	Sibinal	15°8'58.4"N	92°02'52.7"W
San Marcos	Tilapa	14°29'50.2"N	92°10'29.1"W
San Marcos	Unión Reforma	15°09'50.9"N	92°01'13.2"W
San Marcos	Vega del Volcán	15°09'07.9"N	92°04'58.3"W
San Marcos	Volcán Tacaná	15°08'3.5"N	92°06'22.9"W
San Marcos	Volcán Tajumulco	15°02'32.6"N	91°54'4.1"W
San Marcos	Yalú	15°05'22.4"N	92°04'24.2"W
Santa Rosa	Finca El Sacramento	13°56'53.7"N	90°35'54.4"W
Santa Rosa	Hawaii	13°50'43.2"N	90°21'35.4"W
Santa Rosa	La Avellana	13°55'11.8"N	90°28'3"W
Santa Rosa	Laguna de Ayarza	14°25'2.4"N	90°07'28.2"W
Santa Rosa	Las Lisas	13°48'12.7"N	90°15'41.7"W
Santa Rosa	Monterrico	13°53'40.2"N	90°28'49.6"W
Sololá	Cerro Chuiraxamoló	14°44'27.5"N	91°17'49.2"W
Sololá	Cerro Iquitiú	14°37'23"N	91°07'29"W
Sololá	Cerro Panán	14°37'29.5"N	91°18'54.4"W
Sololá	Cerro Paquisis	14°37'55.1"N	91°18'24.2"W
Sololá	Finca Santa Victoria	14°46'16.8"N	91°07'56.9"W
Sololá	Lago Atitlán	14°42'23.8"N	91°11'36.6"W
Sololá	Laguna Lodge	14°44'36.8"N	91°11'49.1"W
Sololá	Los Robles	14°42'17.2"N	91°05'07.1"W
Sololá	Nueva Santa Catarina Ixtahuacán	14°51'1.7"N	91°21'35.5"W
Sololá	Panajachel	14°44'30.3"N	91°09'25.4"W
Sololá	Parque Ecológico Corazón del Bosque	14°47'19.5"N	91°15'50.9"W
Sololá	Reserva Natural Privada Atitlán	14°45'8.7"N	91°09'55"W
Sololá	Reserva Natural Privada Pachuj	14°36'14.7"N	91°07'20.9"W
Sololá	San Juan La Laguna	14°41'45"N	91°17'21.3"W
Sololá	San Lucas Tolimán	14°38'5.7"N	91°08'35.5"W
Sololá	San Marcos La Laguna	14°43'37.6"N	91°15'33.4"W
Sololá	San Pedro La Laguna	14°41'27.6"N	91°16'21.6"W
Sololá	Santa Catarina Ixtahuacán	14°47'53.6"N	91°21'31.4"W
Sololá	Santiago Atitlán	14°38'17.6"N	91°13'45.8"W
Sololá	Volcán Atitlán	14°34'58.3"N	91°11'15.2"W
Sololá	Volcán San Pedro	14°39'26.5"N	91°16'0.2"W
Sololá	Volcán Tolimán	14°37'22.6"N	91°11'10"W
Suchitépéquez	Finca Las Nubes	14°40'0.2"N	91°29'29.3"W
Suchitépéquez	Reserva Natural Privada Los Andes	14°32'15.8"N	91°11'5.4"W
Suchitépéquez	Reserva Natural Privada Los Trrales	14°31'31.6"N	91°08'44"W
Totonicapán	Momostenango	15°02'39"N	91°24'34.6"W
Totonicapán	Parque Chajil Siwan	14°56'8.4"N	91°19'41.8"W
Totonicapán	Parque Regional Municipal Los Altos de San Miguel Totonicapán	14°54'39.6"N	91°16'31"W
Totonicapán	San Francisco El Alto	14°56'44.8"N	91°26'30.3"W
Totonicapán	Totonicapán	14°54'44.3"N	91°21'39.1"W
Zacapa	Parque Regional Municipal Niño Dormido	14°54'39.7"N	89°48'36.4"W
Zacapa	Reserva Heloderma	14°51'45.3"N	89°47'23.5"W

Zacapa	Río Hondo	15°12'54.2"N	89°35'3.8"W
Zacapa	Usumatlán	14°56'50"N	89°46'35.8"W
Sites in Belize			
District	Site	Latitude	Longitude
Belize	Bermudian Landing	17°33'57.2"N	88°32'22.6"
Toledo	Maya Mountains	16°34'N	89°W
Sites in Mexico			
State	Site	Latitude	Longitude
Chiapas	Palenque	17°30'39.6"N	91°59'34.8"W
Chiapas	Bonampak	16°42'13.1"N	91°03'53.6"W
Chiapas	Tziscaco	16°04'37"N	91°40'34.9"W
Chiapas	Yaxchilán	16°53'31.3"N	90°58'14.1"W



New bird records from the arid Cúcuta Valley, north-east Colombia

by Jorge Enrique Avendaño, Juan Pablo López-O. & Oscar Laverde-R.

Received 15 February 2018; revised 24 May 2018; published 24 September 2018

<http://zoobank.org/urn:lsid:zoobank.org:pub:BDE0B366-731D-4F77-8C70-933988A64D9F>

SUMMARY.—Avian inventories of the poorly known tropical dry forest in the Cúcuta Valley, north-east Colombia, yielded new distributional data for 15 bird species including several range extensions along the east slope of the East Andes, or filled distributional gaps between the Serranía de Perijá and Mérida Andes of Venezuela, and between the Maracaibo basin in Venezuela and eastern Llanos of Colombia. Some of the new records are of fairly common but easily overlooked species associated with dense habitats, whereas others concern open-country species whose spread has apparently been promoted by landscape transformation. Further work will probably yield additional new records in the region, especially in the transition from dry forest of the Cúcuta Valley to more humid habitats in the Catatumbo and adjacent Andes of Colombia and Venezuela.

Seasonal tropical dry forest (STDF) is one of the most threatened and biologically least known ecosystems in Colombia (Pizano *et al.* 2014). Its original distribution covered six main regions of the country: (i) the Caribbean plains, (ii) the Magdalena and (iii) Cauca inter-Andean valleys, (iv) arid Andean enclaves in the northern East Andes, (v) the Dagua and Patía inter-Andean valleys, and (vi) the piedmont and rocky outcrops in the eastern Llanos (Pizano *et al.* 2014). Among arid Andean enclaves, the Cúcuta Valley in dpto. Norte de Santander harbours one of the most important relicts of seasonal tropical dry forest in the country (García *et al.* 2014). Knowledge of the dry forest avifauna in this region derives mainly from specimens collected by Brother Nicéforo María and M. A. Carriker between 1930 and 1967, for which summary details were initially reported by Meyer de Schauensee (1948–52) and subsequently by Rodríguez-Tolosa (1985) and Hilty & Brown (1986), with a few novel records recently documented by Armesto *et al.* (2013). In December 2009, we conducted an avian inventory of three remnants of seasonal tropical dry forest in the Cúcuta Valley (Avendaño *et al.* 2018) to study the avifaunal relationships of this valley to other dry forest areas in northern South America. During this study and a previous visit to the area in 2003 we gathered new distributional data for 15 species, which we document here.

Study sites and Methods

Field work was conducted at three study sites (Fig. 1) as follows. S1: Hacienda La Palma, vereda Ayacucho, municipality of San Cayetano (07°48'28.4"N, 72°35'56.8"W; c.900 m; 13–15 December 2009); S2: San Isidro, vereda El Tabiro, Corregimiento Carmen de Tochalá, municipality of Cúcuta (07°49'37.2"N, 72°35'01.0"W; 400 m; 16–18 December 2009; also visited by JEA on 7–8 November 2003); and S3: Hacienda Ramírez, vereda Ayacucho, municipality of San Cayetano (07°49'37.0"N, 72°37'0.0"W; 400–600 m; 19–21 December 2009). Details of vegetation composition and structure, and habitat pressures at each site are described in Avendaño *et al.* (2018). An additional site, known as Patillales, on the Cúcuta–Puerto Santander highway, municipality of Cúcuta (07°59'18.85"N 72°30'13.79"W; c.350 m) was visited by JEA on 7 November 2003.

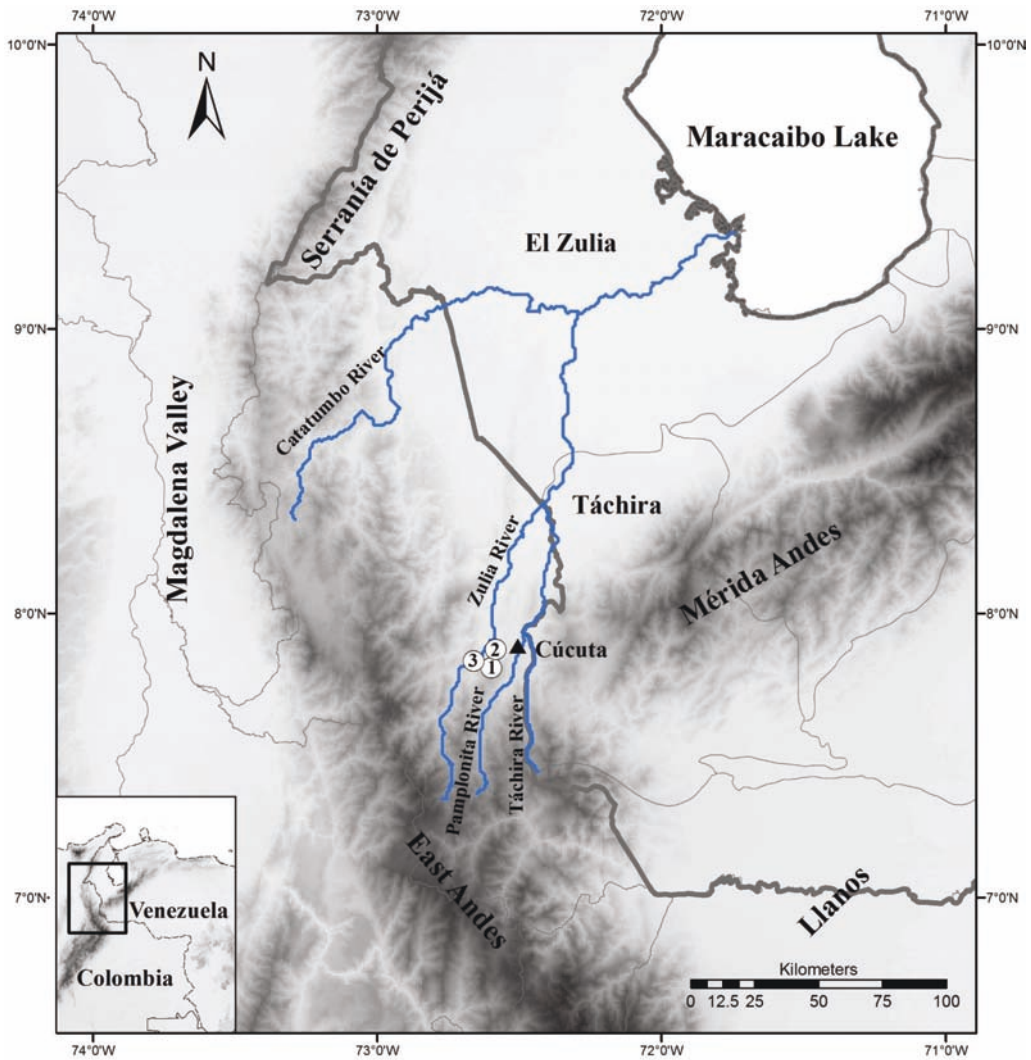


Figure 1. Map of north-east Colombia and adjacent Venezuela showing the location of the Cúcuta Valley (delimited by the Zulia, Pamplonita and Táchira Rivers) and the major geographical and geopolitical features mentioned in the text. White circles with numbers denote our three study sites.

At each site we erected nine mist-nets (36 mm, 12.0 × 2.2 m) on two days between 06.00 and 18.00 h, inside forest and at the forest-scrub ecotone. We collected some specimens, which were prepared as skins and deposited at the Instituto de Ciencias Naturales of the Universidad Nacional de Colombia, Bogotá. Simultaneously, two of us made visual and auditory records along 2–5 km transects through all available habitats. In addition, we made non-systematic sound-recordings of vocalisations along roads, using unidirectional microphones (Sennheiser ME67) and digital recorders (Marantz PMD620). Sound-recordings mentioned in the text are deposited at www.xeno-canto.org. At site 3, we made only sight records and sound-recordings as the steep topography hindered use of mist-nets, and Patillales was surveyed via only sight and auditory records. We follow the taxonomy and nomenclature of the South American Checklist Committee (Remsen *et al.* 2018). To assess

new distributional records and status of Colombian bird species, Hilty & Brown (1986) and Avendaño *et al.* (2017) were principally used.

Species accounts

SCALED DOVE *Columbina squammata*

A pair near Pozo Azul (S2) on 18 December 2009 was clearly identified by their heavily scaled plumage, long, white-edged tail and rufous in the primaries (Hilty 2002). Widely recorded at several localities in Táchira, Venezuela, this species has otherwise been recorded only recently (2016–18) in the Cúcuta Valley (eBird). These records fill a gap of *c.*200 km between the eastern Llanos of Colombia and the Maracaibo basin (Hilty & Brown 1986, Hilty 2002).

WHITE-TIPPED SWIFT *Aeronautes montivagus*

In Colombia, this is a rare species observed mostly in the lowlands (Hilty & Brown 1986). We saw a flock of five at S1. They had a slightly forked, short tail with white tips, and lacked the complete white collar of Lesser Swallow-tailed Swift *Panyptila cayennensis*. Recorded in the foothills of the east slope of the East Andes in Meta (Hilty & Brown 1986), south-east Táchira and the Serranía de Perijá in Venezuela (Hilty 2002). Recently observed at Toledo, Norte de Santander, on 26–27 June 2009, *c.*60 km south of our record (R. Parra unpubl.; eBird). These records suggest a continuous distribution on the east slope of the East Andes.

LONG-BILLED STARTHROAT *Helimaster longirostris*

A male perched 2–3 m above ground in the forest-scrub ecotone at S1. Distinguished from similar-sized hummingbirds in the area such as White-vented Plumeleteer *Chalybura buffoni* by its blue forecrown, long straight bill, ruby throat, and white stripe on the rump-sides (Hilty 2002). Previously known in Colombia from scattered records in Casanare, Meta and Vichada south to Leticia, Amazonas (Hilty & Brown 1986; eBird), and at Saravena, Arauca, on 5 May 2018, *c.*120 km south-east of our record (E. Hernández *et al.* unpubl.; eBird). However, the closest records to the Cúcuta Valley are from south-east Zulia and the base of the Mérida Andes in Venezuela (Hilty 2002), including an observation at Tamá National Park on 29 December 2004 (M. Hernández-Vidal unpubl.; eBird). This new evidence suggests a more continuous albeit local distribution between the Maracaibo basin, Mérida Andes and the northern part of the eastern Llanos of Colombia.

HOOK-BILLED KITE *Chondrohierax uncinatus*

A pale-morph immature male was observed over gallery forest and grasslands around Tonchalá stream (S2) on 9 November 2003. It was distinguished from other hawks such as Grey Hawk *Buteo nitidus* by its hooked and heavier bill, pale lores and coarser pattern on the underparts and flight feathers (Hilty 2002). Previously known from the east slope of the East Andes from Boyacá south to western Meta (Hilty & Brown 1986), and in Táchira (Hilty 2002). Recently observed at La Donjuana, on 23 November 2017, 15 km south-west of S2 (J. Zuluaga-Bonilla unpubl.; eBird). These records suggest a continuous distribution in the northern part of the eastern Llanos of Colombia and the lowlands of the Maracaibo basin.

GREY-HEADED KITE *Leptodon cayanensis*

One observed and sound-recorded at S3 on 20–21 December 2009. It approached cautiously several minutes after playback (XC298667). The small grey head contrasting with white underparts, dark underwing-coverts, coarsely barred primaries and distinctive cackling

series of *caw* notes distinguish this species from similar raptors in the area (Hilty 2002). Recently observed at Las Delicias, Táchira, 34 km south-west of our record (L. Fazio unpubl.; eBird). These records fill a distribution gap between the arid Maracaibo basin in Zulia (Hilty 2002) and the eastern Llanos (eBird), mainly from Caquetá and Vaupés south (Hilty & Brown 1986).

BICOLOURED HAWK *Accipiter bicolor*

On 20 December 2009, a pair was observed building a nest at S3. The nest was sited below a three-way bifurcation 12 m above ground in the forest edge, near a dirt road. Previous nest records in Colombia and Venezuela have been reported in February–May (early wet season), with fledglings in June–September (Mader 1981, Hilty & Brown 1986, Hilty 2002). However, our record seems to agree with the timing of the local breeding season observed in December 2009. Both were adults showing dark grey underparts contrasting with the rufous thighs not seen in Grey-bellied Hawk *Accipiter poliogaster*, which has been recorded in Táchira, Venezuela (Hilty 2002). This record fills a distribution gap of c.250 km between the base of the East Andes in Arauca (Hilty & Brown 1986, Acevedo-Charry 2017) and the foothills of the Mérida Andes in Táchira (Hilty 2002).

COMMON BLACK HAWK *Buteogallus anthracinus*

One at Tonchalá stream (S2) on 9 November 2003 was distinguished from the sympatric Great Black Hawk *B. urubitinga* by its bright yellow lores, cere and bill base, and median white tail-band and narrow white tip (Hilty 2002). It was perched in the canopy of gallery forest dominated by *Anacardium excelsum* (Anacardiaceae), from where it flew over the adjacent grassland. In flight, it was harassed by a Tropical Kingbird *Tyrannus melancholicus*, to which the hawk responded by turning its body 180°, stretching its legs towards the flycatcher, which desisted in its pursuit. Previously known locally on the east slope of the East Andes from the Sierra de la Macarena, Meta, north to Labateca in Norte de Santander, c.60 km south of our record (Rodríguez-Tolosa 1985, Hilty & Brown 1986), both slopes of the Mérida Andes, the foothills of the Serranía de Perijá and adjacent lowlands of the Maracaibo basin in Zulia (Hilty 2002). Our record suggests a continuous distribution at the base of the East Andes.

GREAT BLACK HAWK *Buteogallus urubitinga*

A local *campesino* hunted one at S2 in 2009 and preserved part of its skin. It had the undertail-coverts and basal half of tail white, unlike the median white tail-band and narrow white tip of *B. anthracinus* (Hilty & Brown 1986). *B. urubitinga* is widespread in the lowlands east of the Colombian Andes. Our record fills a gap of c.260 km in the species' range between Arauca and the Maracaibo lowlands in southern Zulia and Táchira (Hilty & Brown 1986, Hilty 2002).

WHITE-TAILED HAWK *Geranoaetus albicaudatus*

One observed in flight at S1 on 16 December 2009. It was large, and had slate-grey upperparts contrasting with rufous shoulders and a single black band near the tail tip, which distinguish it from Short-tailed Hawk *Buteo brachyurus* (Hilty 2002). Recently observed at San Cristobal and Tamá National Park, Táchira, on 5–6 January 2014, c.33 km south-east and c.40 km east of our record, respectively (M. Hernández-Vidal unpubl.; eBird). These records fill a gap between the east slope of the East Andes, from the Sierra de la Macarena, Meta, north to Arauca (Hilty & Brown 1986), and the Maracaibo basin and the Serranía de Perijá in Zulia (Hilty 2002). It has been recorded in the Área Natural Única Los

Estoraques, on the East Andes ridge (JEA & OLR pers. obs.), but this is the first published record for Norte de Santander.

COLLARED FOREST FALCON *Micrastur semitorquatus*

One at S2 near Pozo Azul stream. Distinguished from Barred Forest Falcon *M. ruficollis*, which could range into the foothills of the Andes, by its larger size, white collar and underparts, and black crescent below the eyes (Hilty 2002). A specimen (FMNH 260982) was collected in Toledo, Norte de Santander, in 1959 by K. von Sneider (Biomap 2014). Known locally at the base of the East Andes, from northern Boyacá to Putumayo and Leticia, Amazonas (Hilty & Brown 1986), the Maracaibo basin in Zulia (Hilty 2002), and observed at El Tamá National Park, Venezuela, on 28 June 2016 (J. Miranda unpubl.; eBird). These records suggest a more continuous distribution on the east slope of the East Andes and in the Maracaibo lowlands.

SPECTACLED PARROTLET *Forpus conspicillatus*

Until recently, Green-rumped Parrotlet *F. passerinus* was considered to be the only *Forpus* in Norte de Santander and the Maracaibo basin (Nicéforo María 1945, Hilty & Brown 1986, Hilty 2002, Rodríguez-Mahecha & Hernández-Camacho 2002). However, in 2005, Armesto *et al.* (2013) registered flocks of 10–30 *F. conspicillatus* daily in the urban area of Cúcuta. We recorded pairs visiting the canopy, forest borders, bushes and isolated trees in pastures daily at all three study sites. More recently (2015–18) it has been recorded from at least 11 localities in the Pamplonita drainage, with the northernmost c.15 km south-west of Puerto Santander at the Colombia / Venezuela border (N. Romero unpubl.; eBird). Male *F. conspicillatus* is clearly distinguished from male *F. passerinus* by the blue near its eyes, blue rump and vocalisations. Specimens are required to determine if the Cúcuta population corresponds to race *metae* from the eastern Llanos (Rodríguez-Mahecha & Hernández-Camacho 2002). However, the possibility of colonisation by the nominate from the middle Magdalena Valley cannot be discarded given the proximity of the Cúcuta Valley to the Ocaña pass, which has facilitated expansion by open-country species to opposite slopes of the East Andes (Freeman *et al.* 2012, Avendaño *et al.* 2013).

BLACK-BACKED ANTSHRIKE *Thamnophilus melanonotus*

The only bird species restricted to tropical dry forest on the Caribbean coast (Stotz *et al.* 1996, IAvH 1998). Because of its specific habitat requirements (Hilty 2002) any information about its ecology is relevant due to the critical conservation status of this ecosystem in Colombia. We recorded the species at all three study sites. However, it was commonest at S1 where it was recorded daily foraging in thorny scrub from the ground to c.4 m. Most records involved single males, although it is possible that females went unseen. Males were clearly distinguished from other *Thamnophilus* by their black upperparts and underparts, and white flanks and belly, while females were identified by their dusky crown, dull rufous tail and buff wingbars (Hilty 2002). Stomach contents of two males collected at S1 included mainly parts of Coleoptera, followed by Hemiptera, some Orthoptera and Homoptera, and a few Hymenoptera. Based on gonad sizes, brood patches, vocal activity and nestbuilding, our observations suggested that most bird species in the study area were breeding during December. In contrast, *T. melanonotus* displayed no evidence of breeding. Two males (ICN 37693, 37714) had small gonads (left testis $\leq 2.7 \times 1.5$ mm) and were moulting the body and flight feathers. Likewise, a female (ICN 37694) had its ovary granular (5.5×3.5 mm) and some moult in the back. The breeding season is probably March–October as reported for populations on the Caribbean coast of Colombia (Hilty & Brown 1986, Zimmer & Isler 2003).

RECURVE-BILLED BUSHBIRD *Clytoctantes alixii*

Since its rediscovery in Venezuela and Colombia in 2004 / 05 (Lentino *et al.* 2004, Laverde-R. & Stiles 2007), five additional sites have been discovered in the latter country: Puerto Valdivia, Antioquia (Colorado 2008), the west slope of the Serranía de los Yariguíes, Santander (Donegan *et al.* 2010), Santa Rosa del Sur, Bolívar (Donegan 2012), northern Bucaramanga, Santander (Herrera-Ordóñez & Rincón-Guarín 2014) and Ciénaga de Zambito, Santander (F. Rowland unpubl.; eBird). All of these sites are within the species' historical range (Hilty & Brown 1986). However, on 21 December 2009, OLR heard the species' primary song, a series of three descending whistles (Laverde-R. & Stiles 2007), once from dense scrub on a steep slope at S3. This is the first record on the east slope of the East Andes of Colombia, and a range extension of c.95 km and c.280 km from Ocaña (west slope of the East Andes) and the Venezuelan side of the Serranía de Perijá, respectively (Lentino *et al.* 2004, Laverde-R. & Stiles 2007).

RUFOUS-WINGED ANTWREN *Herpsilochmus rufimarginatus*

Observed and sound-recorded (XC298067, 298665) daily in the midstorey and subcanopy at S2, although it was more abundant in the dry premontane forest transition zone at S3, where it followed mixed-species flocks. All those observed showed the rufous-chestnut wing patch and yellowish underparts that distinguish it from other *Herpsilochmus* (Hilty 2002). Observed at Cubará, Boyacá, on 5 May 2018, c.95 km south-east of our study area (J. Zuluaga-Bonilla *et al.* unpubl.; eBird). These records fill a distribution gap along the east slope of the East Andes in Arauca south to Nariño (Hilty & Brown 1986), both slopes of the Mérida Andes in Táchira and the Serranía de Perijá in Zulia, Venezuela (Hilty 2002; eBird).

NORTHERN SCRUB FLYCATCHER *Sublegatus arenarum*

One at Patillales on the Cúcuta–Puerto Santander highway on 7 November 2003 (JEA) was distinguished from other flycatchers such *Elaenia* and *Myiarchus* by its stubby black bill, slight crest, short whitish supercilium, and sharp division between grey and yellow on the underparts (Hilty 2002). Fairly common in arid lowlands of Zulia and Táchira in Venezuela (Hilty 2002), with the closest record from La Fría, Táchira, c.37 km north-east of Patillales (G. Carpentier unpubl.; eBird). However, ours is the first record for Norte de Santander, suggesting a continuous range from the Maracaibo basin to the Colombian Llanos in Meta (Hilty & Brown 1986).

Discussion

In recent decades, ornithological research in unexplored or poorly known regions of Colombia has resulted in a significant number of additions to the country's bird list, as well as new distributional data for the Colombian avifauna in general (Avendaño *et al.* 2017). Here, we provide new data pertaining to 15 species in the Cúcuta Valley, which extend species' distributions along the east slope of the East Andes or fill distributional gaps between the Serranía de Perijá and the Mérida Andes of Venezuela, or between the Maracaibo basin in Venezuela and the eastern Llanos of Colombia.

Why did these species go undetected by experienced ornithologists such as Brother Nicéforo María and M. A. Carriker, who collected intensively in this region during the 20th century? Several of our records correspond to local and secretive species apparently restricted to especially humid or dense habitats (e.g. *Clytoctantes alixii*, *Herpsilochmus rufimarginatus*), whereas others are low-density species or are recorded only occasionally (e.g. raptors, swifts), even when using a range of sampling techniques. In addition, we recorded some species that probably have expanded their ranges recently due to landscape-

level habitat transformation (e.g. *Columbina squammata*, *Geranoaetus albicaudatus*). Given the geographic location of the Cúcuta Valley, these range extensions could have occurred via trans-Andean dispersal as previously documented for other bird species in this region of the East Andes (Freeman *et al.* 2012, Avendaño *et al.* 2013). However, an alternative scenario of colonisation into the Cúcuta Valley from the northern part of the eastern Llanos is also plausible, particularly given accelerating loss of forest cover in recent decades in the Tame and Sarare regions (Sánchez-Cuervo *et al.* 2012, Acevedo-Charry 2017), which has probably facilitated the dispersal of open-country species (e.g. Masked Cardinal *Paroaria nigrogenis*, Armesto *et al.* 2013; Rufous-tailed Hummingbird *Amazilia taczatl*, Acevedo-Charry *et al.* 2017) between these regions. In any case, range extensions reported here are expected given the location of the Cúcuta Valley, and its historical connection with dry forest avifaunas of the Caribbean, inter-Andean valleys and Llanos (Haffer 1967, Avendaño *et al.* 2018). Consequently, new distributional data are expected in this region of Colombia as ornithologists work poorly known areas such as the transition from the dry forest of the Cúcuta Valley to humid forest in the Catatumbo and Sarare regions, as well as to the foothills of the East Andes and Mérida Andes.

Acknowledgements

This study was sponsored by Patrimonio Natural-Fondo para la Biodiversidad y Áreas Protegidas as part of the project 'Bosques secos del área metropolitana de Cúcuta' under the supervision of Territorial Norandina and the Subdirección Técnica de Parques Nacionales Naturales. Financial support to JEA was also provided by the Youth Activity Fund of The Explorers Club as part of the project 'Avifauna of northeast Colombia's dry forest'. We thank Parques Nacionales Naturales of Colombia for collecting permits and logistical support, especially Luz Adriana Malaver. The Instituto Alexander von Humboldt provided bibliographic resources. F. Gary Stiles facilitated access to the bird collection of the Instituto de Ciencias Naturales, Universidad Nacional de Colombia. Gustavo A. Torres kindly identified insects from stomach contents. Paulo C. Pulgarín-R. and Guy Kirwan provided comments that improved the submitted manuscript.

References:

- Acevedo-Charry, O. A. 2017. Birds of Río Tame of the Andes-Orinoco transitional region: species check-list, biogeographic relationship and conservation. *Orn. Colombiana* 16: eA03.
- Acevedo-Charry, O., Acevedo-S., O. E. & Charry-B., S. I. 2018. First documented record of *Amazilia taczatl* (de la Llave, 1893) (Aves, Trochilidae) in the Colombian Orinoco region and comments of [sic] its distribution at the eastern Andes. *Check List* 14: 87–91.
- Armesto, L. O., Torrado-Vargas, R. A. & Esteban-Llanes, J. B. 2013. Registro de cinco especies de aves poco conocidas para Norte de Santander, Colombia. *Acta Biol. Colombiana* 18: 199–204.
- Avendaño, J. E., Cortés-Herrera, J. O., Briceño-L., E. R. & Rincón-Guarín, D. A. 2013. Crossing or bypassing the Andes: a commentary on recent range extensions of cis-Andean birds to the west of the Andes of Colombia. *Orinoquia* 17: 207–214.
- Avendaño, J. E., Bohórquez, C. I., Rosselli, L., Arzuza-Buelvas, D., Estela, F. A., Cuervo, A. M., Stiles, F. G. & Renjifo, L. M. 2017. Lista de chequeo de las aves de Colombia: una síntesis del estado de conocimiento desde Hilty & Brown (1986). *Orn. Colombiana* 16: eA01.
- Avendaño, J. E., López-O., J. P. & Laverde-R., O. 2018. Bird diversity of the Cúcuta valley (Colombia) and biogeographical affinities with dry forest avifaunas of northern South America. *Wilson J. Orn.* 130: 213–223.
- Biomap. 2014. Darwin database. <http://biomap.net/> (accessed 20 November 2017).
- Colorado, G. J. 2008. Rediscovery of the Recurve-billed Bushbird for the Cordillera Central of Colombia. *Orn. Neotrop.* 19: 467–471.
- Donegan, T. M. 2012. Range extensions and other notes on the birds and conservation of the Serranía de San Lucas, an isolated mountain range in northern Colombia. *Bull. Brit. Orn. Cl.* 132: 140–161.
- Donegan, T. M., Avendaño, J. E., Briceño-L., E. R., Luna, J. C., Roa, C., Parra, R., Turner, C., Sharp, M. & Huertas, B. 2010. Aves de la Serranía de los Yariquíes y tierras bajas circundantes, Santander, Colombia. *Cotinga* 32: 72–89.
- Freeman, B. F., Hilty, S. L. & Calderón-F., D. 2012. New and noteworthy bird records from central and northern Colombia. *Cotinga* 34: 5–16.
- García, H., Corzo, G., Isaacs, P. & Etter, A. 2014. Distribución y estado actual de los remanentes del bioma de bosque seco tropical en Colombia: insumos para su gestión. Pp. 228–251 in Pizano, C. & García, H.

- (eds.) *El bosque seco tropical en Colombia*. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Bogotá.
- Haffer, J. 1967. Zoogeographical notes on the "nonforest" lowland bird faunas of northwestern South America. *Hornero* 10: 315–333.
- Herrera-Ordóñez, R. & Rincón-Guarín, D. A. 2014. Nuevo registro del Hormiguero Pico de Hacha *Clytactantes alixii* para el departamento de Santander, Colombia. *Cotinga* 36: 54–55.
- Hilty, S. L. 2002. *Birds of Venezuela*. Princeton Univ. Press.
- Hilty, S. L. & Brown, W. L. 1986. *A guide to the birds of Colombia*. Princeton Univ. Press.
- IAvH. 1998. *El bosque seco tropical (Bs-T) en Colombia*. Grupo de Exploraciones y Monitoreo Ambiental-IAvH, Villa de Leyva.
- Laverde-R., O. & Stiles, F. G. 2007. Apuntes sobre el Hormiguero Pico de Hacha (Thamnophilidae: *Clytactantes alixii*) y su relación con un bambú en un bosque secundario de Colombia. *Orn. Colombiana* 5: 83–80.
- Lentino, M., Sharpe, C., Pérez-Emán, J. L. & Carreño, Y. 2004. Aves registradas en la Serranía de Lajas, Serranía de Valledupar, Sierra de Perijá, Estado Zulia, en abril del 2004. Caracas, Venezuela.
- Mader, W. J. 1981. Notes on nesting raptors in the llanos of Venezuela. *Condor* 83: 48–51.
- Meyer de Schauensee, R. 1948–52. The birds of the Republic of Colombia. *Caldasia* 22–26: 251–1212.
- Nicéforo María, H. 1945. Notas sobre aves de Colombia, I. *Caldasia* 3: 367–395.
- Pizano, C., Cabrera, M. & García, H. 2014. Bosque seco tropical en Colombia: generalidades y contexto. Pp. 37–47 in Pizano, C. & García, H. (eds.) *El bosque seco tropical en Colombia*. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Bogotá.
- Remsen, J. V., Areta, J. I., Cadena, C. D., Jaramillo, A., Nores, M., Pacheco, J. F., Pérez-Emán, J. L., Robbins, M. B., Stiles, F. G., Stotz, D. F. & Zimmer, K. J. 2018. A classification of the bird species of South America. <http://www.museum.lsu.edu/~Remsen/SACCBaseline.htm>.
- Rodríguez-Mahecha, J. V. & J. I. Hernández-Camacho. 2002. *Loros de Colombia*. Conservation International, Washington DC.
- Rodríguez-Tolosa, P. 1985. Notas sobre las aves de la región del Catatumbo, Colombia. *Rev. Cienc., Arte, Letras y Tecnología* 4: 81–118.
- Sánchez-Cuervo, A. M., Aide, T. M., Clark, M. L. & Etter, A. 2012. Land cover change in Colombia: surprising forest recovery trends between 2001 and 2010. *PLoS ONE* 7: e43943.
- Stotz, D. F., Fitzpatrick, J. W., Parker, T. A. & Moskovits, D. K. 1996. *Neotropical birds: ecology and conservation*. Univ. of Chicago Press.
- Zimmer, K. J. & Isler, M. L. 2003. Family Thamnophilidae (typical antbirds). Pp. 448–681 in del Hoyo, J., Elliott, A. & Christie, D. A. (eds.) *Handbook of the birds of the world*, vol. 8. Lynx Edicions, Barcelona.
- Addresses:* Jorge Enrique Avendaño, Laboratorio de Biología Evolutiva de Vertebrados, Universidad de los Andes, Bogotá, Colombia, e-mail: jorgeavec@gmail.com. Juan Pablo López-O., Conservación Internacional Colombia, Carrera 13 # 71-41, Bogotá, Colombia, e-mail: jplopezq@gmail.com. Oscar Laverde-R., Unidad de Ecología y Sistemática (UNESIS), Departamento de Biología, Facultad de Ciencias. Pontificia Universidad Javeriana, Bogotá, Colombia, e-mail: oharaco@gmail.com

Nesting biology of Squirrel Cuckoo *Piaya cayana* at two localities in eastern Brazil

by Anita Studer & Begoña Barcena-Goyena

Received 21 April 2018; revised 25 June 2018; published 24 September 2018

<http://zoobank.org/?urn:lsid:zoobank.org:pub:A30D20C6-0C77-4D64-A030-50C08A34EDB9>

SUMMARY.—We provide new information on the breeding and feeding behaviour of Squirrel Cuckoo *Piaya cayana*, describing 16 nests found in 1987–2017 at two Atlantic Forest localities, in Minas Gerais and Alagoas (Brazil). In these areas, the species was observed at edges of primary and secondary forests, and beside rivers and wetlands. Nests were placed in the forest understorey in bushes or trees, and were camouflaged by lianas or dry branches. Clutch size varied from one to three eggs. Chicks had white mouth markings, described herein for the first time, and fledged before being able to fly. The breeding season varied between localities. In Minas Gerais, Squirrel Cuckoo appears to breed during the rainy season, while in Alagoas it may nest year-round.

Squirrel Cuckoo *Piaya cayana* is widely distributed from central Mexico to northern Argentina (Skutch 1966, Payne & Kirwan 2018) in upland forests, forest edges and patchy woodland (Oniki & Willis 1999). Aside from some ecological details presented by Skutch (1966) based on observations in Costa Rica and by Oniki & Willis (1999) from Espírito Santo (Brazil), there are few data on its breeding behaviour from anywhere within its extensive range. Here, we provide data on breeding and feeding behaviour at 16 nests of Squirrel Cuckoo at two Atlantic Forest localities in eastern Brazil.

Material and Methods

All of the nests were found between 1987 and 2017 in the municipalities of Arcos, Minas Gerais (20°17'S, 44°55'W) and Quebrangulo, Alagoas (09°14'S, 36°25'W). In these areas, Squirrel Cuckoo was observed in areas of dense vegetation, such as edges of primary and secondary forests, and at river and wetland margins. When an active nest was found, it was visited every 3–4 days, or every second day near hatching or fledging (Lara *et al.* 2012). When the exact date of fledging or hatching could not be determined, we recorded it as the median date of the two most recent visits (Dudley & Saab 2003).

Results

Arcos.—We found nine nests, all in October–January. Two nests were successful, whereas three failed during incubation, two during the nestling period, and two had an unknown fate, but certainly reached the nestling stage. Main cause of failure was predation ($n = 4$). One nest was abandoned during the nestling period. Nests were open cups, mainly constructed of dry twigs and lined with green leaves that were regularly renewed by the adults (Table 1). Measurements of two nests were: outer diameter 25 and 23 cm ($\bar{x} = 24$ cm ± 1.45 SD); external height of cup 8 and 17 cm ($\bar{x} = 12.5$ cm ± 6.36 SD); internal cup diameter 15 cm in both nests; depth of cup 4 and 7 cm ($\bar{x} = 5.5$ cm ± 2.12 SD). Mass of one nest the day after the chicks fledged was 98 g (Table 1).

Nests were placed in the forest understorey in a bush or tree and were camouflaged by lianas or dry branches. They were placed 5–8 m above ground ($\bar{x} = 6.5 \text{ m} \pm 1.29 \text{ SD}$) in a *Pisona* sp. ($n = 1$), *Mangifera indica* ($n = 1$), unidentified palms ($n = 2$) and bushes ($n = 5$). On hatching chicks had blackish-purple skin and beige-yellowish trichoptiles on the body-sides (Fig. 1). The bill was grey with white flanges. The gape was red with a series of white knobs in the centre of the palate, and the tongue had a central white spot and a black spot at its tip (Fig. 2). Eggs were white but sometimes were stained greenish due to leaves in the nest's lining decomposing. Clutch size was 1–3 eggs ($n = 7$; $\bar{x} = 2.14 \pm 0.69 \text{ SD}$). Mean measurements of six eggs were: $33.75 \times 24.48 \text{ mm}$; mass $10.45 \text{ g} \pm 0.15 \text{ SE}$.

Incubation lasted 17 days ($n = 1$) and the nestling period was 13 ($n = 1$) or 16 days ($n = 1$). Due to the small size of the nest compared to the adults, the latter incubated with the tail raised. Provisioning behaviour was observed at two nests over a total period of 250 minutes. Adults visited the nest at regular intervals of *c.*30 minutes. Diet consisted mainly of caterpillars and grasshoppers, as well as crickets, cicadas and other insects. Both adults contributed to incubation and nestling care. Chicks were fed whole prey items (Fig. 3) and if they had difficulties to swallow them, the adults assisted by crushing prey in their bills or presented the item several times until the nestling managed to consume it. Adults ate or removed faecal sacs from the nest (Fig. 4) and during the early stages of development (<1 week) one adult would brood the young until the other returned. On fledging, the young had a short tail, with rusty plumage, a grey bill and brown eyes (Fig. 5). Chicks left the

TABLE 1

Cup composition of a 98 g nest of Squirrel Cuckoo *Piaya cayana* in the municipality of Arcos, Minas Gerais, Brazil.

Exterior	Number	Mass
Leaf petioles and veins 1–10 cm	68	12 g
Twigs of 10–20 cm	78	50 g
Twigs of 20–30 cm	18	21 g
Interior		
Dry leaves of 1–10 cm	53	8 g
Leaf veins of 1–15 cm	25	5 g
Other plant material	-	2 g



Figure 1. Squirrel Cuckoo *Piaya cayana* nestlings at seven days of age, Arcos, Minas Gerais, Brazil, February 1988 (Anita Studer)



Figure 2. Interior view of a Squirrel Cuckoo *Piaya cayana* nestling's gape, Arcos, Minas Gerais, Brazil, February 1988 (Anita Studer)



Figure 3. Adult and nestling Squirrel Cuckoo *Piaya cayana* while eating a whole caterpillar, Arcos, Minas Gerais, Brazil, November 1988 (Anita Studer)



Figure 4. Adult Squirrel Cuckoo *Piaya cayana* removing a faecal sac, Arcos, Minas Gerais, Brazil, December 2000 (Anita Studer)



Figure 5. Young Squirrel Cuckoo *Piaya cayana* two days before leaving the nest, Arcos, Minas Gerais, Brazil, December 2000 (Anita Studer)

nest before they could fly, hopping between branches through the trees and bushes. Songs were loud but seldom heard, and characterised by short disyllabic cries or long stanzas of detached notes. Near the nest, the adults gave rough snore-like sounds. Vocal activity was greater during the breeding season.

Quebrangulo.—Seven nests were found, in January, February, April, May, August and October. Five nests succeeded while two failed due to predation at the nestling stage. Nest, eggs and nestlings had the same features as at Arcos. Adults behaved similarly too. Mean measurements of five nests were: outer nest diameter 21.4 cm \pm 6.22 SD; external height of cup 14.4 cm \pm 5.68 SD; internal cup diameter 10.2 cm \pm 3.03 SD; depth of cup 5 cm \pm 2.71 SD. Mean mass of three nests was 110 g \pm 2.22 SE. Nests were sited 4–7 m above ground ($n = 6$; $\bar{x} = 541.66$ cm \pm 102.06 SD) in a *Cordia trichotoma* ($n = 1$), *Myrcia guianensis* ($n = 1$), *Mangifera indica* ($n = 2$), *Citrus* sp. ($n = 2$) and in an unidentified bush ($n = 1$). Clutch size varied from one to three eggs ($n = 4$; $\bar{x} = 2.00 \pm 0.57$ SE). Mean measurements of three eggs were 33.43 \times 24.63 mm \pm 0.14 SE and mass was 10.77 g \pm 0.13 SE. Incubation lasted 14 days ($n = 1$) and nestling period varied between 13 ($n = 1$), 14 ($n = 3$), 15 ($n = 1$) and 16 ($n = 1$) days. An overview of the species' diet was made based on 750 minutes of observation at four different nests. Food consisted mainly of arthropods (79%) and frogs (21%).

Discussion

Breeding information for *P. cayana* is scarce, but its diet was described by Repenning *et al.* (2009), who found only arthropods in stomach contents, whereas we also recorded frogs. Although fruits have been reported in the diet of some cuckoos (Rosenberg *et al.* 1990, Payne & Kirwan 2018), Repenning *et al.* (2009) did not record any for Squirrel Cuckoo, and neither did we. In Arcos, Minas Gerais, Squirrel Cuckoo appears to breed during the rainy season,

in October–January, whereas in Quebrangulo it may breed year-round, probably with repeated nesting attempts (Payne & Kirwan 2018). Long breeding seasons overlapping both the wet and dry seasons have been reported for many species that occur at Quebrangulo, e.g. Short-tailed Antthrush *Chamaeza campanisona* (Studer *et al.* 2018), Scalloped Antbird *Myrmoderus ruficauda* (Studer *et al.* 2017) and Black-cheeked Gnatcatcher *Conopophaga melanops* (Studer in prep.), among others (Studer *et al.* 2015). Skutch (1966) reported active nests during the wet season in April–June in Costa Rica, although others were found between January and October.

Ingels & Fernandez (2014) described the nest of the congeneric Black-bellied Cuckoo *P. melanogaster*, from which it is apparent that nest sites are similar for the two species, although Black-bellied Cuckoo appears to place its nests higher above ground (c.8 m). Their nests are also similar in shape and size. Nests of other non-parasitic cuckoos, e.g. Guira Cuckoo *Guira guira*, Smooth-billed Ani *Crotophaga ani* and Greater Ani *C. major* share similar forms and materials. However, nests of *G. guira* are sited anywhere between 2 and 8 m above ground in less sheltered areas, whereas those of *C. ani* and *C. major* are usually sited 1–3 m above ground in marshy areas (pers. obs.).

Chicks of the above-mentioned species also possess markings on the palate and tongue. Indeed, nestling mouth ornamentation is present in the majority of cuckoo groups (Crotophaginae, Centropodinae, Couinae and Cuculinae; Payne 2005a) as well as in nestling viduids and estrildid finches (Neunzig 1929a,b, Nicolai 1964, Lahti & Payne 2003). Such ornamentation might attract their parents, as bright colours and structures are more visible to adults (Payne 2005b, Spottiswoode *et al.* 2012), thereby facilitating food delivery (Friedmann 1960). Appert (1967) illustrated the bright markings and colours of Red-capped Coua *Coua ruficeps* (of Madagascar) and suggested that these markings aid the adults to locate the chicks' gapes in dark cavities. Similarly, Friedmann (1960) stated that estrildid mouth markings serve to guide the adults inside dark nests. Swynnerton (1916) on the other hand, suggested that the bright gapes of nestlings represent warning colours, and deter nest predators.

Acknowledgements

We thank Nordeste Reforestation & Education for supporting our field work and IBAMA/ICMBio for cooperating with conservation measures. We are grateful to Felino Pedro Celestino, Luis Batista de Freitas and Manoel Nunes de Farias for their long-term assistance and collaboration in locating nests of this species. We also thank Marco Aurélio Crozariol for his advice during the preparation of this paper. Finally, we thank the editor and our referees for providing helpful comments on the submitted manuscript.

References:

- Appert, O. 1967. Die Rachenzeichnung beim Nestling des Braunkopf-Seidenkuckucks *Coua ruficeps olivaceiceps* (Sharpe) von Madagaskar. *Orn. Beob.* 64: 52–56.
- Dudley, J. & Saab, V. 2003. *A field protocol to monitor cavity-nesting birds*. Rocky Mountain Research Station, Fort Collins, CO.
- Friedmann, H. 1960. The parasitic weaverbirds. *US Natl. Mus. Bull.* 223: 1–196.
- Ingels, J. & Fernandez, M. 2014. The first described nests of Black-bellied Cuckoo *Piaya melanogaster*, from French Guiana. *Bull. Brit. Orn. Cl.* 134: 280–285.
- Lahti, D. C. & Payne, R. B. 2003. Morphological and behavioural evidence of relationships of the Cuckoo Finch *Anomalospiza imberbis*. *Bull. Brit. Orn. Cl.* 123: 113–125.
- Lara, K. M., Pinho, J. B. & Silveira, R. M. L. 2012. Biologia reproductiva de *Taraba major* (Aves, Thamnophilidae) na região do Pirizal, porção norte do Pantanal, Mato Grosso, Brasil. *Pap. Avuls. Zool., São Paulo* 52: 349–359.
- Neunzig, R. 1929a. Zum Brutparasitismus der Viduinen. *J. Orn.* 77: 1–21.
- Neunzig, R. 1929b. Beiträge zur Kenntnis der Ploceiden. I. Rachenzeichnungen und Reflexionspapillen der Nestjungen der Spermestinen, ihre systematische Bedeutung und ihr biologischer Wert bei dem Fütterungsvorgang. *Beitr. Fortpflanzungsbiol. Vögel* 5: 7–17.
- Nicolai, J. 1964. Der Brutparasitismus der Viduinae als ethologisches Problem. *Z. Tierpsychol.* 21: 129–204.

- Oniki, Y. & Willis, E. O. 1999. Nest building and early incubation in Squirrel Cuckoos (*Piaya cayana*). *Ararajuba* 7: 23–25.
- Payne, R. 2005a. *The cuckoos*. Oxford Univ. Press, New York.
- Payne, R. B. 2005b. Nestling mouth markings and colors of Old World finches Estrildidae: mimicry and coevolution of nesting finches and their *Vidua* brood parasites. *Publ. Mus. Zool., Univ. Michigan* 194: 1–45.
- Payne, R. & Kirwan, G. M. 2018. Common Squirrel-cuckoo (*Piaya cayana*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona.
- Repenning, M., Basso, H. C. D., Rossoni, J. R., Krugel, M. M. & Fontana C. S. 2009. Comparative diet analyses from four species of cuckoos (Aves: Cuculidae) in south Brazil. *Zoologia* 26: 443–453.
- Rosenberg, D. K., Wilson, M. H. & Cruz, F. 1990. The distribution and abundance of the smooth-billed ani *Crotophaga ani* (L.) in the Galapagos Islands, Ecuador. *Biol. Conserv.* 51: 113–123.
- Skutch, A. F. 1966. Life history notes on three tropical American cuckoos. *Wilson Bull.* 78: 139–165.
- Spottiswoode, C., Kilner, R. & Davies, N. B. 2012. Brood parasitism. Pp. 226–356 in Royle, N. J., Smiseth, P. T. & Kölliker, M. (eds.) *The evolution of parental care*. Oxford Univ. Press.
- Studer, A., Nusbaumer, L. & Spichiger, R. 2015. Biodiversidade da Reserva Biológica de Pedra Talhada (Alagoas, Pernambuco – Brasil). *Boissiera* 68: 377–405.
- Studer, A., Sousa, M. C. & Barcena-Goyena, B. 2017. Reproduction and nest success of the Scalloped Antbird, *Myrmoderus ruficauda* (Passeriformes: Thamnophilidae), in an Atlantic rainforest of northeastern Brazil. *Atualidades Orn.* 199: 33–37.
- Studer, A., Sousa M. C. & Barcena Goyena B. 2018. The breeding biology and nest success of the Short-tailed Anthrush *Chamaeza campanisona* (Aves: Formicariidae) in the Atlantic rainforest of northeastern Brazil. *Zoologia* 35: 1–8.
- Swynnerton, C. F. M. 1916. On the coloration of the mouths and eggs of birds. I. The mouths of birds. *Ibis* 58: 264–294.

Address: Anita Studer and Begoña Barcena, Rue de Chantepoulet 19, 1201 Geneva, Switzerland, e-mail: studer.anita@gmail.com

Range extensions for White-shouldered Antshrike *Thamnophilus aethiops*, Imeri Warbling Antbird *Hypocnemis flavescens* and Black-headed Antbird *Percnostola rufifrons* along the Putumayo River in Colombia, and their biogeographical significance

by Ottavio Janni, Andrea Corso & Michele Viganò

Received 27 April 2018; revised 16 July 2018; published 24 September 2018

<http://zoobank.org/?urn:lsid:zoobank.org:pub:2F9F1B30-A93F-4E28-B32D-F4DD57E9D0F0>

SUMMARY.—The avifauna on the north bank of the Putumayo River in Colombia is one of the most poorly known in western Amazonia. In February 2017 we spent nine days conducting ornithological field work in and around the community of El Encanto, dpto. Amazonas. We present novel distributional information for six species, the most significant of which concern range extensions for White-shouldered Antshrike *Thamnophilus aethiops*, Imeri Warbling Antbird *Hypocnemis flavescens* and Black-headed Antbird *Percnostola rufifrons minor*. We discuss these records in the context of recent ornithological work on the south bank of the Putumayo in Peru and address their biogeographical significance, especially with regards to the definition of areas of endemism in western Amazonia and the role of the Putumayo River as a distributional barrier. Our findings underscore the need for continued ornithological field work in the Putumayo–Caquetá interfluvium and indeed the Colombian Amazon as a whole.

Of all the major rivers in western Amazonia, the Putumayo is arguably the least known ornithologically. Approximately 1,600 km in length, the Putumayo—known as the Içá in Brazil—is the tenth longest tributary of the Amazon (Goulding *et al.* 2003). Rising in the southern Colombian Andes, it marks the boundary between Colombia and Peru for much of its length; its basin is sparsely populated, and for the most part difficult to access. Several recent surveys by the Field Museum of Natural History (FMNH), Chicago, have shed light on avian distributions immediately south of the Putumayo in Peru (Pitman *et al.* 2004, Alverson *et al.* 2008, Gilmore *et al.* 2010, Pitman *et al.* 2011, 2013, 2016), but the avifauna on the Colombian side is essentially unknown. Ornithological exploration of the Putumayo–Caquetá interfluvium has commenced only very recently, with much of the field work in the vicinity of Puerto Leguizamo (Bonilla-Castillo *et al.* 2017); the Colombian side of the Putumayo downstream of Puerto Leguizamo has been almost completely neglected by ornithologists and birders. Here we report on several avian range extensions from a site on the Colombian bank of the Putumayo c.240 km downriver of Puerto Leguizamo, and discuss their biogeographical implications.

Study sites and Methods

On 1–9 February 2017, we undertook ornithological field work around the indigenous Muiri communities of El Encanto (01°44'40"S, 73°12'24"W), San Rafael del Caraparaná (01°41'15"S, 73°13'55"W) and Tercera India (01°42'32"S, 73°13'41"W) in dpto. Amazonas, Colombia. El Encanto is located at the confluence of the Putumayo and Caraparaná Rivers, while San Rafael and Tercera India are both a few kilometres upstream along

the Caraparaná. Elevation at all three sites is *c.*140 m. Rainfall data from Puerto Alegría, *c.*120 km to the north-west along the Putumayo River, indicates that February is the second wettest month after March, with the driest period in June–August (OEA 1993); we experienced some rain on most days, with several very heavy afternoon downpours. To our knowledge, the only previous bird survey of this area was by J. Beckers in March 2015. We concentrated our efforts on several trails through *terra firme* forest on clay soils in the vicinity of the three villages; less time was spent in pasture and second growth in the immediate environs of settlements. We walked trails from dawn to early afternoon conducting qualitative observations and attempting to document interesting sightings using digital photography and sound-recordings using an Olympus LS-11 recorder with Sennheiser ME66 microphone.

Results

We recorded a total of 197 species during our field work (Appendix 1). All of our records, including 116 photos of 45 species, are archived in eBird (www.ebird.org); we documented 40 species with sound-recordings, the more significant of which—nine recordings of seven species—are deposited at www.xeno-canto.org. Major range extensions and other noteworthy records are detailed below, with supporting documentation indicated by its archive number in xeno-canto (XC) or the Macaulay Library (ML). Taxonomy and nomenclature follow Remsen *et al.* (2018).

PEARL KITE *Gampsonyx swainsonii*

One photographed on the outskirts of El Encanto on 4 February (ML 59417331). Until very recently, this open-country species was not mapped for the middle Putumayo by major references (Schulenberg *et al.* 2007, McMullan & Donegan 2014), although more recent works do so (Ayerbe-Quiñones 2018, McMullan 2018). Generally, it is patchily distributed in western Amazonia. The only record from the several expeditions conducted by FMNH to the Peruvian bank of the middle Putumayo is at San Antonio del Estrecho, downstream of El Encanto, on 23 February 2016 (Pitman *et al.* 2016). Additionally, we observed two north of Puerto Leguizamo on 30 January 2017 (ML 58128771), suggesting this species is regular at low densities in cleared areas near settlements along the middle Putumayo.

COMMON NIGHTHAWK *Chordeiles minor*

A massive dusk flight over the Caraparaná River at San Rafael on 5 February was conservatively estimated to number 250 individuals (ML 59418331, 59418331, 59418481). Data on the species' winter range are limited (Brigham *et al.* 2011) and, while it occurs regularly in western Amazonia, this appears to be an exceptionally high count. There are no published counts of more than ten in Ecuador (Freile *et al.* 2017) and in Loreto, Peru, where the species is known to winter, the only eBird counts in double digits are from October, and presumably refer to migrants. Further north in the Colombian Amazon—where the species was recorded for the first time by Stiles (2010)—counts from the vicinity of Mitú, Vaupés, have reached 50 in January and up to 150 in late February (eBird data), the latter possibly involving early spring migrants. Our count from early February should represent wintering birds and suggests that Common Nighthawks may be more numerous in winter than previously thought in this part of Amazonia. Interestingly, for a species generally associated with open habitats, our record is from a heavily forested area.



Figure 1. Green-tailed Goldenthrout *Polytmus theresiae*, San Rafael del Caraparaná, Amazonas, Colombia, 8 February 2017 (Ottavio Janni)

GREEN-TAILED GOLDENTHROAT *Polytmus theresiae*

One photographed (ML 59429851, 59429911, 59429981, 59430021; Fig. 1) on 8 February in open pasture with scattered low shrubs on the outskirts of San Rafael. In Colombia, this species occurs in 'sandy-belt' forest edge and savanna in dptos. Vichada, Guainía, Vaupés and Guaviare (McMullan & Donegan 2014); the closest records are from the Serranía de Chiribiquete, dpto. Caquetá, c.215 km to the north (Álvarez *et al.* 2003) and from Mitú, c.470 km to the north-west. The species is very patchily distributed in northern Amazonian Peru, where it occurs in sand-forest enclaves, with the nearest records from the río Pastaza c.400 km to the south-east (Schulenberg *et al.* 2007); more recently, a small population was also discovered near San Lorenzo, dpto. Loreto (Schmitt *et al.* 2017), and along the río Blanco, also in dpto. Loreto (Socolar *et al.* 2018). The only Ecuadorian record concerns a male and a female collected in 1936 at 'Laguna de Siguin', an untraced locality presumed to be on the north bank of the río Pastaza (Ridgely & Greenfield 2001). Its presence in our study area was surprising, as there is no natural savanna anywhere in the vicinity and the only open areas are small man-made pastures in the immediate environs of settlements. We can only speculate as to whether this was a vagrant from elsewhere in Colombia or Peru, or if there is small resident population along the Putumayo. It has recently been suggested that the species' patchy distribution in western Amazonia is a result of contemporary connectivity between populations, rather than relictual distribution (Socolar *et al.* 2018) and our record from a tiny patch of suitable habitat appears to support this argument.

WHITE-SHOULDERED ANTSHRIKE *Thamnophilus aethiops*

One heard singing in *terra firme* forest near El Encanto on 3 February, and at least three were seen, photographed (male ML 49753351; female ML 49753331, 49753341; Fig. 2) and sound-recorded (XC 357343) in a treefall gap in *terra firme* forest near Tercera India on 7 February.



Figure 2. Female White-shouldered Antshrike *Thamnophilus aethiops*, Tercera India, Amazonas, Colombia, 7 February 2017 (Ottavio Janni)

T. aethiops is polytypic and a recent genetic study recovered nine reciprocally monophyletic lineages equating to evolutionary species, but not fully matching current subspecies limits (Thom & Aleixo 2015). Our records are from an area where *T. aethiops* was not previously known, and as such their taxonomic affiliation is of special interest. Four different subspecies occur within 500 km of El Encanto. Race *kapouni*, which is unknown north of the Amazon, occurs as close as c.210 km south of El Encanto on the south bank of the Amazon opposite the mouth of the Napo River (Robbins *et al.* 1991). North of the Amazon, the closest records of *T. aethiops* to our study site are from the Serranía de Chiribiquete c.215 km to the north (Álvarez *et al.* 2003). Examination of these specimens by J. E. Avendaño (*in litt.* 2018) suggests they best match the poorly known race *wetmorei*, for which the nearest otherwise confirmed records to our study site are from the foothills of the Serranía de los Churumbelos, dpto. Cauca, c.450 km to the north-west (Salaman *et al.* 1999). Records from the Zona Reservada Pucaruro, dpto. Loreto, Peru (Díaz-Alván *et al.* 2017) approximately 265 km to the west-southwest, and Yasuní National Park, Orellana province, Ecuador (XC86523) c.375 km west-southwest, have been assigned to the nominate race, of which the closest specimen records are from Santa Cecilia, Sucumbíos province, Ecuador, c.460 km west-northwest of our study site (Ridgely & Greenfield 2001). The status of the nominate race in Colombia is somewhat confused, as Hilty & Brown (1986) reported it to occur in south-eastern dpto. Nariño, and it was included in a recent effort to list all bird taxa known from Colombia (Verhelst-Montenegro & Salaman 2015)—presumably based on Meyer de Schauensee (1952), who reported two males and a female collected along the San Miguel and Churuyacu Rivers in extreme south-east Nariño, c.510 km west-northwest of our study site—yet it is not listed by recent field guides (McMullan & Donegan 2014, Ayerbe-Quiñones 2018, McMullan 2018) and taxonomic references (del Hoyo & Collar 2016), perhaps due to the earlier reference being overlooked. There are also records of *T. aethiops* from Estación

Biológica Caparú, dpto. Vaupés, approximately 415 km to the east-northeast (Bennet-Defler 1994); the race concerned is unknown but is presumed—on range—to be *polionotus*, the closest confirmed records of which come from the lowermost Caquetá / Japurá River in Brazil, c.800 km east of our study site (Thom & Aleixo 2015). Assigning our records to race is problematic without specimens. Plumage perhaps best matches *polionotus*: the female was essentially uniformly rufous, whereas in female *wetmorei* the mantle should be ‘much paler, which makes the rufous cap stand out more clearly from the rest of the upper parts’ (Meyer de Schauensee 1945); the male was rather uniformly blackish grey, with a darker crown and white spots on the wing-coverts, coincident with *polionotus* / *wetmorei*, and should rule out the nominate race, which is mostly black. However, we cannot eliminate *wetmorei* and, given how distant our records are from other known localities, the possibility of an undescribed subspecies also cannot be discarded (A. Aleixo *in litt.* 2018). In Peru, *T. aethiops* is unknown north of the Amazon and it has not been recorded on any of the rapid biological inventories conducted between the Napo and Putumayo Rivers. Given that ‘in the *T. aethiops* complex, all splits involving the recognized lineages coincide with at least part of the course of a major Amazonian river’ (Thom & Aleixo 2015), it might be speculated that the Putumayo River is also one such barrier.

IMERI WARBLING ANTBIRD *Hypocnemis flavescens*

Common at San Rafael, with 1–6 recorded daily, but rarer at El Encanto, where just one was recorded, on 9 February. Found near large treefall gaps and at forest edge. Identification was based on sound-recordings of the loudsong (XC 357330; Fig. 5, note how the initial notes lack ‘tails’ and the terminal notes become sharply downslurred; compare with XC 72568 in Fig. 7; see Isler *et al.* 2007) and plumage (ML 49756121, 49756131; whitish breast with sparse and ill-defined black streaks vs. coarser markings on Peruvian Warbling Antbird *H. peruviana*, and black lateral crown-stripe heavily flecked white vs. more solid black in *H. peruviana*). The distributional limits of *H. flavescens* and *H. peruviana* are poorly known: the nearest published records of *H. flavescens* are from Chiribiquete National Park, dpto. Caquetá, c.150 km to the north-northwest (Stiles *et al.* 1995, Isler *et al.* 2007); closer to our study site, there is an unpublished specimen record from north of La Chorrera, dpto. Amazonas, c.65 km north-east of El Encanto (IavH-A 1526; J. E. Avendaño *in litt.* 2018). On the other hand, *H. peruviana* is mapped as occurring throughout the Putumayo–Caquetá interfluvium in McMullan & Donegan (2014), but our records suggest this is erroneous. Directly across the Putumayo from our study area, the FMNH surveys found *H. peruviana* at most sites sampled, with the closest records just 30 km from ours along the lower Ere River, but failed to record *H. flavescens* (Pitman *et al.* 2013). Our discovery of *H. flavescens* at El Encanto prompted us to review our previous records of the *H. cantator* complex from the Putumayo River. During 11 days of field work in and around Puerto Leguizamo in 2016 (29 January–5 February; OJ, J. Beckers & F. Peña) and 2017 (29–31 January; OJ, AC, MV & F. Peña), we did not record any member of the *H. cantator* complex between the Putumayo and Caquetá Rivers. However, on the north bank of the Caquetá we recorded eight *Hypocnemis* on 31 January 2016 (c.00°02’N, 74°38’W). Based on sound-recordings, these were *H. flavescens*, c.220 km west-northwest of the nearest known records from Chiribiquete National Park, and the westernmost records to date. The closest documented records of *H. peruviana* north of the Putumayo River known to us are from La Providencia, on the Orteguzza River, in dpto. Caquetá (Lafrancesco *et al.* 1987) approximately 110 km to the north-west, and the Puerto Asís area c.190 km west-northwest of Puerto Leguizamo (eBird; ML 50567251, D. R. López). Further field work is required to determine if and where *H. flavescens* and *H. peruviana* are in contact; any such area would lie in the stretch

of lowland forest that extends between the Puerto Leguizamo / La Tagua area and Puerto Asís, which remains essentially unexplored by ornithologists. Additionally, field work on the Peruvian bank of the Putumayo opposite Puerto Leguizamo should focus on clarifying which member of the *H. cantator* complex occurs there, as records by OJ, J. Beckers & F. Peña in February 2016 and by D. Calderón-Franco *et al.* in March 2017 are not supported by sound-recordings and cannot be identified to species.

BLACK-HEADED ANTBIRD *Percnostola rufifrons minor*

This species, first recorded by J. Beckers in March 2015, was fairly common in the area, with 1–5 encountered daily at all three sites. As the area between the Putumayo and Caquetá Rivers lacked any records of *P. rufifrons*, our finding raises questions as to which taxon of the species occurs there. While *P. r. jensoni* is fairly widespread on the south bank of the Putumayo in Peru, including just 30 km south of our study site along the lower Ere River (Pitman *et al.* 2013), the nearest published records of *minor* appear to be from Chiribiquete National Park, Caquetá, c.250 km north-east (Álvarez *et al.* 2003) and Estación Biológica Caparú, Vaupés, 415 km to the east-northeast (Isler *et al.* 2001); closer to our study site are two unpublished specimens from La Chorrera (IavH-A 1563, 5756; J. E. Avendaño *in litt.* 2018). We sound-recorded several individuals (XC 357329, 357334 and 357339; Fig. 6) and photographed a male (ML 49753111; Fig. 3) and female (ML 49752771, 49752761), which we identified as race *minor* based on plumage (dark reddish-brown crown and ferruginous head-sides in the female vs. blackish-grey crown and greyish head-sides in *jensoni*) and vocal features (song slower paced than in *jensoni*; the loudsong pace in our recordings—3.03–3.52 notes / second—matches and in one case slightly exceeds the pace of loudsong reported in Isler *et al.* 2001 for *minor*—2.67–3.31 notes / second—while they are well outside that reported for *jensoni*—4.09–4.50 notes / second; M. L. Isler *in litt.* 2018;



Figure 3. Male Black-headed Antbird *Percnostola rufifrons minor*, El Encanto, Amazonas, 4 February 2017 (Ottavio Janni)

compare our recording in Fig. 6 to XC 56750 in Fig. 8). Our findings confirm the suggestion by Capparella *et al.* (1997) that the Putumayo / Içá River separates these two taxa. Genetic work on species limits in the *P. rufifrons* complex is ongoing (G. A. Bravo *in litt.* 2017) and our findings shed light on the geographic limits of these taxa. Interestingly, the birds responded strongly to playback of the song of *P. r. jensoni* from Loreto, Peru (XC 56750), albeit during unstructured playback experiments and with the caveat that assessing lack of response is likely to be more taxonomically significant. More formal playback trials along the lines of those conducted for other allopatric, closely related taxa in the Neotropics (Freeman & Montgomery 2017) and including calls, could provide additional data by which to assess the taxonomic rank of these two taxa.

Discussion

Although our survey was brief, our findings add to the limited but growing body of data on the birds of the Putumayo basin. Previous surveys have concentrated on the Peruvian side of the river, and our records highlight some interesting similarities and differences between the avifaunas on the north and south banks. One similarity is the presence of a suite of birds associated with poor-soil habitats: in addition to *Polytmus theresiae* and *Percnostola rufifrons*, other poor-soil specialists we found included Pearly Antshrike *Megastictus margaritatus* (ML 58147011, XC 357335), Cinnamon Manakin-Tyrant *Neopipo cinnamomea* (ML 59871381, 59871431, 59871491, 59871511; Fig. 4) and Citron-bellied Attila *Attila citriniventris*, despite the absence of white-sand formations. Several poor-soil specialists were also found at some of the FMNH study sites south of the Putumayo, suggesting that such species are widespread in the basin.



Figure 4. Cinnamon Manakin-Tyrant *Neopipo cinnamomea*, Tercera India, Amazonas, Colombia, 7 February 2017 (Ottavio Janni)

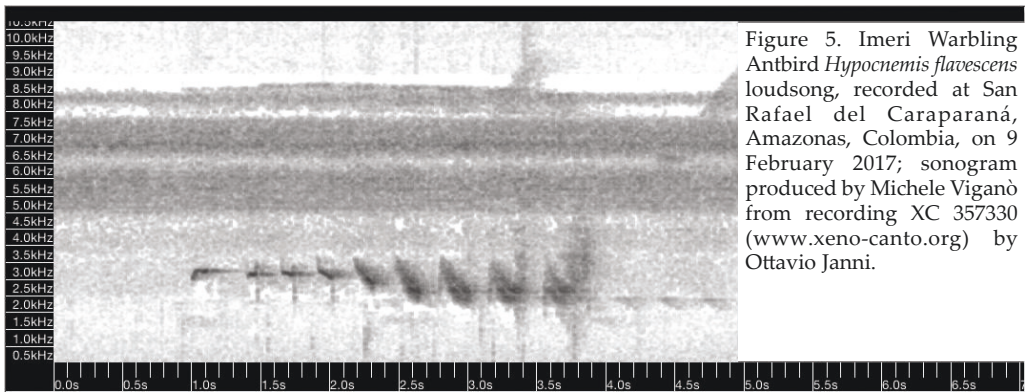


Figure 5. Imeri Warbling Antbird *Hypocnemis flavescens* loudsong, recorded at San Rafael del Caraparaná, Amazonas, Colombia, on 9 February 2017; sonogram produced by Michele Viganò from recording XC 357330 (www.xeno-canto.org) by Ottavio Janni.

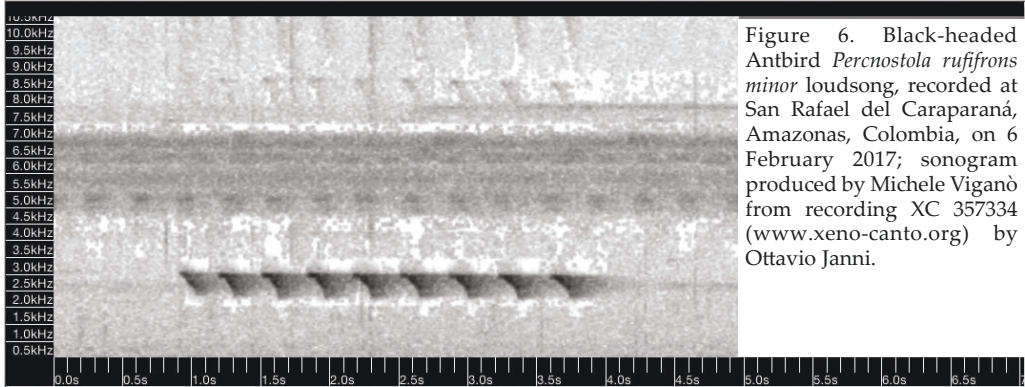


Figure 6. Black-headed Antbird *Percnostola rufifrons minor* loudsong, recorded at San Rafael del Caraparaná, Amazonas, Colombia, on 6 February 2017; sonogram produced by Michele Viganò from recording XC 357334 (www.xeno-canto.org) by Ottavio Janni.

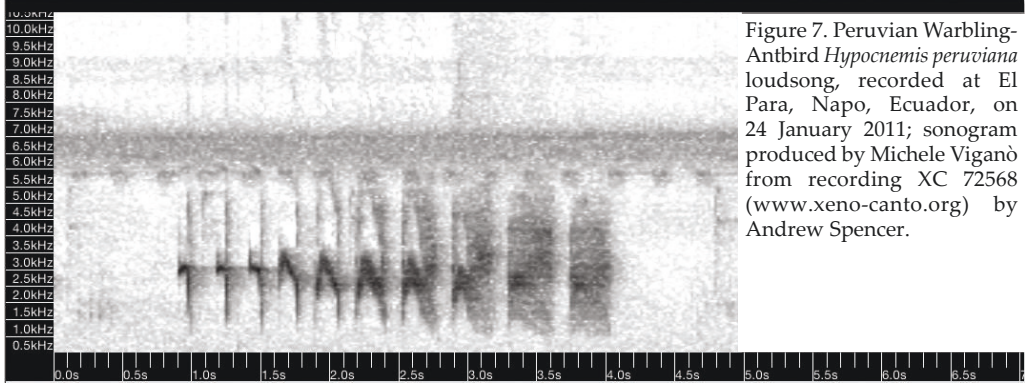


Figure 7. Peruvian Warbling-Antbird *Hypocnemis peruviana* loudsong, recorded at El Para, Napo, Ecuador, on 24 January 2011; sonogram produced by Michele Viganò from recording XC 72568 (www.xeno-canto.org) by Andrew Spencer.

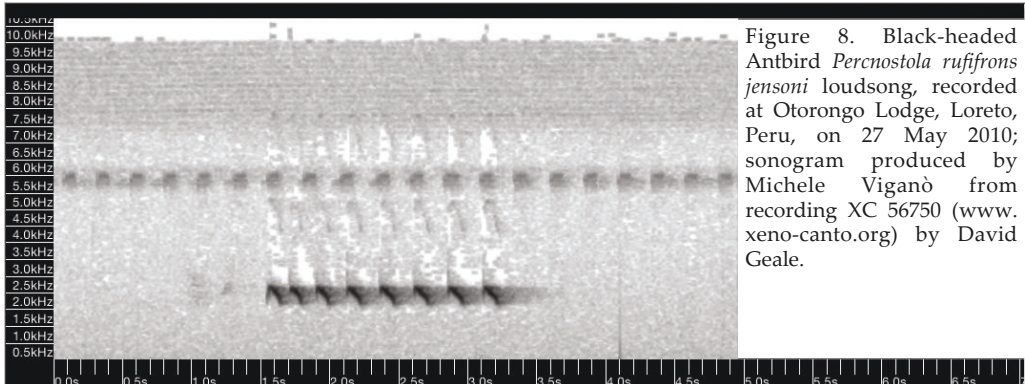


Figure 8. Black-headed Antbird *Percnostola rufifrons jensoni* loudsong, recorded at Otorongo Lodge, Loreto, Peru, on 27 May 2010; sonogram produced by Michele Viganò from recording XC 56750 (www.xeno-canto.org) by David Geale.



Perhaps more interestingly, our findings evidence that the Putumayo River is a biogeographic barrier. Although the role of rivers in shaping the distribution and speciation of Amazonian fauna has long been known (Wallace 1852) and extensively studied (Haffer 1969, Weir *et al.* 2015), the role of the Putumayo has received virtually no attention in the ornithological literature, despite evidence that some vertebrates, such as Red Titi Monkey *Callicebus discolor*, are bound by it (van Roosmalen *et al.* 2002). Our data begin to address this gap: we found that *Hypocnemis flavescens* and *H. peruviana* replace one another across the Putumayo, contrary to published maps, and confirmed the suspicion that the Putumayo also separates *Percnostola rufifrons minor* and *P. r. jensoni*. The lack of records of *Thamnophilus aethiops* from the Peruvian side of the Putumayo despite a number of surveys there strongly suggests that the river serves as a barrier also to this taxon. Several species not yet recorded in Colombia—including an undescribed antwren *Herpsilochmus* sp., Variegated Antpitta *Grallaria varia* and Orange-crowned Manakin *Heterocercus aurantiivertex*—have recently been found across the Putumayo in Peru (Pitman *et al.* 2004, Gilmore *et al.* 2010, Pitman *et al.* 2011), but ornithological field work on the Colombian side of the river—and indeed in the Colombian Amazon as a whole (Avenidaño *et al.* 2017)—has been so limited that it is difficult to gauge whether the lack of records provides additional evidence of the Putumayo's role as a barrier, or is merely due to these species remaining undetected to date.

The role of rivers in defining areas of bird endemism in the Amazon basin is also under debate (Naka *et al.* 2010, Fernandes *et al.* 2014), with a recent review finding that 'rivers mark steep changes in species composition, but do not limit areas of endemism' (Oliveira *et al.* 2017). Traditionally, the Putumayo basin has been thought to belong to the North Amazon / Napo centre of endemism (Cracraft 1985), with the Negro / Vaupés River generally mapped as separating it from the Imeri centre to the north (Silva *et al.* 2005, Naka *et al.* 2012, Oliveira *et al.* 2017). However, several taxa we found at our study site—especially *Hypocnemis flavescens* and *Percnostola rufifrons minor*, and potentially *Thamnophilus aethiops* if racial assignment to *polionotus* is confirmed—are limited to the Imeri centre of endemism, and in the latter two cases they replace sister taxa from the Napo centre across the Putumayo. On the other hand, the only *Rhegmatorhina* we found at our study site was Hairy-crested Antbird *R. melanosticta* (XC 357344), whose range encompasses the Napo centre of endemism, and not the Imeri centre representative, Chestnut-crested Antbird *R. cristata*, for which species the Caquetá / Japurá River was recently confirmed as a distributional limit (Ribas *et al.* 2018). Our records of *Selenidera* toucanets were heard only, and we could not determine if they referred to Golden-collared Toucanet *S. reinwardtii* or the Imeri endemic Tawny-tufted Toucanet *S. nattereri*. The picture that emerges is of the area between the Putumayo and Vaupés Rivers being a zone of transition between the Napo and Imeri centres of endemism, with taxa typical of the latter having been found well to the south-west of the centre as traditionally defined, even beyond the geological boundaries of the Guiana Shield (Osmonson *et al.* 2000). Similar transitional areas have been found, for example, in the Branco / Negro interfluvium in Brazil, where two distinct avifaunas from west of the Negro and east of the Branco meet (Naka *et al.* 2010). Recent records of Yellow-throated Antwren *Myrmotherula ambigua* and Rose-breasted Chat *Granatellus pelzelni* from the Puerto Leguizamo area (D. Calderón-Franco *et al.* in prep.) further underscore the Guianan / Imeri 'flavour' to the avifauna on the Colombian bank of the Putumayo, and hint at the complexity of distributional patterns in the poorly explored Colombian Amazon.

Additional field work on the Colombian side of the Putumayo is certain to provide useful data to further unravel these patterns, and to address distributional questions at a finer scale, including the extent to which the Caquetá River, which runs almost parallel to the Putumayo to the north and is even longer (c.2,800 km, making it the fourth-largest

tributary of the Amazon, Goulding *et al.* 2003), also constitutes a biogeographical barrier. Genetic studies of avian populations either side of the Putumayo would also shed light on the river's role as a barrier, especially given increasing awareness of cryptic diversity in Amazonian birds (Whitney & Cohn-Haft 2013), and of the fine-scale nature of endemism in Amazonia (Fernandes 2013). Recent field work on the Colombian side of the Putumayo has already resulted in one new species for the national list—Cocha Antshrike *Thamnophilus praecox* (Williams 2016, Janni *et al.* in prep.)—and more such discoveries surely await. Of the species mentioned above as occurring on the Peruvian side of the Putumayo, *Heterocercus aurantiivertex* seems especially likely to occur in Colombia as well, as its range is very similar to that of *Thamnophilus praecox*. One obstacle to field work along the Colombian Putumayo is difficulty of access: the area downstream of Puerto Asís lacks roads and transport is by boat along the main waterways, with Puerto Leguizamo the only town easily accessed by air. From the latter, a weekly boat visits San Antonio del Estrecho on the Peruvian bank, a journey of c.12 hours; El Encanto is about three-quarters of the way downstream and is one of the few settlements where some accommodation can be secured. The small settlement of La Chorrera, c.55 km north-east of our study site, is reached by a weekly flight from Leticia, and could also serve as a base for exploration. In part due to these logistical challenges, the Colombian part of the Putumayo basin is one of the frontiers of Amazonian ornithology, and we strongly encourage its continued exploration.

Acknowledgements

First and foremost, we thank the indigenous communities of El Encanto, San Rafael del Carapará and Tercera India for permitting access to their communal lands. Jurgen Beckers drew our attention to the El Encanto area, encouraged us to survey it and provided much-appreciated logistical information from his visit in 2015; his records are archived in eBird. Morton L. Isler kindly examined our sound-recordings of antbirds from El Encanto, provided valuable input on their identification, and improved our understanding of the distribution of several taxa discussed herein. Alexandre Aleixo and Gustavo Bravo provided insights on *Thamnophilus aethiops* and *Percnostola rufifrons*, respectively. Diego Calderón-Franco shared some records from a visit to the Puerto Leguizamo area in 2017. AC thanks Leica Sports Optics for the loan of optical equipment.

References:

- Álvarez, M., Umaña, A. M., Mejía, G. D., Caijao, J., von Hildebrand, P. & Gast, F. 2003. Aves del Parque Nacional Natural Serranía de Chiribiquete, Amazonia – Provincia de la Guyana, Colombia. *Biota Colombiana* 4: 49–63.
- Alverson, W. S., Vriesendorp, C., del Campo, A., Moskovitz, D. K., Stotz, D. F., García Donayre, M. & Bobor, L. A. (eds.) 2008. *Ecuador-Peru: Cuyabeno-Güepí*. Rapid Biological and Social Inventories Rep. 20. Field Museum, Chicago.
- Avendaño, J. E., Bohórquez, C. I., Rosselli, L., Arzuza-Buelvas, D., Estela, F. A., Cuervo, A. M., Stiles, F. G. & Renjifo, L. M. 2017. Lista de chequeo de las aves de Colombia: una síntesis del estado de conocimiento desde Hilty & Brown (1986). *Orn. Colombiana* 16: eA01.
- Ayerbe-Quiñones, F. 2018. *Guía ilustrada de la avifauna colombiana*. Wildlife Conservation Society Colombia, Bogotá.
- Bennet-Defler, S. B. 1994. Las aves de la Estación Caparu: una lista preliminar de especies. *Trianea Act. Cien. Tech.* (INDERENA) 5: 379–400.
- Bonilla-Castillo, C., Peña, F. A., Bonilla-Velazquez, C. & Velazquez-Figueroa, I. 2017. La corocora (*Eudocimus ruber*) en la llanura amazónica entre los ríos Caquetá y Putumayo. *Orn. Colombiana* 16: eNB01.
- Brigham, R. M., Ng, J., Poulin, R. G. & Grindal, S. D. 2011. Common Nighthawk (*Chordeiles minor*), v. 2.0. In Rodewald, P. G. (ed.) *The birds of North America*. Cornell Lab of Ornithology, Ithaca, NY. <https://doi.org/10.2173/bna.213>.
- Capparella, A. P., Rosenberg, G. H. & Cardiff, S. W. 1997. A new subspecies of *Percnostola rufifrons* (Formicariidae) from northeastern Amazonian Peru, with a revision of the *rufifrons* complex. Pp. 165–170 in Remsen, J. V. (ed.) *Studies in Neotropical ornithology honoring Ted Parker*. *Orn. Monogr.* 48.
- Cracraft, J. 1985. Historical biogeography and patterns of differentiation within the South American avifauna: areas of endemism. Pp. 49–84 in Buckley, P. A., Morton, E., Ridgely, R. S. & Buckley, F. G. (eds.) *Neotropical ornithology*. *Orn. Monogr.* 36.

- Díaz-Alván, J., Socolar, J. B. & Álvarez Alonso, J. 2017. The avifauna of the Río Tigre basin, northern Perú. *Orn. Neotrop.* 28: 11–21.
- Fernandes, A.M. 2013. Fine-scale endemism of Amazonian birds in a threatened landscape. *Biodiver. Conserv.* 22: 2683–2694.
- Fernandes, A. M., Cohn-Haft, M., Hrbek, T & Farias, I. P. 2014. Rivers acting as barriers for bird dispersal in the Amazon. *Rev. Bras. Orn.* 22: 361–371.
- Freeman, B. G. & Montgomery, G. A. 2017. Using song playback experiments to measure species recognition between geographically isolated populations: a comparison with acoustic trait analyses. *Auk* 134: 857–870.
- Freile, J. F., Solano-Ugalde, A., Brinkhuizen, D. M., Greenfield, P. J., Lysinger, M., Nilsson, J., Navarrete, L. & Ridgely, R. S. 2017. Rare birds in Ecuador: third report of the Committee for Ecuadorian Records in Ornithology (CERO). *Rev. Ecuatoriana Orn.* 1: 8–27.
- Gilmore, M. P., Vriesendorp, C., Alverson, W. S., del Campo, A., von May, R., López Wong, C. & Ríos Ochoa, S. (eds.) 2010. *Peru: Maijuna*. Rapid Biological and Social Inventories Rep. 22. Field Museum, Chicago.
- Goulding, M., Barthem, R. & Ferreira, E. J. G. 2003. *The Smithsonian atlas of the Amazon*. Smithsonian Institution Press, Washington DC.
- Haffer, J. 1969. Speciation in Amazonian forest birds. *Science* 165: 131–137.
- Hilty, S. L. & Brown, W. L. 1986. *A guide to the birds of Colombia*. Princeton Univ. Press.
- del Hoyo, J. & Collar, N. J. 2016. *HBW and BirdLife International illustrated checklist of the birds of the world*, vol. 2. Lynx Edicions, Barcelona.
- Isler, M. L., Alonso, J. A., Isler, P. R. & Whitney, B. M. 2001. A new species of *Percnostola* antbird (Passeriformes: Thamnophilidae) from Amazonian Peru, and an analysis of species limits within *Percnostola rufifrons*. *Wilson Bull.* 113: 164–176.
- Isler, M. L., Isler, P. R. & Whitney, B. M. 2007. Species limits in antbirds (Thamnophilidae): the Warbling Antbird (*Hypocnemis cantator*) complex. *Auk* 124: 11–28.
- Janni, O., Beckers, J. & Peña, F. A. in prep. First records of Cocha Antshrike (*Thamnophilus praecox*) for Colombia.
- Lafrancesco, G. M., Mateus, C. L. & Oviedo, G. 1987. Contribuciones al estudio de los passeriformes furnariidos de Colombia, entrega 3, furnariidos del Museo de Ciencias Naturales de la Universidad de La Salle. *Bol. Cient. Univ. La Salle* 2: 63–144.
- McMullan, M. 2018. *Field guide to the birds of Colombia*. Third edn. Ed. Rey Naranjo, Bogotá.
- McMullan, M. & Donegan, T. 2014. *Field guide to the birds of Colombia*. Second edn. Fundación ProAves, Bogotá.
- Meyer de Schauensee, R. 1945. Notes on Colombian antbirds, ovenbirds, and woodhewers, with the description of a new form from Peru. *Notulae Naturae* 153: 1–15.
- Meyer de Schauensee, R. 1952. Colombian zoological survey. Part X. A collection of birds from southeastern Nariño, Colombia. *Proc. Acad. Nat. Sci. Philadelphia* 104: 1–33.
- Naka, L. N. 2010. Avian distribution patterns in the Guiana Shield: implications for the delimitation of Amazonian areas of endemism. *J. Biogeogr.* 38: 681–696.
- Naka, L. N., Brechtold, C. L., Henriques, L. M. P. & Brumfield, R. T. 2012. The role of physical barriers in the location of avian suture zones in the Guiana Shield, northern Amazonia. *Amer. Natur.* 179: 1–19.
- Oliveira, U., Vasconcelos, M. F. & Santos, A. J. 2017. Biogeography of Amazon birds: rivers limit species composition, but not areas of endemism. *Scientific Rep.* 7: 2992.
- Organización de Estados Americanos (OEA). 1993. *Plan Colombo-Peruano para el desarrollo integral de la cuenca del río Putumayo: diagnóstico regional*. Organización de Estados Americanos, Washington DC.
- Osmonson, L. M., Persits, F. M., Steinhauer, D. W. & Klett, T. R. 2000. *Geologic provinces of the world*. US Geological Survey (USGS), Denver, CO.
- Pitman, N., Smith, R. C., Vriesendorp, D., Moskovitz, D., Piana, R., Knell, G. & Wachter, T. (eds.) 2004. *Peru: Ampiyacu, Apayacu, Yaguas, medio Putumayo*. Rapid Biological and Social Inventories Rep. 12. Field Museum, Chicago.
- Pitman, N., Vriesendorp, C., Moskovitz, D. K., von May, D., Alvira, D., Wachter, T., Stotz, D. F. & del Campo, A. (eds.) 2011. *Peru: Yaguas-Cotuhé*. Rapid Biological and Social Inventories Rep. 23. Field Museum, Chicago.
- Pitman, N., Ruelas Inzunza, E., Vriesendorp, C., Stotz, D. F., Wachter, T., Alvira, D., Rodríguez Grández, B., Smith, R. C., Sáenz Rodríguez, A. R. & Soria Ruiz, P. (eds.) 2013. *Peru: Ere-Campuyá-Algodón*. Rapid Biological and Social Inventories Rep. 25. Field Museum, Chicago.
- Pitman, N., Bravo, A., Claramunt, S., Vriesendorp, C., Alvira Reyes, D., Ravikumar, A., del Campo, A., Stotz, D. F., Wachter, T., Heilpern, S., Rodríguez Grández, B., Sáenz Rodríguez, A. R. & Smith, R. C. (eds.) 2016. *Peru: medio Putumayo-Algodón*. Rapid Biological and Social Inventories Rep. 28. Field Museum, Chicago.
- Remsen, J. V., Areta, J. I., Cadena, C. D., Claramunt, S., Jaramillo, A., Pacheco, J. F., Pérez-Emán, J., Robbins, M. B., Stiles, F. G., Stotz, D. F. & Zimmer, K. J. 2018. A classification of the bird species of South America. www.museum.lsu.edu/~Remsen/SACCBaseline.htm (accessed 18 April 2018).

- Ribas, C. C., Aleixo, A., Gubili, C., D'Horta, F. M., Brumfield, R. T. & Cracraft, J. 2018. Biogeography and diversification of *Rhegmatorhina* (Aves: Thamnophilidae): implications for the evolution of Amazonian landscapes during the Quaternary. *J. Biogeogr.* 45: 917–928.
- Ridgely, R. S. & Greenfield, P. J. 2001. *The birds of Ecuador*. Cornell Univ. Press, Ithaca, NY.
- Robbins, M. B., Capparella, A. P., Ridgely, R. S. & Cardiff, S. W. 1991. Avifauna of the Río Maniti and Quebrada Vainilla, Peru. *Proc. Acad. Nat. Sci. Philadelphia* 143: 145–159.
- van Roosmalen, M. G. M., van Roosmalen, T. & Mittermeier, R. A. 2002. A taxonomic review of the titi monkeys, genus *Callicebus* Thomas, 1903, with the description of two new species, *Callicebus bernhardi* and *Callicebus stephenmashi*, from Brazilian Amazonia. *Neotrop. Primates* 10(Suppl.): 1–52.
- Salaman, P. G. W., Donegan, T. M. & Cuervo, A. M. 1999. Ornithological surveys in Serranía de los Churumbelos, southern Colombia. *Cotinga* 12: 29–39.
- Schmitt, F., Sané, R., Thibault, M. & Vásquez, G. 2017. New locality for White-masked Antbird *Pithys castaneus* and other avian range extensions for dpto. Loreto, Peru. *Cotinga* 39: 2–11.
- Schulenberg, T. S., Stotz, D. F., Lane, D. F., O'Neill, J. P. & Parker, T. A. 2007. *Birds of Peru*. Princeton Univ. Press.
- Silva, J. C., Rylands, A. B. & da Fonseca, G. A. B. 2005. The fate of the Amazonian areas of endemism. *Conserv. Biol.* 19: 689–694.
- Socular, J. B., Díaz-Alván, J., Saboya del Castillo, P., Pomara, L. Y., O'Shea, B. J., Cubas Poclin, S., Stotz, D. F., Schmitt, F., Graham, D., Barnes, B. H. & Ruelas Inzunza, E. 2018. Noteworthy bird records from northeastern Peru reveal connectivity and isolation in the western Amazonian avifauna. *Wilson J. Orn.* 130: 94–111.
- Stiles, F. G. 2010. La avifauna de la parte media del río Apaporis, departamentos de Vaupés y Amazonas, Colombia. *Rev. Acad. Colombiana Cienc. Exactas, Fis. Natur.* 34: 381–390.
- Stiles, F. G., Telleria, J. L. & Díaz, M. 1995. Observaciones sobre la composición, ecología y zoogeografía de la avifauna de la Sierra de Chiribiquete, Caquetá, Colombia. *Caldasia* 17: 481–500.
- Thom, G. & Aleixo, A. 2015. Cryptic speciation in the white-shouldered antshrike (*Thamnophilus aethiops* – Aves, Thamnophilidae): the tale of a transcontinental radiation across rivers in lowland Amazonia and the northeastern Atlantic Forest. *Mol. Phyl. & Evol.* 82: 95–110.
- Verhelst-Montenegro, J. C. & Salaman, P. 2015. Checklist of the birds of Colombia / Lista de las aves de Colombia, v. 18 May 2015. <https://sites.google.com/site/haariehbamidbar/atlas-of-the-birds-of-colombia> (accessed 27 December 2017).
- Wallace, A. R. 1852. On the monkeys of the Amazon. *Proc. Zool. Soc. Lond.* 1852: 107–110.
- Weir, J. T., Faccio, M. S., Pulido-Santacruz, P., Barrera-Guzmán, A. O. & Aleixo, A. 2015. Hybridization in headwater regions, and the role of rivers as drivers of speciation in Amazonian birds. *Evolution* 69: 1823–1834.
- Whitney, B. M. & Cohn-Haft, M. 2013. Fifteen new species of Amazonian birds. Pp 223–239 in del Hoyo, J., Elliott, A., Sargatal, J. & Christie, D. A. (eds.) *Handbook of the birds of the world*, spec. vol. Lynx Edicions, Barcelona.
- Williams, R. 2016. Neotropical notebook. *Neotrop. Birding* 18: 45–52.
- Addresses: Ottavio Janni, Via G.G. D'Amore 21, 81016 Piedimonte Matese, Caserta, Italy, e-mail: coeligena@hotmail.com. Andrea Corso, Via Camastra 10, 96100 Siracusa, Italy, e-mail: voloerrante@yahoo.it. Michele Viganò, Via Ongetta 5, 21010 Germignaga, Varese, Italy, e-mail: mikivigano@yahoo.com

Appendix 1

List of species recorded during our survey on 1–9 February 2017. S = sound-recorded, P = photographed

Family / English name	Scientific name	Record
TINAMIDAE		
White-throated Tinamou	<i>Tinamus guttatus</i>	S
Cinereous Tinamou	<i>Crypturellus cinereus</i>	
Undulated Tinamou	<i>Crypturellus undulatus</i>	S
CRACIDAE		
Spix's Guan	<i>Penelope jacquacu</i>	
Speckled Chachalaca	<i>Ortalis guttata</i>	P
Nocturnal Curassow	<i>Nothocrax urumutum</i>	
ODONTOPHORIDAE		
Marbled Wood Quail	<i>Odontophorus gujanensis</i>	
COLUMBIDAE		
Pale-vented Pigeon	<i>Patagioenas cayennensis</i>	
Plumbeous Pigeon	<i>Patagioenas plumbea</i>	S
Ruddy Ground Dove	<i>Columbina talpacoti</i>	

CUCULIDAE

Smooth-billed Ani

Crotophaga ani

Squirrel Cuckoo

*Piaya cayana***NYCTIBIIDAE**

Common Potoo

*Nyctibius griseus***CAPRIMULGIDAE**

Sand-coloured Nighthawk

Chordeiles rupestris

Common Nighthawk

Chordeiles minor

P

Common Pauraque

*Nyctidromus albicollis***APODIDAE**

Black Swift / White-chinned Swift

Cypseloides niger / C. cryptus

P

Grey-rumped Swift

Chaetura cinereiventris

Short-tailed Swift

Chaetura brachyura

P

Fork-tailed Palm Swift

*Tachornis squamata***TROCHILIDAE**

Black-throated Hermit

Phaethornis atrimentalis

Reddish Hermit

Phaethornis ruber

Straight-billed Hermit

Phaethornis bourcierii

P

Great-billed Hermit

Phaethornis malaris

Green-tailed Goldthroat

Polytmus theresiae

P

Fork-tailed Woodnymph

Thalurania furcata

P

Glittering-throated Emerald

Amazilia fimbriata

P

RALLIDAE

Rufous-sided Crake

Laterallus melanophaius

S

Grey-breasted Crake

*Laterallus exilis***CHARADRIIDAE**

Southern Lapwing

*Vanellus chilensis***SCOLOPACIDAE**

Spotted Sandpiper

*Actitis macularius***JACANIDAE**

Wattled Jacana

*Jacana jacana***LARIDAE**

Yellow-billed Tern

Sternula superciliaris

Large-billed Tern

*Phaetusa simplex***ARDEIDAE**

Cattle Egret

Bubulcus ibis

Great Egret

Ardea alba

Snowy Egret

*Egretta thula***THRESKIORNITHIDAE**

Green Ibis

*Mesembrinibis cayennensis***CATHARTIDAE**

Black Vulture

Coragyps atratus

Greater Yellow-headed Vulture

*Cathartes melambrotus***ACCIPITRIDAE**

Pearl Kite

Gampsonyx swainsonii

P

Grey-headed Kite

Leptodon cayanensis

P

Plumbeous Kite

Ictinia plumbea

P

Roadside Hawk

*Rupornis magnirostris***STRIGIDAE**

Tropical Screech Owl

Megascops choliba

Tawny-bellied Screech Owl

*Megascops watsonii***TROGONIDAE**

Pavonine Quetzal

Pharomachrus pavoninus

S, P

Green-backed Trogon

Trogon viridis

Amazonian Trogon

*Trogon ramonianus***MOMOTIDAE**

Amazonian Motmot

*Momotus momota***ALCEDINIDAE**

Amazon Kingfisher

Chloroceryle amazona

American Pygmy Kingfisher

Chloroceryle aenea

GALBULIDAEParadise Jacamar
Great Jacamar*Galbula dea*
Jacamerops aureus

P

BUCCONIDAEWhite-fronted Nunbird
Swallow-winged Puffbird*Monasa morphoeus*
*Chelidoptera tenebrosa***CAPITONIDAE**

Gilded Barbet

*Capito auratus***RAMPHASTIDAE**White-throated Toucan
Toucanet sp.
Lettered Aracari
Many-banded Aracari*Ramphastos tucanus*
Selenidera sp.
Pteroglossus inscriptus
Pteroglossus pluricinctus

S

PICIDAEYellow-tufted Woodpecker
Little Woodpecker
Red-stained Woodpecker
Red-necked Woodpecker
Crimson-crested Woodpecker
Lineated Woodpecker
Scale-breasted Woodpecker
Yellow-throated Woodpecker*Melanerpes cruentatus*
Veniliornis passerinus
Veniliornis affinis
Campephilus rubricollis
Campephilus melanoleucos
Dryocopus lineatus
Celeus grammicus
Piculus flavigula

S

FALCONIDAESlaty-backed Forest Falcon
Red-throated Caracara
Black Caracara
Bat Falcon*Micrastur mirandollei*
Ibycter americanus
Daptrius ater
Falco rufigularis

S, P

PSITTACIDAECobalt-winged Parakeet
Orange-cheeked Parrot
Blue-headed Parrot
Short-tailed Parrot
Festive Parrot
Orange-winged Parrot
Blue-winged Parrotlet
Black-headed Parrot
Maroon-tailed Parakeet
Red-bellied Macaw
Chestnut-fronted Macaw
White-eyed Parakeet*Brotogeris cyanoptera*
Pyrilia barrabandi
Pionus menstruus
Graydidascalus brachyurus
Amazona festiva
Amazona amazonica
Forpus xanthopterygius
Pionites melanocephalus
Pyrrhura melanura
Orthopsittaca manilatus
Ara severus
Psittacara leucophthalmus

S

P

P

P

THAMNOPHILIDAEBarred Antshrike
Mouse-coloured Antshrike
White-shouldered Antshrike
Pearly Antshrike
Dusky-throated Antshrike
Cinereous Antshrike
Spot-winged Antshrike
Fulvous-throated Antwren
Rufous-tailed Antwren
Pygmy Antwren
White-flanked Antwren
Long-winged Antwren
Grey Antwren
Dugand's Antwren
Imeri Warbling Antbird
Yellow-browed Antbird
Black Antbird
Grey Antbird
Black-faced Antbird
Black-chinned Antbird
Black-headed Antbird
Slate-coloured Antbird*Thamnophilus doliatus*
Thamnophilus murinus
Thamnophilus aethiops
Megastictus margaritatus
Thamnomanes ardesiacus
Thamnomanes caesius
Pygiptila stellaris
Epinecrophylla pyrrhonota
Epinecrophylla erythrura
Myrmotherula brachyura
Myrmotherula axillaris
Myrmotherula longipennis
Myrmotherula menetriesii
Herpsilochmus dugandi
Hypocnemis flavescens
Hypocnemis hypoxantha
Cercomacroides serva
Cercomacra cinerascens
Myrmoborus myotherinus
Hypocnemoides melanopogon
Percnostola rufifrons
Myrmelastes schistaceus

S, P

S, P

S, P

S, P

S

S, P

S

S

S, P

S

S

S

S, P

S, P

White-shouldered Antbird	<i>Akletos melanoceps</i>	S
Hairy-crested Antbird	<i>Rhegmatorhina melanosticta</i>	S
Common Scale-backed Antbird	<i>Willisornis poecilinotus</i>	
Black-spotted Bare-eye	<i>Phlegopsis nigromaculata</i>	
GRALLARIDAE		
Thrush-like Antpitta	<i>Myrmothera campanisona</i>	
RHINOCRYPTIDAE		
Rusty-belted Tapaculo	<i>Liosceles thoracicus</i>	S
FURNARIIDAE		
Plain-brown Woodcreeper	<i>Dendrocincla fuliginosa</i>	
Wedge-billed Woodcreeper	<i>Glyphorhynchus spirurus</i>	S
Amazonian Barred Woodcreeper	<i>Dendrocolaptes certhia</i>	
Strong-billed Woodcreeper	<i>Xiphocolaptes promeropirhynchus</i>	
Buff-throated Woodcreeper	<i>Xiphorhynchus guttatus</i>	
Straight-billed Woodcreeper	<i>Dendroplex picus</i>	
Plain Xenops	<i>Xenops minutus</i>	
Chestnut-winged Foliage-gleaner	<i>Philydor erythropterum</i>	P
Chestnut-winged Hookbill	<i>Ancistrops strigilatus</i>	
Buff-throated Foliage-gleaner	<i>Automolus ochrolaemus</i>	
Olive-backed Foliage-gleaner	<i>Automolus infuscatus</i>	
TYRANNIDAE		
Yellow-crowned Tyrannulet	<i>Tyrannulus elatus</i>	S, P
Grey Elaenia	<i>Myiopagis caniceps</i>	
Slender-footed Tyrannulet	<i>Zimmerius gracilipes</i>	S, P
Spotted Tody-Flycatcher	<i>Todirostrum maculatum</i>	
Yellow-browed Tody-Flycatcher	<i>Todirostrum chrysocrotaphum</i>	P
Cinnamon Manakin-Tyrant	<i>Neopipo cinnamomea</i>	P
Ruddy-tailed Flycatcher	<i>Terentotriccus erythrurus</i>	
Eastern / Western Wood Pewee	<i>Contopus virens / C. sordidulus</i>	P
Piratic Flycatcher	<i>Legatus leucophaeus</i>	
Social Flycatcher	<i>Myiozetetes similis</i>	
Grey-capped Flycatcher	<i>Myiozetetes granadensis</i>	P
Great Kiskadee	<i>Pitangus sulphuratus</i>	P
Tropical Kingbird	<i>Tyrannus melancholicus</i>	
Drab Water Tyrant	<i>Ochthornis littoralis</i>	
Greyish Mourner	<i>Rhytipterna simplex</i>	
Short-crested Flycatcher	<i>Myiarchus ferox</i>	P
Rufous-tailed Flatbill	<i>Ramphotrigon ruficauda</i>	S, P
Citron-bellied Attila	<i>Attila citriniventris</i>	S
Bright-rumped Attila	<i>Attila spadiceus</i>	
COTINGIDAE		
Purple-throated Fruitcrow	<i>Querula purpurata</i>	S
Amazonian Umbrellabird	<i>Cephalopterus ornatus</i>	
Screaming Piha	<i>Lipaugus vociferans</i>	S
PIPRIDAE		
Dwarf Tyrant-Manakin	<i>Tyrannetes stolzmanni</i>	S
Blue-crowned Manakin	<i>Lepidothrix coronata</i>	P
Striolated Manakin	<i>Machaeropterus striolatus</i>	S
Golden-headed Manakin	<i>Ceratopipra erythrocephala</i>	P
TITYRIDAE		
Black-crowned Tityra	<i>Tityra inquisitor</i>	
Black-tailed Tityra	<i>Tityra cayana</i>	
Black-capped Becard	<i>Pachyramphus marginatus</i>	
Pink-throated Becard	<i>Pachyramphus minor</i>	
INCERTAE SEDIS		
Wing-barred Piprites	<i>Piprites chloris</i>	P
VIREONIDAE		
Dusky-capped Greenlet	<i>Pachysylvia hypoxantha</i>	
Red-eyed Vireo	<i>Vireo olivaceus</i>	P
CORVIDAE		
Violaceous Jay	<i>Cyanocorax violaceus</i>	S, P

HIRUNDINIDAE

White-banded Swallow	<i>Atticora fasciata</i>	P
Southern Rough-winged Swallow	<i>Stelgidopteryx ruficollis</i>	
Grey-breasted Martin	<i>Progne chalybea</i>	
White-winged Swallow	<i>Tachycineta albiventer</i>	P
Barn Swallow	<i>Hirundo rustica</i>	

TROGLODYTIDAE

Scaly-breasted Wren	<i>Microcerculus marginatus</i>	
House Wren	<i>Troglodytes aedon</i>	S
Thrush-like Wren	<i>Campylorhynchus turdinus</i>	
Coraya Wren	<i>Pheugopedius coraya</i>	
White-breasted Wood Wren	<i>Henicorhina leucosticta</i>	

POLIOPTILIDAE

Collared Gnatwren	<i>Microbates collaris</i>	
-------------------	----------------------------	--

TURDIDAE

Lawrence's Thrush	<i>Turdus lawrencii</i>	S
Black-billed Thrush	<i>Turdus ignobilis</i>	S, P
White-necked Thrush	<i>Turdus albicollis</i>	S

THRAUPIDAE

Blue-black Grassquit	<i>Volatinia jacarina</i>	
Flame-crested Tanager	<i>Tachyphonus cristatus</i>	
Fulvous-crested Tanager	<i>Tachyphonus surinamus</i>	P
Silver-beaked Tanager	<i>Ramphocelus carbo</i>	
Purple Honeycreeper	<i>Cyanerpes caeruleus</i>	
Chestnut-bellied Seedeater	<i>Sporophila castaneiventris</i>	
Chestnut-bellied Seed Finch	<i>Sporophila angolensis</i>	P
Buff-throated Saltator	<i>Saltator maximus</i>	
Greyish Saltator	<i>Saltator coerulescens</i>	
Slate-coloured Grosbeak	<i>Saltator grossus</i>	
Bananaquit	<i>Coereba flaveola</i>	
Magpie Tanager	<i>Cissopis leverianus</i>	
Paradise Tanager	<i>Tangara chilensis</i>	
Bay-headed Tanager	<i>Tangara gyrola</i>	
Green-and-gold Tanager	<i>Tangara schrankii</i>	
Blue-grey Tanager	<i>Thraupis episcopus</i>	
Palm Tanager	<i>Thraupis palmarum</i>	

EMBERIZIDAE

Yellow-browed Sparrow	<i>Ammodramus aurifrons</i>	
-----------------------	-----------------------------	--

ICTERIDAE

Russet-backed Oropendola	<i>Psarocolius angustifrons</i>	
Yellow-rumped Caciique	<i>Cacicus cela</i>	
Giant Cowbird	<i>Molothrus oryzivorus</i>	

FRINGILLIDAE

White-vented Euphonia	<i>Euphonia minuta</i>	
Orange-bellied Euphonia	<i>Euphonia xanthogaster</i>	
Rufous-bellied Euphonia	<i>Euphonia rufiventris</i>	

A range extension for Shelley's Sparrow *Passer shelleyi* in south-west Kenya, with comments on local sympatry with Kenya Rufous Sparrow *P. rufocinctus*

by James Bradley, Nathan Hentze & David Guarnieri

Received 2 May 2018; revised 16 July 2018; published 24 September 2018

<http://zoobank.org/urn:lsid:zoobank.org:pub:9E47E8E5-D795-46FC-88A8-693AA08CFFC0>

SUMMARY.—Aside from mainly anecdotal sight reports, Shelley's Sparrow *Passer shelleyi* has been unrecorded in Kenya for 100 years since a specimen collected in 1917. Here we describe a newly discovered population south of the equator and report brief field observations of its occurrence alongside Kenya Rufous Sparrow *Passer rufocinctus*, with which it was formerly treated as conspecific. This is the first known location where the two species occur sympatrically, potentially enabling future behavioural and ecological studies between these closely related taxa.

The Rufous Sparrow superspecies has been subject to various taxonomic treatments. In East Africa, Shelley's Sparrow *Passer shelleyi* (also known as Shelley's Rufous or White Nile Sparrow) has been considered conspecific with Kenya Rufous Sparrow *P. rufocinctus* (Zimmerman *et al.* 1996, EANHS 2009), and more widely in Africa with Great Sparrow *P. motitensis*, Kordofan Sparrow *P. cordofanicus*, Socotra Sparrow *P. insularis* and Cape Verde Sparrow *P. iagoensis* (Summers-Smith 1988, Dickinson 2003). With two notable exceptions (Dickinson & Christidis 2014, Turner & Pearson 2015), most authorities now accept these forms as being specifically distinct on the basis of their allopatric ranges, consistent morphological differences and absence of hybrids in any populations (Fry & Keith 2004, del Hoyo & Collar 2016, Clements *et al.* 2017, Gill & Donsker 2018).

In Kenya, Shelley's Sparrow is considered rare and poorly known. It was collected in 1917 in the northern Kerio Valley (Lewis & Pomeroy 1989; D. A. Turner pers. comm.), but has otherwise been reported on only a few occasions from the Kongelai / Kunyao area, and not since the 1980s (Zimmerman *et al.* 1996, Fry & Keith 2004; D. A. Turner pers. comm.). Both of these locations are on the south-east periphery of the species' acknowledged range, in central Uganda, southern South Sudan, southern Ethiopia and northern Somalia (Fry & Keith 2004, Summers-Smith 2018). Kenya Rufous Sparrow, in contrast, is a widespread and common resident in the central Kenya highlands, with regular post-breeding wandering to lower elevations of western Kenya (Lewis & Pomeroy 1989, Zimmerman *et al.* 1996). In north-west Kenya, the ranges of the two species approach each other sufficiently closely (c.10–20 km in the Kongelai / Mt. Elgon area) that they have been considered parapatric (Summers-Smith 1988), although they have not been reported to overlap.

It was therefore surprising to discover a population of Shelley's Sparrow in south-west Kenya in March and November 2017, more than 250 km south of its reported distribution, and in an area where Kenya Rufous Sparrow also occurs. Here we document our observations of Shelley's and Kenya Rufous Sparrows in the Ruma National Park area, and briefly discuss the current taxonomic treatment of the two forms in the context of this apparent sympatry.

Field observations

Shelley's Sparrow.— A male was first observed by NH & JB drinking from a rain puddle at the Nyatoto Gate of Ruma National Park (00°37'05", 34°17.5'E), Homa Bay County, on 27 March 2017. Given that Kenya Rufous Sparrow had been observed nearby (but outside the park) earlier in the day, and attention was focused on other species visiting the puddle, it was given only a cursory glance. It was identified retrospectively as a Shelley's Sparrow from photographs (Fig. 1). This is the first record of the species south of the equator.

On a follow-up visit to Ruma National Park in late November 2017, JB & DG observed up to 50 Shelley's Sparrows inside the park, permitting additional photographs and close study of both sexes (Fig. 2), as well as nests (Fig. 3). Most individuals formed part of four conspecific flocks of 6–15 males and females that were found along roadsides in areas of short (<30 cm) but dense grassland on black clay soils, from where they would collectively flush into Desert Dates *Balanites aegyptiaca* or Ant-gall Acacias *Acacia drepanolobium*, which were thinly scattered across the grassland. A smaller number were observed in pairs, separated by 200 m or more, nestbuilding in areas with taller (<60 cm) grass cover where *Acacia* also grew more densely. Four complete or near-complete nests were studied closely, all being placed centrally c.2–3 m above ground level in 3–5 m-tall *Acacia* trees. They were constructed of long dry grass stems and comprised scruffy-looking pineapple-sized balls among the dense thorns, with a well-protected entrance hole at the side. Females were observed taking grass to two of the nests while males perched nearby and uttered a toneless *chirp* contact call (e.g., <https://www.xeno-canto.org/395955>) which we found to be indistinguishable from calls of Kenya Rufous Sparrow. At two other nests, only males were seen, suggesting the females may have been inside the structures. Given the small area we



Figure 1. Male Shelley's Sparrow *Passer shelleyi*, Nyatoto Gate, Ruma National Park, Kenya, 27 March 2017 (Nathan Hentze)



Figure 2. Male (left) and female (right) Shelley's Sparrows *Passer shelleyi* near a nest, Ruma National Park, Kenya, 27 November 2017 (James Bradley and David Guarnieri)



Figure 3. Typical Shelley's Sparrow *Passer shelleyi* nest in an *Acacia drepanolobium*, in moderately treed grasslands on black clay soils, Ruma National Park, Kenya, 27 November 2017 (James Bradley)

visited, and extensive habitat available, it is possible that many more pairs were initiating breeding throughout the park.

All males observed, both in March and November 2017, were readily separable from Kenya Rufous Sparrow on the basis of the dark eye, and black post-ocular eyeline that bordered a crescent of cinnamon feathers at the posterior edge of the ear-coverts. Also noticeable in all males were the white cheeks, lightly washed grey in some individuals but always brighter than in Kenya Rufous Sparrow. The supraloral area was also bold and white, much more so than is usually true of Kenya Rufous Sparrow. Similarly the underparts, while washed pale grey on the breast and flanks, were otherwise whitish and brighter than typical of Kenya Rufous Sparrow. Females were very similar to female

Kenya Rufous Sparrow but for a dark eye. None of the males showed any variation in the pattern of white-black-cinnamon on the face that might suggest hybrids with Kenya Rufous Sparrow. Further examination has revealed no differences compared to images of Shelley's Sparrows from north-west Uganda east through southern Ethiopia (where red soils may afford the underparts a rusty tinge).

Kenya Rufous Sparrow.—Previous records of 'Rufous Sparrow' in this region, whether correctly or not, have been attributed to Kenya Rufous Sparrow without further details, and its status and ecology locally is not well known. In October 2014 JB observed a pair of Kenya Rufous Sparrows on the road outside the north-west boundary of Ruma National Park, on the outskirts of a series of homesteads on a low hill, with a rocky and sparse ground cover, and a moderate cover of mixed semi-deciduous trees but few *Acacia*. In March 2017, JB & NH observed a single male c.1 km outside Nyatoto Gate, also near a homestead. The habitat comprised sparse ground cover and scattered medium-sized *Balanites aegyptiaca* and small *Acacia drepanolobium* between some fallow farm fields. Both males were seen well and were typical pale-eyed individuals, lacking the black crescent bordering the ear-coverts of Shelley's Sparrow. Both locations outside the park where the species was observed were subject to high levels of disturbance, both by human presence and grazing livestock, and were further characterised by a comparatively low abundance of *Acacia* and very limited grass cover.

Discussion

The presence of Shelley's Sparrows in south-west Kenya represents a significant southward range extension, and possibly the only currently known population in the country. Perhaps more significantly, Ruma National Park may also be the only area where both this species and Kenya Rufous Sparrow occur sympatrically. Although Kenya Rufous Sparrow has not yet been reported to breed, our observations suggest that, where they occur together, the two species are segregated by habitat preferences. While both occupy savanna grasslands with *Acacia drepanolobium* elsewhere in their respective ranges (Fry & Keith 2004), it is Shelley's Sparrow that uses this habitat around Ruma National Park while Kenya Rufous Sparrow appears to occupy only disturbed habitats in the vicinity of human habitation. This is also consistent with Summers-Smith (2018) who reported that Shelley's Sparrow shuns habitation while Kenya Rufous Sparrow occurs in the vicinity of humans in many areas.

Combined with an apparent absence of hybrids, our observations of different habitat use support the most widely accepted current treatment of these two taxa as species. Elsewhere, there is no clinal variation in plumage where the two come into close contact and they are reported to show the greatest differences between any two of the species in the Rufous Sparrow complex (Summers-Smith 1988). Additional observations should aim to confirm whether Shelley's Sparrow is a year-round resident or only a migrant breeder to Ruma National Park, and if Kenya Rufous Sparrow breeds locally or merely visits the area in the non-breeding season. As the first documented evidence of their sympatry, further investigation at this locality into behavioural interactions and differences in ecology and vocalisations would be of value.

Acknowledgements

We thank Don Turner for providing useful information on historic occurrence of Shelley's Sparrow in Kenya, two referees and David Bradley for a helpful review.

References:

- Clements, J. F., Schulenberg, T. S., Iliff, M. J., Roberson, D., Fredericks, T. A., Sullivan, B. L. & Wood, C. L. 2017. The eBird / Clements checklist of birds of the world: v 2016. <http://www.birds.cornell.edu/clementschecklist/download/>.
- Dickinson, E. C. (ed.) 2003. *The Howard & Moore complete checklist of the birds of the world*. Third edn. Christopher Helm, London.
- Dickinson, E. C. & Christidis, L. (eds.) 2014. *The Howard and Moore complete checklist of the birds of the world*, vol. 2. Fourth edn. Aves Press, Eastbourne.
- EANHS. 2009. *Checklist of the birds of Kenya*. Bird Committee, East Africa Natural History Society, Nairobi.
- Fry, C. H. & Keith, S. (eds.) 2004. *The birds of Africa*, vol. 7. Christopher Helm, London.
- Gill, F. & Donsker, D. (eds.) 2018. IOC world bird list (v 8.1). doi: 10.14344/IOC.ML.8.1.
- del Hoyo, J. & Collar, N. J. 2016. *HBW and BirdLife International illustrated checklist of the birds of the world*, vol. 2. Lynx Edicions, Barcelona
- Lewis, A. & Pomeroy, D. 1989. *Bird Atlas of Kenya*. A. A. Balkema, Rotterdam.
- Summers-Smith, J. D. 1988. *The sparrows; a study of the genus Passer*. T. & A. D. Poyser, Calton.
- Summers-Smith, D. 2018. White Nile Sparrow (*Passer shelleyi*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona (retrieved from <https://www.hbw.com/node/60935> on 1 January 2018).
- Turner, D. A. & Pearson, D. J. 2015. Systematic and taxonomic issues concerning some East African bird species, notably those where treatment varies between authors. *Scopus* 34: 1–23.
- Zimmerman, D. A., Turner, D. A. & Pearson, D. J. 1996. *Birds of Kenya and northern Tanzania*. Russel Friedman Books, South Africa.
- Addresses:* James Bradley, 7961 East Saanich Rd., Saanichton, British Columbia, Canada, V8M 1T4. Nathan Hentze, 4016 Grange Rd., Victoria, British Columbia, Canada, V8Z 4V3. David Guarnieri, 91 Lake Avenue, Metuchen, NJ 08840, USA.



In support of Pinto: Pernambuco as the type locality of *Thalurania watertonii*

by N. J. Collar & G. M. Kirwan

Received 30 May 2018; revised 1 July 2018; published 24 September 2018

<http://zoobank.org/urn:lsid:zoobank.org:pub:C23AF243-0B52-48DE-92A2-2CF21408BE85>

SUMMARY.—Long-tailed Woodnymph *Thalurania watertonii* is known with certainty from Pernambuco, Alagoas and Sergipe, north-east Brazil, but the type specimen is still listed, albeit with reservations, as having been taken 3,000 km to the west in Guyana. The collector, Charles Waterton, gave the specimen to George Loddiges in 1844, claiming he took it 20 years earlier on the Mibiri Creek, south of what is now Georgetown. However Waterton, who had a particular interest in hummingbirds, also collected 58 birds in forest near Recife, Pernambuco, in 1816. Given these facts, the total absence of other records of the species from Guyana and its replacement there by Fork-tailed Woodnymph *T. furcata*, it seems far more likely that Waterton simply misremembered where he collected his specimen of *T. watertonii* and that the type locality is, as O. M. O. Pinto judged, Pernambuco (more specifically coastal Pernambuco).

Long-tailed Woodnymph *Thalurania watertonii* currently has the IUCN Red List status of Endangered, owing to the combination of its small estimated global population (<2,500 mature individuals) and continuing forest loss within its small, fragmented range in the coastal states of Pernambuco, Alagoas, Sergipe and possibly Bahia, north-east Brazil (Pacheco & Whitney 1995, BirdLife International 2017). Confidence in this evaluation of its conservation status is slightly weakened by the fact that its type locality is in Guyana (Bourcier 1847); and although most authorities have chosen to set this aside as an error, almost no attempt has been made to investigate the circumstances in which a mistake could have arisen. Consequently, the possibility that the species might occur in Guyana (and therefore, through an increased geographical extent of occurrence, enjoy a less troubling conservation status), however implausible, has not fully been explored or rejected.

The specimen on which the name *Trochilus watertonii* was based was found among the rich body of hummingbird material left behind by the renowned English botanist and horticulturist George Loddiges (1786–1846) after his death. In describing the species, Bourcier (1847) indicated that the name had already been used by Loddiges in his unpublished manuscript notes, and that the type locality was ‘Mibiri Creek, à 40 mille de la rivière Essequibo’.

At some stage in the 19th century the Loddiges collection of hummingbirds became lost, until A. L. Butler traced it and enabled its acquisition by what is now the Natural History Museum (NHMUK) at Tring, UK, along with Loddiges’s notes (Warr 1996). Loddiges’s acquisition of what later became the type of *Trochilus watertonii*, now NHMUK 1933.11.14.12, was a ten-year waiting game with the explorer and naturalist Charles Waterton (1782–1865), who, following the publication in 1825 of his remarkable *Wanderings in South America*, had become a celebrated but also (owing largely to an ill-advised taxidermical prank he played with an artifice he called his ‘Nondescript’) notorious figure in English public life (Blackburn 1989, Morris 2014). According to excerpts from manuscript notebooks published by Butler (1926), Loddiges first saw the specimen on 27 August 1834 during a visit to



Figure 1. Sketch by George Loddiges of the ventral view of the type specimen of *Thalurania watertonii*, wings held open by an unseen hand (Loddiges 1826–45, notebook 6, p. 455) (Harry Taylor © Natural History Museum)



Figure 2. Sketch by George Loddiges of the dorsal view of the type specimen of *Thalurania watertonii*, wings held open by an unseen hand (Loddiges 1826–45, notebook 6, p. 456) (Harry Taylor © Natural History Museum)

Waterton's home at Walton Hall, near Wakefield, in (now West) Yorkshire. Butler (1926: 334) mentioned that Loddiges immediately recognised it as a new species, writing a description and drawing two sketches of it in his notebook. This text (Loddiges 1826–1845, notebook 6, pages numbered 455–457) is introduced (p. 454) by a list of hummingbird taxa held by Waterton at Walton Hall, ending with '*furcatus*' followed by 'new species like *furcatus*'. The manuscript continues (some punctuation and notes in square brackets added):

'Waterton has a new species connecting *glaucopis* [Violet-capped Woodnymph *T. glaucopis*] with *furcatus* & *eriphile* [*T. f. eriphile* and *T. f. baeri* 'were in the past separated as *T. eriphile*': Schuchmann 1999]. Tail longer than *glaucopis* like a young swallow-t [Swallow-tailed Hummingbird *Eupetomena macroura*], colour of *hirundinaceus* [old name for *E. macroura*], middle feathers broad and truncated. Back entirely luminous blue. Throat, neck, breast & belly to the vent like *glaucopis* but more golden. Sides of the body blue colour of *furcatus* but this colour is only under the wings. Back from the shoulders to halfway down the body rich violaceous blue like *furcatus* but much more of the blue;

this also extends to the upper part of the wings. The lower part of back going into [the] tail covers the colour of *waglerii* [Blue-headed Hummingbird *Cyanophaea bicolor*] and the tail appeared the colour of *waglerii*. Head appears luminous like *eriphile* but possibly not so bright. I could not get light upon it. This species was shot by Mr Waterton in Guiana. It differs from *glaucopis* in having blue sides and a longer tail, and also from *furcatus* and *eriphile* in having the whole front green and only blue under the wings with much more of the violaceous colour on the back and a far longer and more forked tail than either—a fine and very distinct species.'

The sketches (Figs. 1–2) clearly show the slight rightwards contortion of the head and neck still present in the type, but the wings are shown held open by manipulation, not as in the type at rest.

Almost ten years later, on 15 August 1844, he (Loddiges 1826–1845, notebook 10, page numbered 731; text slightly different from the same quotation in Butler 1926: 335, including the spelling of *watertonii*) wrote that

'Waterton presented me with his bird which I call *Trochilus watertonii*.[.] He says he shot it 20 years ago at Mr Edmonston's [*sic*; Edmonstone as in Butler (1926) is correct] Mibirri Creek, 40 miles up the Essequibo and there are plenty of the same species there from October to Christmas.'

It might just be noted first that 'up the Essequibo' is an inaccuracy evidently based on a memory lapse on Waterton's part, since Waterton (1825: 79, 153) explicitly stated that Mibirri Creek is a tributary of (and reached via) the Demerara River, and second that, although Stephens & Traylor (1985) were unable to locate this watercourse, it is shown on a version of Google Maps as being immediately adjacent to the Santa Mission, whose coordinates are given as 06°33'35.1"N, 58°20'13.3"W, and indeed as flowing into the Demerara (albeit only c.40 km rather than 40 miles below Georgetown). Stephens & Traylor (1985) appeared to be copying Butler in indicating a collection date of 'ca. 1802', but Waterton (1825) clearly placed the date of his first visit to Mibirri Creek as 1812 and his last as 1820.

For several years after Bourcier's description, *Trochilus watertonii* was known only from the type locality in Guyana, but then Gould (1861) reported that he had received two specimens 'not I believe [from] Demerara [= Guyana], but towards the confines of Brazil, and probably near the embouchure of the great river Amazon'. Both specimens are males and stored in NHMUK (1888.7.25.294 and 295). Nevertheless, Salvin & Elliot (1873) and Elliot (1878) listed the species as occurring only in Guyana. Subsequently, however, Salvin (1892: 78) reported that 'Count von Berlepsch has recently received specimens from Pernambuco' (north-east Brazil) and Boucard (1894–95: 105) stated that 'I have only two males, which were found in a collection of Brazilian birds'. Gounelle (1909) collected three specimens in 1892 at Peri-Peri (= Pery Pery, or Pirituba, 08°05'S, 35°22'W), in eastern Pernambuco, c.50 km west of Recife (one being sent to the American Museum of Natural History, New York [AMNH 481566]: Pinto 1954).

Consequently, by the time Hartert (1900) assembled his review of the Trochilidae, he listed the range of *Thalurania watertonii* as 'eastern Brazil; allegedly also in Guyana, which is highly uncertain' (our translation), while Brabourne & Chubb (1912) and likewise Cory (1918) stated its range to be 'eastern Brazil', with no mention of Guyana, other than the type locality; and Chubb (1916) omitted all reference to it. However, Butler (1926), having quoted from Loddiges's notebooks about the acquisition of the specimen, mentioned that 'recent authors—Salvin, Boucard, Hartert, Brabourne and Chubb, Cory, etc.—are united in throwing doubt on the British Guiana locality of the type of this species, solely on

the grounds that all subsequent examples have come from Brazil', but insisted: 'There is nothing vague about these particulars except the date, and I think the type-locality Mibirri Creek should be accepted.'

After Hartert, Peters (1945: 48) was apparently the first authority specifically to question the validity of Bourcier's type locality and thus Waterton's claim as to where he had collected the species. Nevertheless, Peters still listed the range of *T. watertonii* as 'British Guiana (where known only from the type); coastal region of eastern Brazil from Pará to Bahia' (Bahia having been mentioned as part of the range by Simon 1921: 83). Almost simultaneously, Pinto (1944) considered its distribution to encompass 'Guianas, north and east Brazil; coastal zone of Pará (Foz do Amazonas), Pernambuco and Bahia.' Later, however, Pinto (1954) considered the Guyana type locality to be 'extremely dubious' (our translation), and recommended that it be substituted with 'Pernambuco' based on the fact that Waterton had visited the state's interior in 1816, although in fact the latter's travels were restricted to coastal areas (see below). Pinto (1978) reiterated his belief that the type locality should be emended. Snyder (1966) placed the species in square brackets for Guyana, while Braun *et al.* (2000) and Restall *et al.* (2006) made no mention of it.

The majority of Waterton's record of his *Wanderings* is devoted to his explorations of the Guianas in four expeditions spanning the years 1812–24, although as his title indicates his journeys took him considerably further. The fact that he spent a little time in Brazil seems generally to have been overlooked, despite a reference to his collecting in Pernambuco and Maranhão by Sick (1985). Pernambuco being within the range of *Thalurania watertonii*, the question arises whether Waterton might have collected the type there rather than in Guyana.

The answer is unequivocally yes. Although all four of the 'journeys' that Waterton describes in his *Wanderings* focused on the Guianas, it was for Pernambuco, Brazil, that his ship set sail in March 1816 at the start of his second journey. How long he stayed there is not clear, but it was evidently several weeks, as suggested by the reference below to his departure being triggered by the advent of the rainy season, which in the state generally runs from May to July (Anon. 2017). At any rate, during that time he clearly recorded that he visited coastal rainforest—the habitat of *T. watertonii* (Schuchmann 1999)—and collected birds. He used what he called Pernambuco 'city' (Recife) and Olinda, immediately to the north, as his bases.

'At Olinda there is a national botanical garden; it wants space, produce, and improvement. The forests, which are several leagues off, abound with birds, beasts, insects, and serpents. Besides a brilliant plumage, many of the birds have a very fine song' (Waterton 1825: 98).

He followed this with brief accounts of a number of passerine birds, including the collection of one that was mobbing a snake, and then announced:

'It was now the rainy season; the birds were moulting; fifty-eight specimens of the handsomest of them in the neighbourhood of Pernambuco had been collected; and it was time to proceed elsewhere' (Waterton 1825: 102).

While it is not explicit that a hummingbird was one of these 58, it is certain that Waterton was very interested in hummingbirds. Moreover, he particularly writes about them in the subsequent part of this second journey, when he returned north-west from Pernambuco to his much-favoured Guianas and to the port he arrived in on his first journey, Stabroek (Georgetown). Having described human life there and in other coastal towns, he turned his attention to 'the feathered tribe' and spent over two pages discoursing on

hummingbirds, which he thought were, through their iridescent plumages, 'entitled to the first place in the list of the birds of the new world'. This in no way led him to shrink from collecting them: 'On opening the stomach of the humming-bird, dead insects are almost always found there' (Waterton 1825: 116). That indeed he collected many hummingbirds is apparent from an entry in the explanatory index by the editor of a posthumous re-issue of the *Wanderings*, where Waterton is quoted from an unknown source as follows: 'Authors are divided as to the exact kind of food which humming-birds require. In all the species which I have inspected (and I have inspected not a few) I have found insects, or fragments of insects, in the oesophagus' (Waterton 1879: 424).

Our evidence is circumstantial, but we think it is compelling. *Thalurania watertonii* is confined to forest in a highly restricted range in Pernambuco, Alagoas and Sergipe, Brazil (BirdLife International 2017). Since the collection of the type it has never been recorded in Guyana, where the supposed type locality is just under 3,000 km from Recife. (We judge that the ascription 'British Guiana' or 'Guiana' on the labels of three specimens in NHMUK, 1887.3.22.1009, 1887.3.22.1010 and 1913.3.20.320, was curatorial guesswork based on the reported type locality.) Waterton visited forest within the range of the species in Pernambuco and reported that he collected 58 specimens of birds at the time; and we know that he was a habitual collector of hummingbirds. In 1844 he told Loddiges that he collected the type 'twenty years ago', which would have been on his fourth journey, when he again went up the Essequibo River to explore. However, in the Guianas he would very probably have been familiar with a closely related and similar-looking species, the Fork-tailed Woodnymph *T. furcata*, which is widespread across northern South America in lowlands and foothills but is replaced by *T. watertonii* in north-east Brazil (see maps in BirdLife International 2017).

Waterton bequeathed his natural history collections to Stonyhurst College, the school where he was educated. Apart from a few cases, the material is now housed, some of it on display (including the notorious Nondescript), in Wakefield Museum (Wakefield being Waterton's birthplace). A manuscript catalogue of this material exists, but does not list the place of origin of the hummingbirds. One of us (NJC) visited Wakefield Museum and Stonyhurst College on 17 November 2017 and inspected the glass cases within which Waterton's hummingbirds are preserved; none proved to have a label, and none was either a Fork-tailed or a Long-tailed Woodnymph. This brief exercise, plus an inquiry at the National Museums Scotland concerning their collection of Waterton's correspondence (Anon. 2018) in case a list of the 58 specimens collected in Pernambuco might be filed within it (none found: G. Rogers *in litt.* 2018), exhausted seemingly the last possible opportunity to shed further light on where *T. watertonii* was first collected (unless stable isotope or genetic analysis could one day be called into service), but we believe we have enough circumstantial evidence to argue that, many years after the event, Waterton simply misremembered (in both 1834 and 1844) the site and time of his collection of the type of *T. watertonii* (just as he evidently misremembered that the Mibiri Creek was a tributary of the Demerara not the Essequibo River). We therefore support Pinto's reassignment of the type locality of *T. watertonii* to 'Pernambuco' and suggest that it might be further delimited to 'coastal Pernambuco'.

For such a rare species, known from comparatively few definite localities and specimens—albeit Las-Casas & Azevedo-Júnior (2009) mentioned 28 of the latter in the Coleção Ornitológica, Universidade Federal de Pernambuco, Recife—the range of Long-tailed Woodnymph has been subject to considerable uncertainty in the literature. Apart from the puzzle over the type locality, the suggestion that the species' range extended as far north-west along the Brazilian coastline as the mouth of the Amazon, first made by Gould (1861), was being repeated as late as the 1940s (Pinto 1944, Peters 1945), despite the lack of tangible

evidence and the obvious uncertainty of the initial and unique report of its presence there. Moreover, the evidence that the species was ever recorded in Bahia is far from clear, resting on an assertion in Simon (1921) and a suggestion in Pacheco & Whitney (1995), and needs substantiation. Indeed, a complete inventory of specimen material relating to *Thalurania watertonii*, with localities, dates and collectors, conflated with all dependable observer records, would greatly help clarify the conservation status and requirements of this species.

Acknowledgements

Stephanie Webb at Wakefield Museum and Joe Reed, Assistant Curator, Stonyhurst College, were most helpful in answering our inquiries. Glauco Pereira, Samantha Palhona and Marco Aurélio Crozariol kindly assisted with some literature. Mark Adams and Hein van Grouw permitted access to specimens, including the type, of *Thalurania watertonii* at the Natural History Museum, Tring, where Alison Harding also gave much help accessing Loddiges's manuscript material and facilitated the photographs of Loddiges's sketches (kindly taken by Harry Taylor). Georgina Rogers graciously checked Waterton papers at the National Museums Scotland. Pat Morris, Robert Prÿs-Jones and Frank Steinheimer were most helpful referees.

References:

- Anon. 2017. https://en.wikipedia.org/wiki/Climate_of_Brazil (accessed 24 August 2017).
- Anon. 2018. <https://archiveshub.jisc.ac.uk/search/archives/03959150-f47f-308a-8eed-9c09900e2a9e> (accessed 1 June 2018).
- BirdLife International. 2017. Species factsheets: *Thalurania watertonii* and *T. furcata*. <http://www.birdlife.org> (accessed on 23 August 2017).
- Blackburn, J. 1989. *Charles Waterton, 1782–1865: traveller and conservationist*. Bodley Head, London.
- Boucard, A. 1894–95. *Genera of humming birds*. Privately published, London.
- Bourcier, J. 1847. Description de quinze espèces de Trochilidées du cabinet de M. Loddiges. *Proc. Zool. Soc. Lond.* 1847: 42–47.
- Brabourne, W. & Chubb, C. 1912. *The birds of South America*. R. H. Porter, London.
- Braun, M. J., Finch, D. W., Robbins, M. B. & Schmidt, B. K. 2000. *A field checklist of the birds of Guyana*. Smithsonian Institution, Washington, DC.
- Butler, A. L. 1926. Some notes on the humming-birds included in Chubb's 'Birds of British Guiana'. *Ibis* 68: 333–339.
- Chubb, C. 1916. *The birds of British Guiana*, vol. 1. Bernard Quaritch, London.
- Cory, C. B. 1918. Catalogue of birds of the Americas and adjacent islands, pt. 2(2). *Publ. Field Mus. Nat. Hist. (Zool. Ser.)* 197.
- Elliot, D. G. 1878. A classification and synopsis of the Trochilidae. *Smiths. Contrib. Know.* 317.
- Gould, J. 1861. *A monograph of the Trochilidae, or family of humming-birds*, vol. 2. Taylor & Francis, London.
- Gounelle, E. 1909. Contribution à l'étude de la distribution géographique des Trochilidés dans le Brésil central et oriental. *Ornis* 13: 173–183.
- Hartert, E. 1900. Trochilidae. Issue 9 in Schulze, F. E. (ed.) *Das Tierreich*. R. Friedländer & Sohn, Berlin.
- Las-Casas, F. M. G. & Azevedo-Júnior, S. M. 2009. Dimorfismo sexual de tamanho no beija-flor-de-costas-violetas *Thalurania watertonii* (Bourcier, 1847) (Aves: Trochilidae): implicações ecológicas. *Ornithologia* 3: 83–89.
- Loddiges, G. 1826–1845. Manuscript collection held in Natural History Museum, Tring.
- Morris, P. A. 2014. *Charles Waterton (1782–1865) and his eccentric taxidermy*. MPM Publishing, Ascot.
- Pacheco, J. F. & Whitney, B. M. 1995. Range extensions for some birds in northeastern Brazil. *Bull. Brit. Orn. Cl.* 115: 157–163.
- Peters, J. L. 1945. *Check-list of birds of the world*, vol. 5. Harvard Univ. Press, Cambridge, MA.
- Pinto, O. M. O. 1944. *Catálogo das aves do Brasil. Segunda parte*. Departamento do Zoologia, São Paulo.
- Pinto, O. M. O. 1954. Resultados ornitológicos de duas viagens científicas ao Estado de Alagoas. *Pap. Avuls. Dept. Zool. São Paulo* 12: 1–98.
- Pinto, O. M. O. 1978. *Novo catálogo das aves do Brasil. Primeira parte*. Conselho Nacional de Desenvolvimento Científico e Tecnológico, São Paulo.
- Restall, R., Rodner, C. & Lentino, M. 2006. *Birds of northern South America: an identification guide*, 2 vols. Christopher Helm, London.
- Salvin, O. 1892. Suborder Trochili. Pp. 27–433 in Hartert, E. & Salvin, O. (eds.) *Catalogue of the birds in the British Museum*, vol. 16. Trustees of the Brit. Mus. (Nat. Hist.), London.
- Salvin, O. & Elliot, D. G. 1873. Notes on the Trochilidae. The genus *Thalurania*. *Ibis* (3)3: 353–361.
- Schuchmann, K. L. 1999. Family Trochilidae (hummingbirds). Pp. 468–680 in del Hoyo, J., Elliott, A. & Sargatal, J. (eds.) *Handbook of the birds of the world*, vol. 5. Lynx Edicions, Barcelona.
- Sick, H. 1985. *Ornithologia brasileira, uma introdução*. Ed. Universidade de Brasília.
- Simon, E. 1921. *Histoire naturelle des trochilidés (synopsis et catalogue)*. Ed. Encyclopédie Roret, Paris.

- Snyder, D. F. 1966. *The birds of Guyana*. Peabody Mus., Salem, MA.
- Stephens, L. & Traylor, M. A. 1985. *Ornithological gazetteer of the Guianas*. Mus. Comp. Zool., Cambridge, MA.
- Warr, F. E. 1996. *Manuscripts and drawings in the Ornithology and Rothschild Libraries of The Natural History Museum at Tring*. British Ornithologists' Club Occ. Publ. 2.
- Waterton, C. 1825. *Wanderings in South America, the north-west of the United States, and the Antilles, in the years 1812, 1816, 1820, & 1824*. J. Mawman, London.
- Waterton, C. 1879. *Wanderings in South America, the north-west of the United States, and the Antilles, in the years 1812, 1816, 1820, & 1824*. Edited, with biographical introduction and explanatory index, by the Rev. J. G. Wood. Macmillan, London.

Addresses: N. J. Collar, BirdLife International, The David Attenborough Building, Pembroke Street, Cambridge CB2 3QZ, UK, and Bird Group, Dept. of Life Sciences, Natural History Museum, Akeman Street, Tring, Herts. HP23 6AP, UK, e-mail: nigel.collar@birdlife.org. G. M. Kirwan, Field Museum of Natural History, 1400 South Lakeshore Drive, Chicago, IL 60605, USA, e-mail: GMKirwan@aol.com



First record of White-faced Ibis *Plegadis chihi* in the West Indies

by Arturo Kirkconnell Posada, Arturo Kirkconnell & Guy M. Kirwan

Received 28 May 2018; revised 30 August 2018; published 24 September 2018

<http://zoobank.org/urn:lsid:zoobank.org:pub:6622EE25-FDBE-4269-A14C-AC7BEA0057E5>

White-faced Ibis *Plegadis chihi* occurs in two strikingly disjunct populations (Matheu *et al.* 2018). The northern one breeds at wetlands in south-west Canada (in southern Alberta), across the western and central USA (south to coastal Louisiana and Texas) and in Mexico; it winters in the southern USA south to Guatemala and El Salvador, exceptionally Costa Rica (Stiles & Skutch 1989, AOU 1998). The population in southern South America is believed to be largely resident, from south-east Bolivia, Paraguay and southern Brazil to north-central Chile and Argentina, and Uruguay. Until approximately the late 1970s, the species was believed to also occur in northern South America, in parts of Colombia and Venezuela (e.g. Blake 1977), until it was fully realised that these populations were in fact referable to the formerly conspecific Glossy Ibis *P. falcinellus* (as first postulated by Meyer de Schauensee 1970, and more fully documented by Gochfeld 1973).

Here we report the first record for the West Indies of White-faced Ibis; a single adult photographed c.1 km south of Yaguaramas, Matanzas province, in western Cuba, on 19 May 2018, foraging in a small rice field with four adult Glossy Ibis (a common resident breeder in country) and an unidentified, very young ibis (also visible in Fig. 1). During the observation, the observers (AKP & AK) did not notice that two species were present but, on subsequently



Figure 1. Adult White-faced Ibis *Plegadis chihi*, south of Yaguaramas, Matanzas province, western Cuba, May 2018, with unidentified young *Plegadis* ibis, at right (A. Kirkconnell Posada)

reviewing the photographs, AK identified the single White-faced Ibis by virtue of its much redder-coloured legs, pinkish-red loreal skin with a white border that encircles the back of the eye, and its greyish bill (Fig. 1). We are unaware of any characters that might be used to discriminate these two species of ibis prior to their first autumn (when *P. chihi* develops a red eye). The potential for *P. chihi* to occur in Cuba had been highlighted by A. Jaramillo (pers. comm.) in previous discussions with AK, and the possibility of West Indian records was also mentioned by Ryder & Manry (1994).

Indeed, the species was obviously likely to occur in the West Indies, given regular records in the north-east USA / south-east Canada and along the Gulf coast to Florida (AOU 1998), and a single record from Aruba, in the former Netherlands Antilles, in June 1978 (Prins *et al.* 2009), while the additional potential for vagrancy by the North American population is well illustrated by records on Hawaii, in 1873 and 2003 (Matheu *et al.* 2018) and on Clarion Island, more than 700 km off western Mexico (Wanless *et al.* 2009). Those breeding in Utah are well documented to winter as far south as western, central and eastern Mexico (Ryder 1967). Furthermore, in South America, movements of up to 1,800 km have been documented between northern Argentina and southern Brazil (Olrog 1975), while the species has wandered as far south as Tierra del Fuego (Hancock *et al.* 1992) and perhaps even north-west to southern coastal Peru (Hughes 1970). In North America, pre-breeding wandering appears to be more prevalent than in the post-breeding season (Ryder 1967, Ryder & Manry 1994), making the timing of the Cuban record documented here less surprising.

The North American population of White-faced Ibis has been generally increasing since about the mid 1960s, especially since the banning of certain pesticides, albeit with marked local fluctuations (Ryder & Manry 1994). The species has principally expanded its range west in subsequent decades; it is currently estimated to number at least 150,000 individuals (Matheu *et al.* 2018). Given possible breeding records of *P. chihi* in Florida (AOU 1998), sympatric breeding by *P. falcinellus* and *P. chihi* initially in Louisiana (Stewart 1964), subsequently in Alabama and possibly eastern Texas (Ryder & Manry 1994) and apparently also in Florida in the late 19th century (Brewster 1886), as well as dramatic recent changes in Cuba in the status of other wetland species, such as American White Pelican *Pelecanus erythrorhynchos* and American Avocet *Recurvirostra americana* (Kirkconnell *et al.* in press), the possibility that White-faced Ibis might be more regular than a mere vagrant in the northern Caribbean should be borne in mind.

Acknowledgements

We are grateful to David Mandry and George Wallace for reading in the manuscript in submission.

References:

- American Ornithologists' Union (AOU). 1998. *Check-list of North American birds*. Seventh edn. American Ornithologists' Union, Lawrence, KA.
- Blake, E. R. 1977. *Manual of Neotropical birds*, vol. 1. Univ. of Chicago Press.
- Brewster, W. 1886. Breeding of White-faced Glossy Ibis in Florida. *Auk* 3: 481.
- Gochfeld, M. 1973. Observations on new or unusual birds from Trinidad, West Indies and comments on the genus *Plegadis* in Venezuela. *Condor* 75: 474–478.
- Hancock, J. A., Kushlan, J. A. & Kahl, M. P. 1992. *Storks, ibises, and spoonbills of the world*. Academic Press, London.
- Hughes, R. A. 1970. Notes on the birds of the Mollendo District, southwest Peru. *Ibis* 112: 229–241.
- Kirkconnell, A., Kirwan, G. M., Garrido, O. H., Mitchell, A. & Wiley, J. W. in press. *The birds of Cuba: an annotated checklist*. British Ornithologists' Club, Tring.
- Matheu, E., del Hoyo, J., Garcia, E. F. J., Boesman, P. & Kirwan, G. M. 2018. White-faced Ibis (*Plegadis chihi*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona (retrieved from <https://www.hbw.com/node/52776> on 25 May 2018).
- Meyer de Schauensee, R. 1970. *A guide to birds of South America*. Acad. Nat. Sci., Philadelphia, PA.

- Olog, C. C. 1975. Vagrancy of Neotropical cormorants, egrets, and White-faced Ibis. *Bird-Banding* 46: 207–212.
- Prins, T. G., Reuter, J. H., Debrot, A. O., Wattel, J. & Nijman, V. 2009. Checklist of the birds of Aruba, Curaçao and Bonaire, south Caribbean. *Ardea* 97: 137–268.
- Ryder, R. A. 1967. Distribution, migration and mortality of the White-faced Ibis (*Plegadis chihi*) in North America. *Bird-Banding* 38: 257–277.
- Ryder, R. A. & Manry, D. E. 1994. White-faced Ibis *Plegadis chihi*, version 2.0. In Poole, A. F. & Gill, F. B. (eds.) *The birds of North America*. Cornell Lab of Ornithology, Ithaca, NY. <https://doi.org/10.2173/bna.130> (accessed 28 May 2018).
- Stewart, J. R. 1964. Central southern region. *Audubon Field Notes* 18: 513.
- Stiles, F. G. & Skutch, A. F. 1989. *A guide to the birds of Costa Rica*. Christopher Helm, London.
- Wanless, R. M., Aguirre-Muñoz, A., Angel, A., Jacobsen, J. K., Keitt, B. S. & McCann, J. 2009. Birds of Clarion Island, Revillagigedo archipelago, Mexico. *Wilson J. Orn.* 121: 745–751.
- Addresses:* Arturo Kirkconnell Posada and Arturo Kirkconnell, Calle 46, #1705, between Av. 17 and 19, Playa, La Habana, Cuba, e-mail: Arthur.160587@gmail.com. Guy M. Kirwan, Research Associate, Field Museum of Natural History, 1400 South Lakeshore Drive, Chicago, IL 60605, USA.



Records of Van Dam's Vanga *Xenopirostris damii* in Mariarano forest, north-west Madagascar

by Solohery Rasamison, Bruno Andriandraotomalaza Raveloson, Rachel Hannah Palfrey & Thomas Edward Martin

Received 7 July 2018; revised 20 August 2018; published 24 September 2018

<http://zoobank.org/urn:lsid:zoobank.org:pub:8E5874F3-C290-48B0-94F2-5B5FF17D6301>

Van Dam's Vanga *Xenopirostris damii* is an Endangered species confined to the West Malagasy dry forests Endemic Bird Area (EBA) (Stattersfield *et al.* 1998). It is currently known to occur at only a single locality in north-west Madagascar (Ankarafantsika National Park and an arc of surrounding forests), with two disjunct populations in far northern Madagascar (Schulenberg 2013, IUCN 2018).

Here, we report another population, in Mariarano Classified Forest (15°29'S, 46°41'E), Mahajanga II District, Boeny Region, north-western Madagascar. This locality is near the coast *c.*48 km north-east of the town of Mahajanga (Majunga). The Mariarano ecosystem encompasses *c.*65 km² and comprises dry deciduous forest and smaller areas of wetlands, lightly wooded grassland, scrub and agricultural land, reaching a max. elevation of 80 m (Moat & Smith 2007, Evans *et al.* 2013). The region experiences a tropical savannah climate; monthly temperatures are relatively constant (mean 27.3°C) but rainfall is highly variable (1–360 mm) with a wet season peaking in December–February followed by a pronounced dry season in July–September (Operation Wallacea unpubl. data). Bird surveys in Mariarano have been undertaken annually in the dry season (June–August) between 2010 and 2017, using a combination of systematic point counts, mist-netting and opportunistic records.

Results suggest Van Dam's Vanga to be rare at Mariarano. During our eight-year survey period singles were detected opportunistically five times (all in dry deciduous forest) by SR & BAR (in July 2011, July 2014, July 2015 and twice in July 2017), and once in a mist-net, when an adult male was trapped and released at 09.30 h on 6 July 2015 by BAR, SR & RHP (Fig. 1). The observed birds were readily separated from potential confusion species, such as other *Xenopirostris* vangas, Tylas Vanga *Tylas eduardi* and Cuckoo Roller *Leptosomus discolor*, by the birds' conical, deep-based dark bill, black head, extensive white collar, and all-white chin and underparts (Sinclair & Langrand 2013, Hawkins *et al.* 2015). The following morphometrics were taken from the mist-netted individual: max. chord wing length 120 mm, tail length 78 mm, tarsus length 26.1 mm and mass 51 g; this is the first published weight datum for the species.

It is presumed that the species is resident in Mariarano, given that it is sedentary elsewhere (Yamagishi & Nakamura 2009, Schulenberg 2013). However, as our survey



Figure 1. Adult male Van Dam's Vanga *Xenopirostris damii* captured in a mist-net in Mariarano forest, Madagascar, 6 July 2015 (Solohery Rasamison)

work was restricted to June–August, further field work outside this period, especially in the wet season, is required. Mariarano is c.80 km north-west of the well-known range in Ankarafantsika and neighbouring Bongolava, across non-forested areas unsuitable for the species. Mariarano is not connected to any other forest, but other forests in the vicinity, across which the species has been mapped as ‘possibly extant’ (BirdLife International & NatureServe 2018, IUCN 2018), should be searched, particularly the large (c.45 km²), albeit degraded, Analabe forest c.8 km north-east of Mariarano. Other sites from which Van Dam’s Vanga is known, including the type locality (Schulenberg 2013), are at least 300 km to the north-east. An estimate of the species’ population size in Mariarano forest is currently impossible because of the paucity of records, although continued field work may yield further data. However, given the total forested area at Mariarano of c.65 km² area (including c.28 km² of contiguous forest cover), the area of potential occupancy for the species here may be considerable.

The discovery of this new population of Van Dam’s Vanga adds significantly to knowledge of the status of this poorly studied species, and also highlights Mariarano’s conservation importance, especially as it also supports populations of other globally threatened birds, such as Malagasy Pond Heron *Ardeola idae* and Coquerel’s Coua *Coua coquereli* (Palfrey *et al.* in prep.) as well as other endangered biota (Evans *et al.* 2013). Although Mariarano is one of the last patches of unprotected dry deciduous forest larger than 800 ha in western Madagascar (deduced from Nicoll 2003, Moat & Smith 2007), it is, like most remnant forests in the region, highly threatened by clearance due to expanding agriculture, charcoal production and timber extraction (Long *et al.* 2012). We caution that the Van Dam’s Vanga population at Mariarano is unlikely to be secure, and that legal protection and effective conservation management is required to safeguard the species there, at one of only a handful of localities where it is known to occur.

Acknowledgements

Our study was supported by and completed as part of a collaborative partnership between Operation Wallacea (www.opwall.com), the Malagasy NGO ‘Development and Biodiversity Conservation Action for Madagascar’ (DBCAM), the Univ. of Antananarivo, and local community forest management groups at Mariarano. We thank all Operation Wallacea staff who provided the logistical support which made this study possible, especially Rachel Daniels. We also thank the referee for their helpful and constructive comments.

References:

- BirdLife International & NatureServe. 2018. *Bird species distribution maps of the world*. BirdLife International, Cambridge, UK & NatureServe, Arlington, VA.
- Evans, B., Rakotondrapary, F., Cole, L., Graham, S., Long, P. & Gandola, R. 2013. The carnivores of Mariarano forest, Madagascar: first insights, *Small Carnivore Conserv.* 49: 15–19.
- Hawkins, F., Safford, R. & Skerrett, A. 2015. *Birds of Madagascar and the Indian Ocean Islands*. Christopher Helm, London.
- IUCN. 2018. The IUCN Red List of threatened species. Version 2018.1. www.iucnredlist.org (accessed 30 June 2018).
- Long, P., Rabenandrasana, M., Rabenoro, M., Darlington, A., McCann, R., Gandola, R., Morrison, R., Graham, S., Evans, C., Washington, H., Evans, B., Palfrey, R., Raveloson, B., Rakontondravony, F., Jocque, M. & Andriambelo, H. 2012. Biodiversity surveys of Mariarano and Matsedroy tropical dry forests and associated wetlands, western Madagascar; 2010–2012, status report. Unpubl. rep. to Ministry of Forests and the Environment, Antananarivo.
- Moat, J. & Smith, P. 2007. *Atlas of the vegetation of Madagascar*. Kew Publishing, Royal Botanic Gardens, Kew.
- Nicoll, M. E. 2003. Forests outside protected areas. Pp. 1432–1437 in Goodman, S. M. & Benstead, J. P. (eds.) *The natural history of Madagascar*. Univ. of Chicago Press, Chicago & London.
- Palfrey, R. P., Baddams, J., Raveloson, B. A., Rasamison, S., Neaves, J., Long, P. & Martin, T. E. in prep. The avifauna of Mariarano forest and its vicinity, Mahajanga II District, north-west Madagascar.
- Schulenberg, T. S. 2013. Van Dam’s Vanga *Xenopirostris damii*. Pp. 834–835 in Safford, R. J. & Hawkins, A. F. A. (eds.) *The birds of Africa*, vol. 8. Christopher Helm, London.
- Sinclair, I. & Langrand, O. 2013. *Birds of the Indian Ocean Islands*. Second edn. New Holland, London.

Stattersfield, A. J., Crosby, M. J., Long, A. J. & Wege, D. C. 1998. *Endemic Bird Areas of the world: priorities for biodiversity conservation*. BirdLife International, Cambridge, UK.

Yamagishi, S. & Nakamura, M. 2009. Van Dam's Vanga (*Xenopirostris damii*). Pp. 166–167 in del Hoyo, J., Elliott, A. & Christie, D. A. (eds.) *Handbook of the birds of the world*, vol. 14. Lynx Edicions, Barcelona.

Addresses: Solohery Rasamison, Département de Biologie Animale, Faculté des Sciences, Université Antananarivo, P.O. 906, Antananarivo 101, Madagascar. Bruno Andriandraotomalaza Raveloson, Rachel Hannah Palfrey and Thomas Edward Martin (corresponding author), Operation Wallacea Ltd., Wallace House, Old Bolingbroke, Lincolnshire, PE23 4EZ, UK, e-mail: tom_martin_2010@yahoo.co.uk

