



An annotated list of the avifauna of Palenque, Chiapas

Lista comentada de la avifauna de Palenque, Chiapas

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Abstract. The primary lowland rainforest around the Mayan ruins of Palenque, in the state of Chiapas, Mexico, has been the focus of much study. The second growth and the mosaic of pasture and farmland surrounding the protected area of Palenque National Park also have received some attention by researchers and visitors. Until now though, a complete avifaunal list for this area had not been compiled. In our judgment, 353 species have been recorded reliably, a hundred more than previously reported. An additional 27 species have been reported at the site on multiple occasions but for which we feel there is no definitive evidence. There are 202 regular breeders, most of them resident, and 87 migrants that winter or pass through regularly. Relative capture rates for understory birds indicate that *Phaethornis longirostris* and *Henicorhina leucosticta* are most often caught, and some rarely seen birds, such a *Geotrygon montana*, are less rare than previously thought. In a state in which habitat destruction is routine, in which national parks are increasingly becoming forested islands, we need baseline data such as these to get a clearer idea of what occurs there if we are to understand anthropogenic effects on forests.

Key words: avifauna, capture rates, Chiapas, Mexico, Palenque, status.

Resumen. La selva tropical perennifolia primaria en los alrededores de las ruinas mayas de Palenque, en el estado de Chiapas, México, ha sido objeto de muchos estudios. El bosque secundario y el mosaico de potreros y tierras agrícolas que rodean el área protegida del Parque Nacional Palenque también han recibido la atención de investigadores y visitantes. Sin embargo, hasta ahora no ha sido recopilado un inventario de la avifauna. Consideramos que 353 especies han sido registradas confiablemente, 100 más de las que han sido registradas previamente. Otras 27 especies han sido reportadas para este sitio, pero sentimos que no hay suficiente evidencia de su presencia allí. Hay 202 especies que anidan de manera regular, la mayoría residentes permanentes, y 87 migratorias que invernán o pasan a lo largo de su ruta. Las tasas de captura relativas de las aves del sotobosque indican que *Phaethornis longirostris* y *Henicorhina leucosticta* son las especies capturadas con mayor frecuencia, y que algunas aves avistadas raramente, como *Geotrygon montana*, son menos raras de lo que se creía anteriormente. En un estado en que la destrucción de hábitat es común y las áreas protegidas se convierten cada vez más en islas de bosque, necesitamos información de base como la presentada aquí para tener una idea más clara de los efectos antropogénicos sobre las selvas.

Palabras clave: avifauna, tasas de captura relativas, Chiapas, México, Palenque, estatus.

Introduction

A large number of archaeological sites in the Neotropics are protected. Protection extends beyond the ruins themselves and typically incorporates small to large areas of surrounding habitat, ranging from desert scrub to thorn forest to rainforest. By virtue of this protection, archaeological sites attract not only a great number of

visitors who marvel at the ruins but also numerous birders and other ecotourists. The expansive Mayan ruins of Palenque National Park in northern Chiapas, Mexico, are a prime example.

Once effectively linked with the Selva Lacandona (Paynter, 1957; De Jong et al., 2000), Palenque is now a forested island surrounded by human settlements, farmland, and pasture. Regional habitat loss and fragmentation has occurred principally since the early 1970s (Mendoza and Dirzo, 1999; De Jong et al., 2000). Despite this habitat loss, Palenque's avifauna retains a distinct lowland Atlantic element shared with many other sites, from Los Tuxtlas,

Veracruz, and the southern Yucatán Peninsula south (and east) to northwestern Costa Rica (Patten and Smith-Patten, 2008). Accordingly, it remains one of the most popular destinations for birders who visit southern Mexico. Indeed, Palenque has been visited by ornithologists since 1900, and at least 4 major collecting expeditions were made in the area prior to 1950 (e.g., Brodkorb 1943, Tashian 1952).

It is somewhat surprising, then, that a complete list of the avifauna has never been compiled for this important site. The nearest is Edward's and Papish's (2004) broad list that clearly includes species from nearby marshlands and thorn forest rather than being restricted to Palenque. We compiled data from specimens, publications, archived voice recordings, and field notes from many observers to create such a list. The result is a list of >350 species, ~100 species more than previously reported (Wheatley and Brewer [2002], apparently from Howell's [1999] partial list).

Establishing these baseline data will aid in our understanding of anthropogenic effects on birds (e.g., Patten et al., 2010) and other organisms, and it ideally will help guide conservation efforts. Likewise, our work provides comparative data to other sites in the Selva Lacandona, such as Yaxchilán (Puebla-Olivares et al., 2002) and the Montes Azules Biosphere Reserve (González-García, 1993), sites that may one day face high rates of deforestation unless conservation efforts are redoubled (Fuller et al., 2007).

Materials and methods

Study area. Our study area (Fig. 1) focused on Palenque National Park. We include the area between the park and the town of the same name, including extensive coverage of the grounds of the Hotel Chan-Kah. Habitat around various surrounding communities, particularly Nututún and San Manuel, and the savannah immediately surrounding the park were also covered. Our main focus, however, was the park, including the paved road into the archaeological zone and the trails around the ruins complex.

Palenque National Park (~17.5° N, 92.0° W) lies in the northeastern portion of Chiapas, Mexico's southernmost state, ~8 km from the town of Palenque. The Maya have occupied this area for more than 2 000 years, with European presence only within the past <500 years. Although it has been argued that the area's lowland rainforest sustained much disturbance from the Classic-era Maya (e.g., Whitmore et al., 1990), the forest likely recovered during the >700 years that passed between the Maya collapse (circa A.D. 800) and arrival of the

Spanish (Denevan, 1992) and undoubtedly did so before the ruins were "rediscovered" by Westerners in the mid-nineteenth century (Stephens, 1841). Even as late as the mid-twentieth century, this area was described as having undisturbed rain forest surrounding the archaeological site (Goodnight and Goodnight, 1956) and was still connected to the mostly unbroken expanse of forest that stretched to Guatemala and Belize. Extensive deforestation in Chiapas, however, has severed Palenque National Park from its connection to the Selva Lacandona by >60 km and to its closest comparable forest patch by >6 km, making the park a forested island in a sea of ever encroaching pasture and tropical savannah (De Jong et al., 2000; Román-Cuesta and Martínez-Vilalta, 2006; Patten et al., 2010). In spirit, the park itself should be protected in perpetuity, and it appears that protection efforts directly around the ruins complex thus far have done a commendable job as vegetation plots (BS-P and MAP, unpubl. data), replicating those done in 1949 (Goodnight and Goodnight, 1956), have shown how the primary rainforest has not been altered qualitatively. However, changes in the park outside of the complex and in the surrounding landscape have been quite drastic. In principle the park protects between 1 772 ha (World Database on Protected Areas) and 1 819 ha (Román-Cuesta and Martínez-Vilalta, 2006). But, on the basis of aerial photographs (November 2004), our estimation of mostly unbroken forest remaining in the area is closer to 700 ha, some of which is in a rather narrow band to the west of the ruins. Román-Cuesta and Martínez-Vilalta (2006) similarly estimated that 55% of the park's protected area has been converted to pasture.

Data collection. Data for our list came from a variety of sources. We compiled published ornithological data from Brodkorb (1943), Friedmann et al. (1950), Tashian (1952), Miller et al. (1957), Alvarez del Toro (1964), and Howell (1999), and we obtained data from collections at the following institutions: American Museum of Natural History (New York), Field Museum of Natural History (FM; Chicago), Florida Museum of Natural History (FLMNH; Gainesville), Louisiana State University Museum of Natural Science (Baton Rouge), Macaulay Library (LNS; Cornell Lab of Ornithology, Ithaca, New York), Moore Laboratory of Zoology (MLZ; Occidental College, Los Angeles), Museum of Vertebrate Zoology (University of California, Berkeley), National Museum of Natural History (USNM; Washington, D.C.), Natural History Museum of Los Angeles County (Los Angeles, California), Royal Ontario Museum (Ottawa), Universidad Nacional Autónoma de México (México, D.F.), University of Kansas Museum of Natural History (Lawrence), University of Michigan Museum of Zoology (Ann Arbor), and Yale Peabody Museum (New Haven,

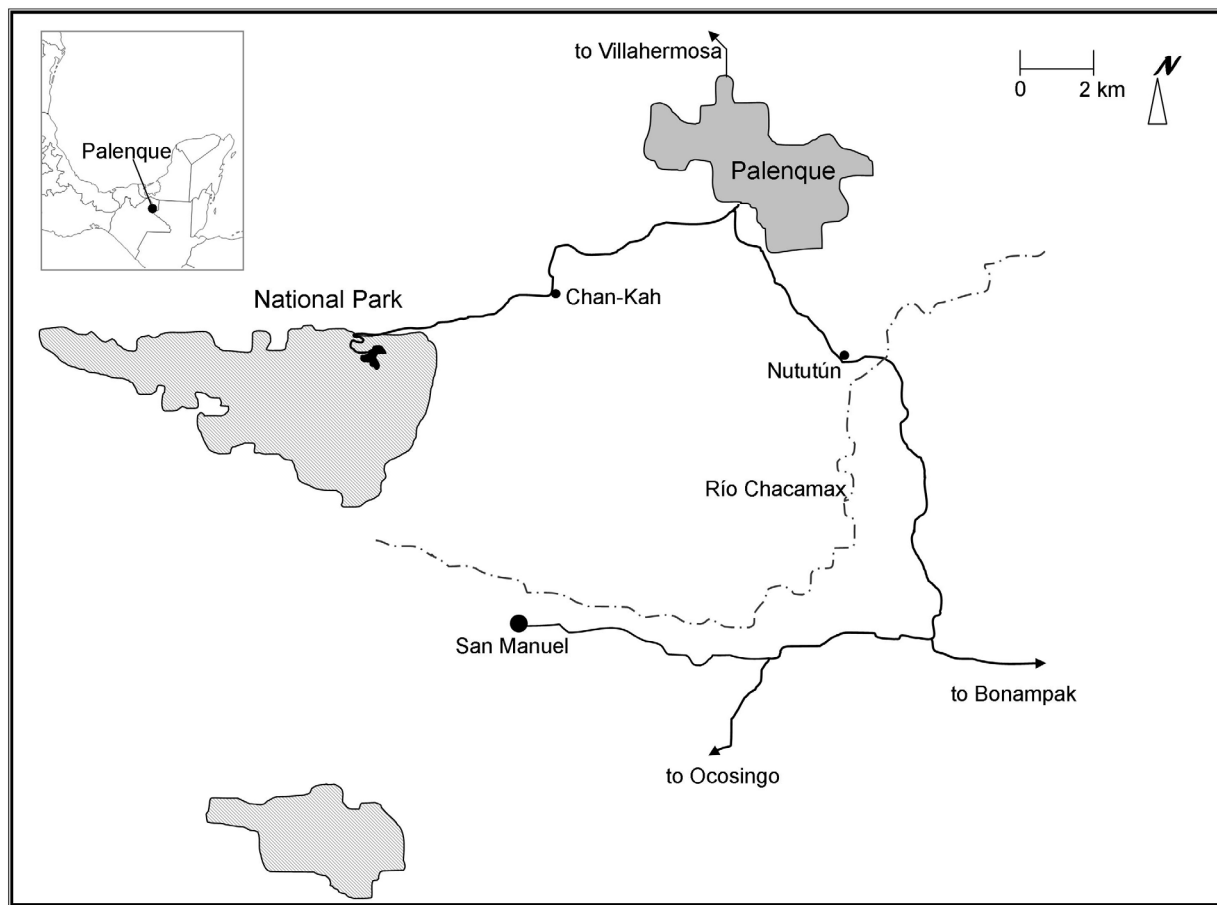


Figure 1. Map of study area, focused around Palenque National Park, Chiapas, Mexico. The mostly unbroken forest remaining in this area is in light gray. The black area in the park represents the Mayan ruins complex.

Connecticut). Data compiled from specimens collected in May 1900 (USNM) were supplemented by E. W. Nelson's contemporary field notes housed at the Smithsonian Institution Archives in Washington, D.C. To these data we added sightings from 1967 to 2009 from ourselves (MAP, HGdS, ACI, BS-P) and from personal field notes shared with us (see the Acknowledgments for a list of observers, including abbreviations used when referring to a specific person). Additional observations were obtained from eBird, including key records from Richard J. Cannings (RJC) and Christopher L. Wood (CLW). Lastly, Mark B. Robbins supplied some of the late Theodore A. Parker III's (TAP) records.

Relative capture rates were calculated on the basis of mist netting conducted in the ruins complex by ACI in 2007 (Table 1). We present these data as a complementary method for estimating relative abundance, with the caveats that ACI's study was not designed to determine relative abundance and that using mist nets for this purpose has

its shortcomings (Remsen and Good, 1996). Ultimately the best way to determine a region's avifauna is to use multiple data collection techniques while acknowledging disadvantages of each—e.g., vouchers are highly prized but vultures, raptors, swifts, and other aerial birds cannot be taken as easily (hence their paucity in the historical record), and field surveys may be ideal if observers know songs and calls as well as plumage. We subjectively derived our estimates of relative abundance from a combination of all of these data, regardless of collection method.

Taxonomy and nomenclature used herein generally follow the American Ornithologists' Union (1998), as amended annually through Chesser et al. (2009). We differ in recognizing the family Tityridae, which includes the genera *Schiffornis*, *Pachyramphus*, and *Tityra*, as distinct from the Tyrannidae and Cotingidae (Barber and Rice, 2007). We also treat *Formicarius moniliger* as a species (Krabbe and Schulenberg, 2003), recognize the Coerebidae as a monotypic family (A.O.U. 1998), treat subspecies

Table 1. Relative capture rates, on the basis of mist netting during 2007 inside the ruins complex of Palenque National Park, Chiapas, Mexico

Family and species	Relative capture rate
Columbidae	
<i>Leptotila plumbeiceps</i>	0.010
<i>Geotrygon montana</i>	0.041
Trochilidae	
<i>Florisuga mellivora</i>	0.002
<i>Phaethornis longirostris</i>	0.128
<i>Phaethornis striigularis</i>	0.016
<i>Campylopterus curvipennis</i>	0.004
<i>Campylopterus hemileucurus</i>	0.010
<i>Amazilia candida</i>	0.043
<i>Amazilia tzacatl</i>	0.025
Trogonidae	
<i>Trogon collaris</i>	0.002
Momotidae	
<i>Momotus momota</i>	0.002
Alcedinidae	
<i>Chloroceryle americana</i>	0.002
Picidae	
<i>Melanerpes aurifrons</i>	0.004
<i>Veniliornis fumigatus</i>	0.006
<i>Celeus castaneus</i>	0.002
Furnariidae	
<i>Sclerurus guatemalensis</i>	0.004
<i>Dendrocincla anabatina</i>	0.016
<i>Dendrocincla homochroa</i>	0.004
<i>Glyphorhynchus spirurus</i>	0.039
<i>Dendrocolaptes sanctithomae</i>	0.006
<i>Xiphorhynchus flavigaster</i>	0.010
<i>Lepidocolaptes souleyetti</i>	0.019
Thamnophilidae	
<i>Cercomacra tyrannina</i>	0.002
Formicariidae	
<i>Formicarius moniliger</i>	0.014
Tyrannidae	
<i>Mionectes oleagineus</i>	0.029
<i>Tolmomyias sulphurescens</i>	0.002
<i>Platyrrinchus cancrominus</i>	0.002
<i>Onychorhynchus coronatus</i>	0.021
<i>Myiobius sulphureipygius</i>	0.006
<i>Empidonax flaviventris</i>	0.002
<i>Empidonax virescens</i>	0.041
<i>Attila spadiceus</i>	0.002
<i>Myiarchus tyrannulus</i>	0.004
Pipridae	
<i>Manacus candei</i>	0.004
<i>Pipra mentalis</i>	0.014
Vireonidae	
<i>Vireo griseus</i>	0.002
Corvidae	
<i>Cyanocorax morio</i>	0.002
Troglodytidae	
<i>Thryothorus maculipectus</i>	0.021
<i>Henicorhina leucosticta</i>	0.111
Sylviidae	
<i>Ramphocaenus melanurus</i>	0.012
Turdidae	
<i>Catharus fuscescens</i>	0.006
<i>Catharus ustulatus</i>	0.016
<i>Hylocichla mustelina</i>	0.004
<i>Turdus grayi</i>	0.010
Parulidae	
<i>Dendroica pensylvanica</i>	0.014
<i>Setophaga ruticilla</i>	0.002

Table 1. Continues

Family and species	Relative capture rate
<i>Seiurus aurocapilla</i>	0.002
<i>Seiurus noveboracensis</i>	0.012
<i>Oporornis formosus</i>	0.004
<i>Oporornis philadelphia</i>	0.008
<i>Basileuterus culicivorus</i>	0.010
Coerebidae	
<i>Coereba flaveola</i>	0.004
Thraupidae	
<i>Saltator coerulescens</i>	0.002
<i>Saltator maximus</i>	0.008
<i>Saltator atriceps</i>	0.002
Emberizidae	
<i>Volatinia jacarina</i>	0.004
<i>Sporophila torqueola</i>	0.012
<i>Oryzoborus funereus</i>	0.004
<i>Arremon aurantiostris</i>	0.039
<i>Arremonops chloronotus</i>	0.027
Cardinalidae	
<i>Habia rubica</i>	0.006
<i>Habia fuscicauda</i>	0.066
<i>Cyanocompsa cyanoides</i>	0.010
Fringillidae	
<i>Euphonia hirundinacea</i>	0.033
<i>Euphonia gouldi</i>	0.002

groups of the *Dendroica coronata* complex as allospecies of a superspecies (Brelsford and Irwin, 2009), and place the genus *Saltator* in the Thraupidae (Klicka et al. 2007). Spanish names used herein are from Escalante Pliego et al. (1996), with minor alterations to accommodate taxonomic changes and to more closely follow Spanish grammar and syntax.

Results

Species list

By our assessment, 353 species have been recorded reliably at Palenque. An additional 27 species have been reported at the site on multiple occasions but for which we feel there is no definitive evidence of their occurrence, and an additional ~70 species were attributed to “Palenque” in a recent checklist (Edwards and Papish, 2004) but do not occur there (see below).

In our annotated list, status designations for each species are conventional and follow Patten et al. (2001). *Common*= a species encountered frequently or in large numbers. *Fairly common*= a species encountered routinely in modest numbers. *Uncommon*= a species encountered infrequently and in small numbers. *Rare*= a species encountered only on occasion (e.g., extremely small numbers annually or less), but with a sufficient number of records to suggest that the region lies within its regular range (albeit perhaps on the periphery). *Casual*= a species

that has been recorded on 1 to several occasions; *vagrant* is used when the region lies outside the normal range of the species, but *visitor* is used if the region lies within its normal range. Seasonal designations mostly reflect what the birds are doing and thus are not human-defined seasons *per se*; moreover, most species listed as winter visitors may also occur as passage migrants, but date spans we provide are a single, sometimes broad window that encloses the entire period of occurrence. Regarding date spans below, ours are based exclusively on Palenque data, so they are likely to be too narrow relative to a particular species' occurrence in the region. This deficiency might be especially pronounced for early autumn or winter dates because Palenque is visited infrequently July–November; even so, we felt it best to provide known dates rather than provide educated guesses of expected dates.

Population trends, including extirpations (†) and colonizations, are based on the methodology and analysis presented in Patten et al. (2010). Note that the statistics used are based on a sighting record for each species. Hence, species with few records for Palenque (e.g., *Nyctanassa violacea*) may not be considered extirpated, despite there being no recent records, simply because sample size was too small, whereas some species that were last recorded more recently (e.g., *Heliothryx barroti*) may be considered extirpated because there was a sufficient sample size of past records.

TINAMIDAE

Tinamus major (Gmelin, 1789) – Great Tinamou, tinamú mayor. Uncommon resident in primary forest. Heard far more often than seen.

Crypturellus soui (Hermann, 1783) – Little Tinamou, tinamú menor. Uncommon to rare resident in primary forest and heavily wooded secondary forest. Encountered (heard) less often than the other 2 tinamous, but perhaps the most likely to be seen.

Crypturellus boucardi (Sclater, 1859) – Slaty-breasted Tinamou, tinamú jamuey. Uncommon resident in primary forest. Heard far more often than seen.

ANATIDAE

Dendrocygna autumnalis (Linnaeus, 1758) – Black-bellied Whistling Duck, pijije alas blancas. Rare perennial visitor in flooded savannah. First recorded locally in 1989 (CSE), but much more common in the Río Usumacinta basin, a short distance to the north and east.

Anas discors Linnaeus, 1766 – Blue-winged Teal, cerceta alas azules. Vagrant, recorded once: 2 birds 20 Jan

2001 (MAP).

CRACIDAE

Ortalis vetula (Wagler, 1830) – Plain Chachalaca, chachalaca vetula. Fairly common resident of secondary forest.

†*Penelope purpurascens* Wagler, 1830 – Crested Guan, pava cojolita. Extirpated resident of primary forest. Formerly fairly common; last reported in 1939 (Brodkorb, 1943).

Crax rubra Linnaeus, 1758 – Great Curassow, hocofaisán. Rare resident of primary forest; formerly fairly common to uncommon. This species was thought to be extirpated (Patten et al., 2010) at Palenque because apart from a single sighting 15 Mar 1991 (JCS), none had been reported since 1949 (Tashian, 1952). Nevertheless, information on 4 sightings between 2004 and 2006 (ACI) has come to light.

ODONTOPHORIDAE

†*Colinus virginianus* (Linnaeus, 1758) – Northern Bobwhite, codorniz cotuí. Apparently extirpated resident of savannah; formerly common, but last reported in early 1980s. Palenque is the type locality of subspecies *C. v. minor* (Nelson, 1901).

Odontophorus guttatus (Gould, 1837) – Spotted Wood-Quail, codorniz bolonchaco. Rare and declining resident of primary forest; formerly more numerous, but few reports since mid-1980s.

PELECANIDAE

Pelecanus occidentalis Linnaeus, 1766 – Brown Pelican, pelicano pardo. Vagrant, recorded once: an individual flying high overhead 07 Feb 1981 (PP).

PHALACROCORACIDAE

Phalacrocorax brasilianus (Gmelin, 1789) – Neotropic Cormorant, cormorán oliváceo. Rare perennial visitor, generally only flying over.

ARDEIDAE

Tigrisoma mexicanum Swainson, 1834 – Bare-throated Tiger-Heron, garza-tigre mexicana. Uncommon resident and recent colonist, first reported in 1994; now recorded almost annually along forested streams.

Ardea herodias Linnaeus, 1758 – Great Blue Heron, garza morena. Rare winter visitor, 24 Oct–08 Mar, to flooded

areas or ponds.

Ardea alba (Linnaeus, 1758) – Great Egret, garza blanca. Fairly common perennial visitor to flooded areas or ponds.

Egretta thula (Molina, 1782) – Snowy Egret, garceta pies dorados. Uncommon perennial visitor to flooded areas or ponds.

Egretta caerulea (Linnaeus, 1758) – Little Blue Heron, garceta azul. Uncommon perennial visitor to flooded areas or ponds.

Bubulcus ibis (Linnaeus, 1758) – Cattle Egret, garza ganadera. Common resident of pasture, flooded fields, and open savannah.

Butorides virescens (Linnaeus, 1758) – Green Heron, garceta verde. Fairly common resident of ponds, flooded fields with heavy bordering vegetation, and forest streams.

Agamia agami (Gmelin, 1789) – Agami Heron, garza agami. Presumed rare resident of shaded forest streams; recorded in only 3 years (1900, 1987, 2003), but likely to be overlooked.

Nyctanassa violacea (Linnaeus, 1758) – Yellow-crowned Night-Heron, pedrete corona clara. Rare and declining resident of ponds and wooded streams; last recorded in 1989.

†*Cochlearius cochlearius* (Linnaeus, 1766) – Boat-billed Heron, garza cucharón. Likely a former uncommon to rare resident of swampy woods, but known only from 2 specimens, collected 17 May 1900 (USNM 166351) and 26 Jul 1949 (Tashian, 1952; FM 103782). This species still occurs at La Libertad, Chiapas, ~40 km ne. of Palenque.

CICONIIDAE

Mycteria americana Linnaeus, 1758 – Wood Stork, cigüeña americana. Vagrant, recorded once: 15 Feb 2005 (BF).

CATHARTIDAE

Coragyps atratus (Bechstein, 1793) – Black Vulture, zopilote común. Common resident; soars over any habitat.

Cathartes aura (Linnaeus, 1758) – Turkey Vulture, zopilote aura. Common resident; soars over any habitat, but generally most numerous over forest and generally outnumbered by *Coragyps atratus*. Numbers may be higher in spring and autumn migration, although available data are inadequate to determine an increase.

Cathartes burrovianus Cassin, 1845 – Lesser Yellow-headed Vulture, zopilote sabanero. Rare but apparently colonizing species of savannah and pasture. First

reported in the vicinity in 07 Jan 1974 (MBR, TAP), but first recorded at Palenque proper 16 Jan 2005 (BH), and 2 were observed there 14 Mar 2009 (MAP, BS-P).

Sarcoramphus papa (Linnaeus, 1758) – King Vulture, zopilote rey. Rare and declining former resident; now observed only occasionally and likely does not breed locally. It had not been recorded since 1993 until 2 recent records for May 2008 and March 2009 (MAP, BS-P). Tends to be restricted to primary forest, but sometimes wanders into cleared areas.

ACCIPITRIDAE

Pandion haliaetus (Linnaeus, 1758) – Osprey, gavián pescador. Rare winter visitor, 07 Sep–10 Mar, generally seen overhead, but may forage along the Río Chacamax.

Leptodon cayanensis (Latham, 1790) – Gray-headed Kite, gavián cabeza gris. Two records from forested areas in and near Palenque: 1 over San Manuel 17 Mar 1982 (RAR) and an immature over the ruins 26 Jun 2007 (MAP).

Chondrohierax uncinatus (Temminck, 1822) – Hook-billed Kite, gavián pico gancho. Rare resident of primary and mature secondary forests.

Elanoides forficatus (Linnaeus, 1758) – Swallow-tailed Kite, milano tijereta. Rare migrant, 22 Feb–17 Mar and 07–12 Aug; perhaps summers occasionally in forested areas.

Elanus leucurus Vieillot, 1818 – White-tailed Kite, milano cola-blanca. Uncommon to rare resident in savannah and pasture.

Harpagus bidentatus (Latham, 1790) – Double-toothed Kite, gavián bidentado. Uncommon to fairly common resident of primary forests; usually observed flying over rainforest at mid-morning, but also encountered as it follows troops of the Black Howler Monkey (*Alouatta pigra*) through the forest.

Ictinia mississippiensis (Wilson, 1811) – Mississippi Kite, milano de Misisipi. Rare spring migrant, 08–22 Apr; likely passes through in autumn as well, but thirty birds 07 Sep 1989 (CSE) provided the sole record for that season.

Ictinia plumbea (Gmelin, 1788) – Plumbeous Kite, milano plumizo. Uncommon summer visitor, 24 Feb–13 Aug, generally to primary forest.

Circus cyaneus (Linnaeus, 1766) – Northern Harrier, gavián rastrero. Two winter records: late Mar 1983 (RAR) and 10 Jan 1985 (KPA).

Accipiter striatus Vieillot, 1818 – Sharp-shinned Hawk, gavián pecho rufo. Rare winter visitor, 22 Oct–22 Mar, to wooded habitats.

Accipiter cooperii (Bonaparte, 1828) – Cooper’s Hawk, gavilán de Cooper. Rare winter visitor, 30 Oct–10 Mar, to wooded habitats.

Accipiter bicolor (Vieillot, 1817) – Bicolored Hawk, gavilán bicolor. Presumed rare resident of dense primary forest, but recorded only once: 13 Mar 1991 (JCS).

Leucopternis albicollis (Latham, 1790) – White Hawk, aguililla blanca. Fairly common resident of primary forest.

Buteogallus anthracinus (Deppe, 1830) – Common Black-Hawk, aguililla-negra menor. Fairly common and increasing resident of open wooded areas.

Buteogallus urubitinga (Gmelin, 1788) – Great Black-Hawk, aguililla-negra mayor. Uncommon resident of savannah and open areas embedded in forest.

Buteo magnirostris (Gmelin, 1788) – Roadside Hawk, aguililla caminera. Common resident in all wooded habitats, especially in savannah and forest edge, but rarer in primary forest.

Buteo platypterus (Vieillot, 1823) – Broad-winged Hawk, aguililla alas anchas. Uncommon to fairly common spring migrant, 08 Mar–08 Apr, and expected as an autumn migrant, but no records at that season. May winter occasionally in forested habitats, but individuals 17 Feb 1985 (PP) and 07 Feb 2006 (eBird) provided the only records likely of wintering birds rather than early migrants.

Buteo nitidus (Latham, 1790) – Gray Hawk, aguililla gris. Uncommon to fairly common resident of savannah and second growth with tall trees.

Buteo brachyurus Vieillot, 1816 – Short-tailed Hawk, aguililla cola corta. Fairly common and increasing resident of primary forest, especially in hills; first recorded in 1972 (RAR), but presumably overlooked before then.

Buteo swainsoni (Bonaparte, 1838) – Swainson’s Hawk, aguililla de Swainson. Rare spring migrant, 10–31 Mar; 1 autumn record: 30 Oct 1997 (HGdS).

Buteo albonotatus Kaup, 1847 – Zone-tailed Hawk, aguililla aura. Vagrant, recorded only once: 18 Feb 1985 (PP).

Buteo jamaicensis (Gmelin, 1788) – Red-tailed Hawk, aguililla cola roja. Vagrant, recorded at least twice: once at San Manuel 21 Apr 2000 (HGdS), but also listed by Howell (1999).

†*Harpia harpyja* (Linnaeus, 1758) – Harpy Eagle, águila arpía. Presumed former resident of primary forest, but the sole “definite” record is a secondhand report in E. W. Nelson’s May 1900 notes.

Spizaetus melanoleucus (Vieillot, 1816) – Black-and-white Hawk-Eagle, águila blanquinegra. Status unclear;

presumably a very rare resident of forested foothills, but only 2 reports: 04 Jan 1979 (WDH) and 02 Mar 2004 (BF).

Spizaetus tyrannus (Wied, 1820) – Black Hawk-Eagle, águila tirana. Uncommon resident of primary forest.

Spizaetus ornatus (Daudin, 1800) – Ornate Hawk-Eagle, águila elegante. Presumed rare resident of primary forest. Reported as frequently as *S. tyrannus* prior to mid-1980s, but no recent records.

FALCONIDAE

Micrastur ruficollis (Vieillot, 1817) – Barred Forest-Falcon, halcón-selvático barrado. Rare to uncommon resident of primary forest. Heard more often than seen.

Micrastur semitorquatus (Vieillot, 1817) – Collared Forest-Falcon, halcón-selvático de collar. Uncommon resident of primary and mature secondary forests. Heard more often than seen.

Caracara cheriway (Miller, 1777) – Crested Caracara, caracara quebrantahuesos. Rare visitor to savannah and fields; recorded regularly from late 1980s to mid-1990s but only sparingly since.

Herpetotheres cachinnans (Linnaeus, 1758) – Laughing Falcon, halcón guaco. Uncommon resident of savannah and forest edge. Heard more often than seen.

Falco sparverius Linnaeus, 1758 – American Kestrel, cernícalo americano. Uncommon resident of open habitats.

Falco femoralis Temminck, 1822 – Aplomado Falcon, halcón fajado. Rare perennial visitor to savannah.

Falco rufigularis Daudin, 1800 – Bat Falcon, halcón enano. Common and increasing resident of open areas embedded in forest; perches regularly on tall structures at ruins.

Falco peregrinus Tunstall, 1771 – Peregrine Falcon, halcón peregrino. Vagrant, recorded twice: 08 Mar 2001 and 02 Mar 2004 (both BF).

RALLIDAE

Laterallus ruber (Sclater and Salvin, 1860) – Ruddy Crane, polluela rojiza. Uncommon resident of flooded savannah and marsh. Heard more often than seen.

Aramides cajanea (Müller, 1776) – Gray-necked Wood-Rail, rascón cuello gris. Status uncertain. Perhaps a rare resident in forest understorey and damp pastures adjacent to forest or forest patches, but reported only twice: multiple birds 10–21 May 1900 (E. W. Nelson) and 1 22 Jul 1991 (HGdS).

Amaurolimnas concolor (Gosse, 1847) – Uniform Crane, rascón café. Presumed rare resident of flooded primary

and mature secondary forest, but only 3 definite records: 18 Dec 1995 (HGdS), 03 Mar 2005 (CLW), and 25 May 2008 (MAP, BS-P).

Porphyrio martinica (Linnaeus, 1766) – Purple Gallinule, gallineta morada. Vagrant, recorded once: an immature near town 25 Oct 1990 (ATC).

Gallinula chloropus (Linnaeus, 1758) – Common Moorhen, gallineta frente roja. Vagrant, recorded once: 07 Mar 2005 (RJC).

ARAMIDAE

Aramus guarauna (Linnaeus, 1766) – Limpkin, carao. Rare to uncommon and increasing visitor to forest streams and flooded fields. A recent colonist, first recorded locally in 1984 (RJC).

CHARADRIIDAE

Charadrius vociferus Linnaeus, 1758 – Killdeer, chorlo tildio. Winter vagrant, recorded at least twice: once 08 Jan 1974 (TAP), but also listed by Howell (1999).

JACANIDAE

Jacana spinosa (Linnaeus, 1758) – Northern Jacana, jacana norteña. Rare resident of flooded fields and ponds; apparently a recent colonist, first recorded locally in 1975 (JPS).

SCOLOPACIDAE

Actitis macularius (Linnaeus, 1766) – Spotted Sandpiper, playero alzacolita. Casual winter visitor, recorded 30 Oct–27 Apr, to rivers, streams, and ponds.

Tringa solitaria Wilson, 1813 – Solitary Sandpiper, playero solitario. Rare winter visitor, 05 Aug–07 Mar, to ponds and flooded fields.

Calidris melanotos (Vieillot, 1819) – Pectoral Sandpiper, playero pectoral. Vagrant, with 1 record, of a bird observed “at a waterhole on the prairie” 10 May 1900 (E. W. Nelson).

COLUMBIDAE

Patagioenas cayennensis Bonnaterre, 1792 – Pale-vented Pigeon, paloma colorada. Common and increasing resident of savannah and pasture.

Patagioenas speciosa Gmelin, 1789 – Scaled Pigeon, paloma escamosa. Uncommon resident of primary forest.

Patagioenas flavirostris Wagler, 1831 – Red-billed Pigeon, paloma morada. Common and increasing resident

of savannah, heavily wooded second growth, and secondary forest. Perhaps a recent colonist.

Patagioenas nigrirostris Sclater, 1859 – Short-billed Pigeon, paloma triste. Rare and declining resident of primary forest. Heard more often than seen.

Zenaida asiatica (Linnaeus, 1758) – White-winged Dove, paloma alas blancas. Uncommon to fairly common and increasing resident of settlements and open second growth. Colonized Palenque, where first recorded in 1984 (RAR).

Zenaida macroura (Linnaeus, 1758) – Mourning Dove, paloma huilota. Vagrant, recorded sporadically in mid-1980s (Paulson, 1986; PP, RAR) but not since.

Columbina inca (Lesson, 1847) – Inca Dove, tórtola cola larga. Rare visitor to settled areas.

Columbina minuta (Linnaeus, 1766) – Plain-breasted Ground-Dove, tórtola pecholiso. Rare and declining resident of savannah. Not recorded at Palenque since 1993 (CDD), but assumed to occur still in small numbers in appropriate habitat.

Columbina talpacoti (Temminck, 1810) – Ruddy Ground-Dove, tórtola rojiza. Common resident of second-growth habitats, including pasture, edge, and settlements.

†*Claravis pretiosa* (Ferrari-Perez, 1886) – Blue Ground-Dove, tórtola azul. Extirpated resident of primary forest; last recorded locally (San Manuel) in 1983 (RAR).

Leptotila verreauxi Bonaparte, 1855 – White-tipped Dove, paloma arroyera. Common resident of secondary forest, heavily wooded second growth, and primary forest. At Palenque, this species is the commonest *Leptotila* dove in secondary habitats.

Leptotila plumbeiceps Sclater and Salvin, 1868 – Gray-headed Dove, paloma cabeza gris. Common resident of primary and mature secondary forests. At Palenque, this species is the commonest *Leptotila* dove in primary forest.

Leptotila cassini Lawrence, 1867 – Gray-chested Dove, paloma pecho gris. Uncommon to rare resident of primary forest, encountered infrequently relative to *L. plumbeiceps*.

Geotrygon montana (Linnaeus, 1758) – Ruddy Quail-Dove, paloma-perdiz rojiza. Uncommon resident of primary forest. Seldom seen, but relatively high capture rate (Table 1) belies its apparent rarity.

PSITTACIDAE

Aratinga nana (Vigors, 1830) – Olive-throated Parakeet, perico pecho sucio. Common resident of primary and mature secondary forest and their edge.

†*Ara macao* (Linnaeus, 1758) – Scarlet Macaw, guacamaya roja. Extirpated resident of primary forest. There are only secondhand reports from Palenque, in E. W. Nelson's May 1900 field notes, but the species was fairly numerous in the n. Selva Lacandona in the mid-1950s (Paynter, 1957). In Chiapas, this species now occurs only in small, isolated populations in the southern Selva Lacandona (Iñigo-Elías, 1996; García Fera 2009).

Pionopsitta haematotis (Sclater and Salvin, 1860) – Brown-hooded Parrot, loro cabeza oscura. Uncommon and perhaps declining resident of primary forest.

Pionus senilis (Spix, 1824) – White-crowned Parrot, loro corona blanca. Common and increasing resident of primary forest.

Amazona albifrons (Sparman, 1788) – White-fronted Parrot, loro frente blanca. Common and increasing resident of heavily wooded second-growth habitats, including pasture.

Amazona autumnalis (Linnaeus, 1758) – Red-lore Parrot, loro cachete amarillo. Uncommon to fairly common resident of secondary forest and savannah.

Amazona oratrix Ridgway, 1887 – Yellow-headed Parrot, loro cabeza amarilla. Casual visitor. A favorite of the pet trade, this parrot has suffered sharp declines throughout its range, but has become especially rare in Mexico and n. Central America (Howell and Webb, 1995; Eisermann, 2003). It is a savannah species that may have occurred in the pristine savannah that once fringed the ne. edge of Palenque's rainforest. Although there are several sight reports, there is only 1 documented record for Palenque, of a bird photographed ~6 km n. of the national park 24 Jul 2008 (ACI).

CUCULIDAE

Piaya cayana (Linnaeus, 1766) – Squirrel Cuckoo, cuclillo canela. Common resident of mid to upper levels of primary and secondary forests.

Coccyzus americanus (Linnaeus, 1758) – Yellow-billed Cuckoo, cuclillo pico amarillo. Fairly common spring migrant, 22 Apr–24 May; a record for 10 Nov 1983 (Paulson, 1986) is the only one for autumn.

Coccyzus erythrophthalmus (Wilson, 1811) – Black-billed Cuckoo, cuclillo pico negro. Casual spring migrant, recorded twice: 26 Apr 1993 (CDD) and 21 May 2008 (MAP).

Tapera naevia (Linnaeus, 1766) – Striped Cuckoo, cuclillo rayado. Uncommon resident of secondary forest and scrub. Heard more often than seen.

Crotophaga sulcirostris Swainson, 1827 – Groove-billed

Ani, garrapatero pijuy. Common resident of scrub and pasture.

TYTONIDAE

Tyto alba (Scopoli, 1769) – Barn Owl, lechuza de campanario. Rare resident, generally of settled areas and savannah.

STRIGIDAE

Megascops guatemalae (Sharpe, 1875) – Vermiculated Screech-Owl, tecolote vermiculado. Rare resident of primary and mature secondary forests; perhaps more numerous but reported infrequently.

Pulsatrix perspicillata (Latham, 1790) – Spectacled Owl, búho de anteojos. Rare resident of primary forest.

Lophotrix cristata (Daudin, 1800) – Crested Owl, búho cuerno blanco. Rare resident of primary forest.

Glaucidium griseiceps Sharpe, 1875 – Central American Pygmy-Owl, tecolote mesoamericano. Rare resident of primary and mature secondary forests.

Glaucidium brasilianum (Gmelin, 1788) – Ferruginous Pygmy-Owl, tecolote bajeño. Uncommon resident of secondary forest, edge, and savannah.

Ciccaba virgata (Cassin, 1849) – Mottled Owl, búho café. Common resident of secondary forest and edge; less common in primary forest.

Ciccaba nigrolineata Sclater, 1859 – Black-and-white Owl, búho blanquinegro. Uncommon resident of primary and mature secondary forest; outnumbers *C. virgata* in primary rainforest.

CAPRIMULGIDAE

Chordeiles acutipennis (Hermann, 1783) – Lesser Nighthawk, chotacabras menor. Uncommon winter visitor, 24 Oct–13 Mar, to savannah, pasture and settlements.

Chordeiles minor (Forster, 1771) – Common Nighthawk, chotacabras zumbón. Vagrant, reported once: 30 Mar 1983 (RAR).

Nyctidromus albigollis (Gmelin, 1789) – Common Pauraque, chotacabras pauraque. Common resident of savannah, pasture, and open forested areas.

Caprimulgus maculicaudus (Lawrence, 1862) – Spot-tailed Nightjar, tapacamino cola pinta. Presumed rare summer visitor of relatively unspoiled savannah, but only recorded on 22 Oct 1990 (ATC; vocalizing bird); however, the species is regular in savannah at La Libertad, ~40 km ne. of Palenque (27 May 2006 and 23 May 2008; MAP, BS-P).

NYCTIBIIDAE

Nyctibius jamaicensis (Gmelin, 1789) – Northern Potoo, bienparado norteño. Uncommon resident of savannah, pasture, and edge. First recorded in 1977 (RAR), with records increasing in 2000s. Heard much more often than seen.

APODIDAE

Streptoprocne zonaris (Shaw, 1796) – White-collared Swift, vencejo cuello blanco. Common resident; flies over any wooded habitats, including savannah, but generally most numerous over primary forest on hills.

Chaetura vauxi (Townsend, 1839) – Vaux's Swift, vencejo de Vaux. Common resident seen over any habitat, including settlements.

Panyptila cayennensis (Gmelin, 1789) – Lesser Swallow-tailed Swift, vencejo-tijereta menor. Uncommon resident generally observed over primary or mature secondary forests.

TROCHILIDAE

Florisuga mellivora (Linnaeus, 1758) – White-necked Jacobin, colibrí nuca blanca. Rare resident of primary forest.

Phaethornis longirostris (DeLattre, 1843) – Long-billed Hermit, ermitaño pico largo. Common resident of primary (especially) and mature secondary forests.

Phaethornis striigularis Gould, 1854 – Stripe-throated Hermit, ermitaño garganta rayada. Fairly common resident of primary and mature secondary forests.

Campylopterus curvipennis (Deppe, 1830) – Wedge-tailed Sabrewing, fandanguero cola cuña. Uncommon resident of primary forest; perhaps declining.

Campylopterus hemileucurus (Deppe, 1830) – Violet Sabrewing, fandanguero morado. Uncommon but apparently increasing visitor to primary and mature secondary forests, although seasonal, timing not clear. Perhaps an altitudinal migrant that is a winter visitor (06 Sep–25 May) to Palenque.

Anthracothorax prevostii (Lesson, 1832) – Green-breasted Mango, colibrí garganta negra. Fairly common and increasing resident of second growth, secondary forest, and edge.

†*Lophornis helenae* (DeLattre, 1843) – Black-crested Coquette, coqueta cresta negra. Extirpated resident or altitudinal migrant, likely formerly rare, of primary forest edge and clearings; last recorded in 1977 (RAR).

Chlorostilbon canivetii (Lesson, 1832) – Canivet's Emerald, esmeralda de Canivet. Uncommon but

increasing resident of secondary forest and woodland. *Amazilia candida* (Bourcier and Mulsant, 1846) – White-bellied Emerald, colibrí cándido. Common resident of secondary and primary forests and their edge.

Amazilia tzacatl (De la Llave, 1833) – Rufous-tailed Hummingbird, colibrí cola rojiza. Common resident of second growth, secondary and primary forests, and edge.

†*Eupherusa eximia* (DeLattre, 1843) – Stripe-tailed Hummingbird, colibrí cola rayada. Extirpated resident, likely formerly uncommon to fairly common, of primary forest; last recorded in 1985 (PP).

†*Heliothryx barroti* (Bourcier, 1831) – Purple-crowned Fairy, hada enmascarada. Extirpated resident, likely formerly uncommon, of primary forest, presumably especially along or near streams; last recorded in 1992 (DRP).

Heliomaster longirostris (Audebert and Vieillot, 1801) – Long-billed Starthroat, colibrí pico largo. Rare to uncommon but increasing resident of clearings and forest edge. First recorded locally in 1984 (RAR), and recorded almost annually since mid-2000s.

Archilochus colubris (Linnaeus, 1758) – Ruby-throated Hummingbird, colibrí garganta rubí. Uncommon winter visitor, 29 Oct–22 Apr, to second-growth habitats and edge.

TROGONIDAE

Trogon melanocephalus Gould, 1836 – Black-headed Trogon, trogón cabeza negra. Common resident of primary and secondary forests and their edge.

Trogon violaceus Gmelin, 1788 – Violaceous Trogon, trogón violáceo. Fairly common resident of primary and secondary forests and their edge.

Trogon collaris Vieillot, 1817 – Collared Trogon, trogón de collar. Common and increasing resident of primary forest.

Trogon massena Gould, 1838 – Slaty-tailed Trogon, trogón cola oscura. Fairly common resident of primary forest, particularly around large trees.

MOMOTIDAE

Hylomanes momotula Lichtenstein, 1839 – Tody Motmot, momoto enano. Rare and declining resident of primary forest, generally on hill slopes.

Momotus momota (Linnaeus, 1766) – Blue-crowned Motmot, momoto corona azul. Common resident of primary (especially) and mature secondary forests. Heard more often than seen.

ALCEDINIDAE

- Megaceryle torquatus* (Linnaeus, 1766) – Ringed Kingfisher, martin-pescador de collar. Uncommon resident at forest edge along Río Chacamax and large streams.
- Megaceryle alcyon* (Linnaeus, 1758) – Belted Kingfisher, martin-pescador norteño. Rare winter visitor, 08 Aug–23 Mar, to forest edge along Río Chacamax and large streams.
- Chloroceryle amazona* (Latham, 1790) – Amazon Kingfisher, martin-pescador amazónico. Uncommon resident at flooded roadside ditches, large streams, and ponds.
- Chloroceryle americana* (Gmelin, 1788) – Green Kingfisher, martin-pescador verde. Uncommon resident along streams in primary and secondary forest.
- Chloroceryle aenea* (Pallas, 1764) – American Pygmy Kingfisher, martin-pescador enano. Rare resident along streams with low overhanging vegetation within primary forest.

BUCCONIDAE

- †*Notharchus hyperrhynchus* (Sclater, 1855) – White-necked Puffbird, buco de collar. Extirpated resident of forest canopy and edge; last recorded in 1984 (RAR), and now generally rare in Mexico.
- †*Malacoptila panamensis* (Gmelin, 1788) – White-whiskered Puffbird, buco barbón. Extirpated resident of primary forest; last recorded in 1949, when numerous (Tashian, 1952).

GALBULIDAE

- Galbula ruficauda* Cuvier, 1816 – Rufous-tailed Jacamar, jacamar cola rufa. Rare resident of primary forest. Appears to have been extirpated by the early 1970s, with only 3 records from then until the early 1990s; recolonized in the 2000s and is now recorded annually.

RHAMPHASTIDAE

- Aulacorhynchus prasinus* (Gould, 1834) – Emerald Toucanet, tucaneta verde. Rare visitor to primary forest, presumably as an altitudinal migrant that winters (18 Oct–23 May) occasionally.
- Pteroglossus torquatus* (Gmelin, 1788) – Collared Aracari, arasari de collar. Common resident of primary and secondary forests and edge.
- Ramphastos sulfuratus* (Gould, 1834) – Keel-billed Toucan, tucán pico canoa. Common resident of primary

and secondary forests and edge.

PICIDAE

- Melanerpes formicivorus* (Swainson, 1827) – Acorn Woodpecker, carpintero bellotero. Uncommon resident of scattered oak woodlands at northern edge of settled area of Palenque.
- Melanerpes pucherani* (Malherbe, 1849) – Black-cheeked Woodpecker, carpintero cara negra. Fairly common resident of primary forest.
- Melanerpes aurifrons* (Wagler, 1829) – Golden-fronted Woodpecker, carpintero cheje. Common resident of all wooded habitats, but especially common in savannah and at forest edge.
- Sphyrapicus varius* (Linnaeus, 1766) – Yellow-bellied Sapsucker, chupasavia maculado. Rare winter visitor, 10 Nov–25 Feb, to forested habitats.
- Picoides scalaris* (Wagler, 1829) – Ladder-backed Woodpecker, carpintero mexicano. Uncommon resident of savannah. A recent colonist, first recorded in 1979 (WDH).
- Veniliornis fumigatus* (d'Orbigny, 1840) – Smoky-brown Woodpecker, carpintero café. Uncommon resident of primary forest.
- Colaptes rubiginosus* (Swainson, 1820) – Golden-olive Woodpecker, carpintero oliváceo. Uncommon resident of primary forest.
- Celeus castaneus* (Wagler, 1829) – Chestnut-colored Woodpecker, carpintero castaño. Fairly common resident in primary forest.
- Dryocopus lineatus* (Linnaeus, 1766) – Lineated Woodpecker, carpintero lineado. Common resident of primary and mature secondary forests.
- Campephilus guatemalensis* (Hartlaub, 1844) – Pale-billed Woodpecker, carpintero pico plata. Common resident of primary forest. Heard more often than seen.

FURNARIIDAE

- Synallaxis erythrothorax* Sclater, 1855 – Rufous-breasted Spinetail, güitio pecho rufo. Common resident of secondary scrub. Heard far more often than seen.
- †*Automolus ochrolaemus* (Tschudi, 1844) – Buff-throated Foliage-gleaner, breñero garganta pálida. Extirpated resident of lower levels of primary forest; last recorded in 1993 (CDD).
- Xenops minutus* (Sparrman, 1788) – Plain Xenops, picolezna liso. Rare and declining resident of primary forest. A single individual recorded on 22 Jan 2006 (BF) since the early 1980s.
- Sclerurus guatemalensis* (Hartlaub, 1844) – Scaly-throated

Leaf-tosser, hojarasquero oscuro. Casual resident of primary forest understorey. A single individual was caught in a mist-net and photographed 01 Jul 2006 (ACI).

Dendrocincla anabatina Sclater, 1859 – Tawny-winged Woodcreeper, trepatroncos sepia. Uncommon resident of primary forest.

Dendrocincla homochroa (Sclater, 1859) – Ruddy Woodcreeper, trepatroncos rojizo. Status unclear; apparently a rare resident of primary forest, but recorded only 5 times (1983, 1989, 1991, 2006, 2007). In Mexico, almost always found attending ant swarms.

Sittasomus griseicapillus (Vieillot, 1818) – Olivaceous Woodcreeper, trepatroncos oliváceo. Uncommon resident of primary and mature secondary forests.

Glyphorhynchus spiurus (Vieillot, 1819) – Wedge-billed Woodcreeper, trepatroncos pico cuña. Fairly common resident of primary forests.

Dendrocolaptes sanctithomae (Lafresnaye, 1852) – Northern Barred-Woodcreeper, trepatroncos barrado norteño. Uncommon resident of primary forest; often attends ant swarms.

Xiphorhynchus flavigaster (Vieillot, 1818) – Ivory-billed Woodcreeper, trepatroncos bigotudo. Common resident of primary and secondary forests and edge.

Lepidocolaptes souleyetii (Des Murs, 1849) – Streak-headed Woodcreeper, trepatroncos corona rayada. Fairly common resident of primary (especially) and secondary forests.

THAMNOPHILIDAE

Taraba major (Vieillot, 1816) – Great Antshrike, batará mayor. Uncommon resident of scrubby edge to primary and secondary forests. Heard more often than seen.

Thamnophilus doliatus (Linnaeus, 1764) – Barred Antshrike, batará barrado. Common resident of second-growth habitats and forest edge.

Thamnistes anabatinus Sclater and Salvin, 1860 – Russet Antshrike, batará café. Presumably a very rare (former?) resident of mid-levels of primary forest, but only 2 records, the first of 2 birds 09 Jan 1974 (MBR, TAP), the second of 1 bird 28 Jan 1992 (DRP).

Dysithamnus mentalis (Temminck, 1823) – Plain Antwren, hormiguero sencillo. Presumably a very rare (former?) resident of primary forest understorey, but only 1 record, of a bird at the ruins 02 Jul 1991 (HGdS).

†*Microrhopias quixensis* (Cornalia, 1849) – Dot-winged Antwren, hormiguero ala punteada. Extirpated; formerly a common resident of lower levels of primary forest but last recorded in 1983 (RAR).

Cercomacra tyrannina (Sclater, 1855) – Dusky Antbird,

hormiguero tirano. Fairly common resident of understorey of primary and mature secondary forests, including edge. Heard more often than seen.

FORMICARIIDAE

Formicarius moniliger Sclater, 1857 – Mexican Antthrush, hormiguero-cholino cara negra. Common resident of primary forest floor. Heard far more often than seen.

GRALLARIIDAE

Grallaria guatemalensis Prévost and Des Murs, 1846 – Scaled Antpitta, hormiguero-cholino escamoso. Rare resident of primary forest floor (e.g., Paulson, 1986); recorded only sporadically.

TYRANNIDAE

Ornithion semiflavum (Sclater and Salvin, 1860) – Yellow-bellied Tyrannulet, mosquero ceja blanca. Uncommon resident of primary forest canopy.

Camptostoma imberbe Sclater, 1857 – Northern Beardless-Tyrannulet, mosquero lampiño. Rare resident of savannah, clearings, and edge.

Myiopagis viridicata (Vieillot, 1817) – Greenish Elaenia, elenia verdosa. Uncommon resident, generally at mid-levels, of secondary forest and edge.

Elaenia flavogaster (Thunberg, 1822) – Yellow-bellied Elaenia, elenia vientre amarillo. Uncommon resident of clearings and edge embedded in forest; generally at mid-levels.

Mionectes oleagineus (Lichtenstein, 1823) – Ochre-bellied Flycatcher, mosquero ocrillo. Uncommon resident of primary forest sub-canopy.

Leptopogon amaurocephalus Tschudi, 1846 – Sepia-capped Flycatcher, mosquero gorra parda. Rare and declining resident of mid-levels of primary forest. A singing ♂ 22 May 2008 (MAP, BS-P) provided the only post-1982 record.

Oncostoma cinereigulare (Sclater, 1857) – Northern Bentbill, mosquero pico curvo. Uncommon resident, generally in undergrowth, of primary and mature secondary forests.

Poecilotriccus sylvia (Desmarest, 1806) – Slate-headed Tody-Flycatcher, espatulilla gris. Uncommon resident of scrubby habitats, including edge and second growth.

Todirostrum cinereum (Linnaeus, 1766) – Common Tody-Flycatcher, espatulilla amarillo. Uncommon and declining resident of scrubby second-growth habitats.

Rhynchocyclus brevirostris (Cabanis, 1847) – Eye-ringed Flatbill, mosquero de anteojos. Rare resident of shaded

primary forest.

Tolmomyias sulphurescens (Spix, 1825) – Yellow-olive Flycatcher, mosquero ojos blancos. Common resident of sub-canopy and canopy of primary and secondary forests and edge.

Platyrrinchus cancrominus Sclater and Salvin, 1860 – Stub-tailed Spadebill, mosquero pico chato. Uncommon and declining resident of primary forest understorey.

Onychorhynchus coronatus (Müller, 1776) – Royal Flycatcher, mosquero real. Fairly common resident, chiefly along streams, of primary and mature secondary forest.

Terenotriccus erythrurus (Cabanis, 1847) – Ruddy-tailed Flycatcher, mosquero cola castaña. Very rare resident of primary forest; Palenque, where it has been recorded only 3 times (1977, 1981, and 2003), is at the northern limit of the species' range.

Myiobius sulphureipygius (Sclater, 1857) – Sulphur-rumped Flycatcher, mosquero rabadilla amarilla. Uncommon resident of lower levels of primary forest, particularly near streams and tree-fall gaps.

Contopus cooperi (Nuttall, 1831) – Olive-sided Flycatcher, pibí boreal. Casual winter visitor to forest edge, recorded locally only 3 times: ca. 20 Mar 1991 (RAR), 29 Jan 1992 (DRP), and 20 Dec 1995 (HGdS).

Contopus virens (Linnaeus, 1766) – Eastern Wood-Pewee, pibí oriental. Uncommon migrant, 18 Apr–09 May and 31 Aug–03 Nov.

Contopus cinereus (Spix, 1825) – Tropical Pewee, pibí tropical. Uncommon resident of forest edge and mature second-growth habitats.

Empidonax flaviventris (Baird and Baird, 1843) – Yellow-bellied Flycatcher, mosquero vientre amarillo. Common winter visitor, 01 Oct–24 May, to primary and secondary forest and edge.

Empidonax virescens (Vieillot, 1818) – Acadian Flycatcher, mosquero verdoso. Casual migrant, recorded 09–11 May 2007 (ACI) and 17 Oct 1995 (PO).

Empidonax alnorum Brewster, 1895 – Alder Flycatcher, mosquero ailero. Presumed rare migrant, but only 1 record, 31 Aug 1994 (MAP). Status likely conflated with that of the following species, as the 2 are extremely difficult to distinguish in the field.

Empidonax traillii (Audubon, 1828) – Willow Flycatcher, mosquero saucero. Rare migrant, 21–25 Apr and 01 Sep–01 Oct.

Empidonax minimus (Baird and Baird, 1843) – Least Flycatcher, mosquero mímimo. Fairly common winter visitor, 06 Aug–18 Apr, to second-growth habitats and edge.

Sayornis nigricans (Swainson, 1827) – Black Phoebe, papamoscas negro. Vagrant, the sole area record being of 1 along the Río Chacamax at Nututún ca. 18 Dec

1995 (HGdS).

Pyrocephalus rubinus (Boddaert, 1783) – Vermilion Flycatcher, mosquero cardenal. Fairly common resident of savannah and settled areas.

Attila spadiceus (Gmelin, 1789) – Bright-rumped Attila, atila. Common resident of primary and secondary forest and edge. Heard more often than seen.

Rhytipterna holerythra (Sclater and Salvin, 1861) – Rufous Mourner, plañidera alazán. Uncommon resident of mid-levels of shaded primary forest. Heard far more often than seen.

Myiarchus tuberculifer (d'Orbigny and Lafresnaye, 1837) – Dusky-capped Flycatcher, papamoscas triste. Uncommon resident of primary and mature secondary forests.

Myiarchus crinitus (Linnaeus, 1758) – Great Crested Flycatcher, papamoscas viajero. Common winter visitor, 01 Oct–25 May, to upper and mid-levels of forested habitats.

Myiarchus tyrannulus (Müller, 1776) – Brown-crested Flycatcher, papamoscas tirano. Uncommon but increasing resident of secondary forests.

Pitangus sulphuratus (Linnaeus, 1766) – Great Kiskadee, luis bienteveo. Common resident of forest edge and open habitats, especially near water.

Megarynchus pitangua (Linnaeus, 1766) – Boat-billed Flycatcher, luis pico grueso. Fairly common resident of forest and forest edge, generally in canopy or sub-canopy.

Myiozetetes similis (Spix, 1825) – Social Flycatcher, luis gregario. Common resident of forest edge and open habitats.

Myiodynastes luteiventris Sclater, 1859 – Sulphur-bellied Flycatcher, papamoscas atigrado. Common summer visitor, 12 Mar–08 Aug, of canopy and edge of wooded habitats.

Legatus leucophaeus (Vieillot, 1818) – Piratic Flycatcher, papamoscas pirata. Presumed rare summer visitor, 15 Mar–11 Jul, to canopy of open wooded habitats and forest edge, but not recorded since 1983 (RAR). Said to be “rather common” 10–21 May 1900 (E. W. Nelson). That most birders visit Palenque during winter may contribute to the dearth of recent records, although we have failed to find this species in roughly 1 month (cumulatively) in May and June, 2004–2008.

Tyrannus melancholicus Vieillot, 1819 – Tropical Kingbird, tirano tropical. Common resident of open habitats.

Tyrannus couchii Baird, 1858 – Couch's Kingbird, tirano silbador. Rare resident of savannah.

Tyrannus tyrannus (Linnaeus, 1758) – Eastern Kingbird, tirano dorso negro. Rare spring migrant, 21 Apr–21 May; presumably also passes through in autumn, but

the sole record at that season is of many dozens 07–08 Sep 1989 (CSE).

Tyrannus forficatus (Gmelin, 1789) – Scissor-tailed Flycatcher, tirano-tijereta rosado. Rare winter visitor, 29 Oct–24 Mar, to savannah.

Tyrannus savana Vieillot, 1808 – Fork-tailed Flycatcher, tirano-tijereta gris. Rare resident of savannah; like the preceding species, much more numerous to the N and E of Palenque.

TITYRIDAE

Schiffornis turdinus (Wied, 1831) – Thrush-like Schiffornis, saltarín café. Rare and declining resident of understorey of shaded primary forest.

[†]*Pachyramphus cinnamomeus* Lawrence, 1861 – Cinnamon Becard, mosquero-cabezón canelo. Extirpated; formerly a fairly common resident, becoming common in summer (see Tashian, 1952), 06 Jul–29 Oct, to edge and clearings in primary forest, but last recorded in 1991 (RAR).

Pachyramphus major (Cabanis, 1847) – Gray-collared Becard, mosquero-cabezón mexicano. Casual visitor and likely an altitudinal migrant occasionally found in winter at Palenque.

Pachyramphus aglaiae (Lafresnaye, 1839) – Rose-throated Becard, mosquero-cabezón degollado. Rare to uncommon and declining resident in secondary forest, forest edge, and clearings.

Tityra semifasciata (Spix, 1825) – Masked Tityra, titira enmascarada. Common resident of forest canopy and edge and heavily wooded savannah.

Tityra inquisitor (Lichtenstein, 1823) – Black-crowned Tityra, titira pico negro. Fairly common resident of forest canopy and edge.

COTINGIDAE

Cotinga amabilis Gould, 1857 – Lovely Cotinga, cotinga azuleja. Rare and declining resident of primary forest and forest edge. Individual ♂♂ at the ruins 23 Jan 2007 (MC) and 30 Jan 2009 (RCH) provided the only records since 1991.

[†]*Lipaugus unirufus* Sclater, 1859 – Rufous Piha, pía guardabosques. Extirpated resident of primary forest sub-canopy; last reported in 1995 (PO).

PIPRIDAE

Manacus candei (Parzudaki, 1841) – White-collared

Manakin, manaquín cuello blanco. Uncommon resident of edge and scrubby clearings in secondary and primary forests.

Pipra mentalis Sclater, 1857 – Red-capped Manakin, manaquín cabeza roja. Uncommon resident of sub-canopy of primary forest.

VIREONIDAE

Vireo griseus (Boddaert, 1783) – White-eyed Vireo, vireo ojos blancos. Common winter visitor, 16 Oct–20 May, to all scrubby habitats, including lower levels of forest edge.

Vireo flavifrons Vieillot, 1808 – Yellow-throated Vireo, vireo garganta amarilla. Fairly common winter visitor, 02 Oct–21 Apr, generally to upper levels of forested and well-wooded habitats.

Vireo plumbeus Coues, 1866 – Plumbeous Vireo, vireo plomizo. Winter vagrant, recorded 18 Dec 1995 (HGdS) and 08 Mar 2001 (BF).

Vireo solitarius (Wilson, 1810) – Blue-headed Vireo, vireo cabeza azul. Rare winter visitor, 18 Jan–10 Mar, to heavily wooded habitats.

Vireo gilvus (Vieillot, 1808) – Warbling Vireo, vireo gorjeador. Uncommon winter visitor, 06 Nov–01 May, to secondary forests and wooded scrub.

Vireo philadelphicus (Cassin, 1851) – Philadelphia Vireo, vireo de Filadelfia. Uncommon winter visitor, 31 Oct–01 May, to forested habitats.

Vireo olivaceus (Linnaeus, 1766) – Red-eyed Vireo, vireo ojos rojos. Uncommon migrant, 11 Apr–21 May and 31 Aug–30 Oct.

Vireo flavoviridis (Cassin, 1851) – Yellow-green Vireo, vireo verdeamarillo. Common summer visitor, 03 Mar–05 Sep, to canopy and sub-canopy of primary and mature secondary forests.

[†]*Hylophilus ochraceiceps* Sclater, 1859 – Tawny-crowned Greenlet, verdillo ocre. Extirpated resident, presumed uncommon, of primary forest understorey; last recorded in 1981 (PP).

Hylophilus decurtatus (Bonaparte, 1838) – Lesser Greenlet, verdillo gris. Common resident of primary forest canopy.

Vireolanius pulchellus Sclater and Salvin, 1859 – Green Shrike-Vireo, vireón esmeralda. Uncommon and declining resident of primary forest canopy.

CORVIDAE

Cyanocorax morio (Wagler, 1829) – Brown Jay, chara papán. Common resident of wooded habitats.

HIRUNDINIDAE

Progne subis (Linnaeus, 1758) – Purple Martin, golondrina azul-negra. Casual migrant, recorded in both spring (19–21 Mar 1984, RAR; 5 on 10 Apr 2009, HGdS;) and autumn (2 ♂♂ 05 Aug 1972, RAR).

Progne chalybea (Gmelin, 1789) – Gray-breasted Martin, golondrina acerada. Fairly common summer visitor, 22 Feb–31 Aug, to settlements and open habitats.

Tachycineta bicolor (Vieillot, 1808) – Tree Swallow, golondrina bicolor. Rare spring migrant, 29 Jan–07 Apr; may winter locally, but no records for autumn or mid-winter.

Tachycineta albilinea (Lawrence, 1863) – Mangrove Swallow, golondrina manglera. Uncommon resident of open areas near water, such as flooded fields and ponds.

Stelgidopteryx serripennis (Audubon, 1838) – Northern Rough-winged Swallow, golondrina aliaserrada. Fairly common resident of open areas; nests in the ruins.

Hirundo rustica Linnaeus, 1758 – Barn Swallow, golondrina tijereta. Uncommon winter visitor, 01 Sep–01 Apr, to all open habitats, including settlements.

TROGLODYTIDAE

Campylorhynchus zonatus (Lesson, 1832) – Band-backed Wren, matraca tropical. Uncommon and declining resident of primary and secondary forest edge.

Thryothorus maculipectus Lafresnaye, 1845 – Spot-breasted Wren, chivirín moteado. Common resident of primary and secondary forest and forest edge. More often heard than seen.

Thryothorus modestus Cabanis, 1861 – Plain Wren, chivirín modesto. Uncommon resident of scrubby second growth and wooded edge; colonized in 1991.

Troglodytes aedon Vieillot, 1809 – House Wren, chivirín saltapared. Common and increasing resident of clearings, scrubby areas, and gardens.

†*Cistothorus platensis* (Latham, 1790) – Sedge Wren, chivirín sabanero. Extirpated; formerly a common resident of grassy areas in natural savannah, but last recorded in 1946 (>10 MLZ specimens).

†*Uropsila leucogastra* (Gould, 1837) – White-bellied Wren, chivirín vientre blanco. Extirpated; formerly a presumed fairly common resident of understorey in secondary forests and similar wooded areas. Last recorded in 1983 (RAR).

Henicorhina leucosticta (Cabanis, 1847) – White-breasted Wood-Wren, chivirín pecho blanco. Common resident of primary forest understorey. More often heard than seen.

†*Microcerculus philomela* (Salvin, 1861) – Nightingale Wren, chivirín ruiseñor. Extirpated resident of shaded

primary forest understorey. A secretive species whose distinctive song was heard routinely from 1967 through 1984 (e.g., LNS recordings from 1973, FLMNH recordings from 1976).

SYLVIIDAE

Ramphocaenus melanurus Vieillot, 1819 – Long-billed Gnatwren, soterillo picudo. Common resident of vine tangles in secondary and primary forests. Heard more often than seen.

Polioptila caerulea (Linnaeus, 1766) – Blue-gray Gnatcatcher, perlita azul-gris. Fairly common winter visitor, 07 Sep–12 Mar, of upper levels of well-wooded habitats, including edge.

Polioptila plumbea (Gmelin, 1788) – Tropical Gnatcatcher, perlita tropical. Rare and declining resident of primary forest.

TURDIDAE

Catharus fuscescens (Stephens, 1817) – Veery, zorzal rojizo. Rare spring migrant, 09–16 May.

Catharus minimus (Lafresnaye, 1848) – Gray-cheeked Thrush, zorzal cara gris. Rare migrant, 04–24 May; 1 autumn record: 16 Oct 1995 (PO).

Catharus ustulatus (Nuttall, 1840) – Swainson's Thrush, zorzal de Swainson. Uncommon winter visitor, 16 Oct–09 May, to forest understorey, including second growth.

Catharus guttatus (Pallas, 1811) – Hermit Thrush, zorzal cola rufa. Rare winter visitor, 01 Jan–02 Mar, to forested areas.

Hylocichla mustelina (Gmelin, 1789) – Wood Thrush, zorzal maculado. Common winter visitor, 16 Oct–20 May, to understorey of primary and mature secondary forests.

Turdus grayi Bonaparte, 1838 – Clay-colored Thrush, mirlo pardo. Common resident of secondary forest, edge, and settled areas (gardens), less often in primary forest.

†*Turdus assimilis* Cabanis, 1850 – White-throated Thrush, mirlo garganta blanca. Extirpated; last recorded in 1939 (Brodkorb 1943). Former status uncertain, but presumably an altitudinal migrant to primary forest understorey that wintered at Palenque.

MIMIDAE

Dumetella carolinensis (Linnaeus, 1766) – Gray Catbird,

maullador gris. Fairly common winter visitor, 16 Oct–16 May, to second-growth habitats and forest edge.

Mimus gilvus (Vieillot, 1808) – Tropical Mockingbird, centzontle tropical. Uncommon but increasing resident of savannah and settled areas. First recorded locally in 1983 (DRP) and had colonized by mid-1990s.

BOMBYCILLIDAE

Bombycilla cedrorum Vieillot, 1808 – Cedar Waxwing, ampelis chinito. Rare winter visitor, with all records 04 Feb–30 Mar, to forested habitats and edge.

PARULIDAE

Vermivora pinus (Linnaeus, 1766) – Blue-winged Warbler, chipe alas azules. Uncommon winter visitor, 02 Oct–18 Apr, to upper levels of forested habitats. Of note, a “Brewster’s Warbler”—the “dominant” (Parkes, 1951) phenotype of a *V. pinus* × *V. chrysoptera* hybrid—was recorded at Palenque 05 Feb 1983 (REW).

Vermivora chrysoptera (Linnaeus, 1766) – Golden-winged Warbler, chipe alas doradas. Rare spring migrant, 18 Mar (wintered?)–06 May; 2 mid-winter records: a ♂ 10 Jan 1974 (MBR) and a bird 14 Jan 2004 (eBird).

Vermivora peregrina (Wilson, 1811) – Tennessee Warbler, chipe peregrino. Uncommon winter visitor, 23 Oct–06 May, to upper levels of primary and secondary forests and their edge.

Vermivora ruficapilla (Wilson, 1811) – Nashville Warbler, chipe de coronilla. Status uncertain: the species is perhaps unexpected at Palenque, and confusion with *Hylophilus decurtatus*, a common bird at the site, is possible. Nevertheless, apparently a rare winter visitor, 04 Nov–07 Apr, to wooded habitats.

Parula americana (Linnaeus, 1758) – Northern Parula, parula norteña. Uncommon winter visitor, 30 Oct–16 Mar, to canopy and sub-canopy of secondary and primary forests and their edge.

Parula pitiayumi (Vieillot, 1817) – Tropical Parula, parula tropical. Status uncertain, given likely confusion with *P. americana*. Moreover, González-García (1993) did not list the species for the Selva Lacandona, although he overlooked 2 specimens from Laguna Ocotál (Paynter, 1957). Even so, it is rare in the Lacandona. It is perhaps a very rare resident in foothill forests of Palenque, where it has been reported doubtfully twice, there is a record from San Manuel 24 Oct 1996 (HGdS).

Dendroica petechia (Linnaeus, 1766) – Yellow Warbler, chipe amarillo. Fairly common winter visitor, 31 Aug–22 May, to all wooded habitats.

Dendroica pensylvanica (Linnaeus, 1766) – Chestnut-

sided Warbler, chipe flancos castaños. Uncommon winter visitor, 02 Oct–09 May, to mid-levels and below of secondary and primary forests and their edge.

Dendroica magnolia (Wilson, 1811) – Magnolia Warbler, chipe de magnolia. Common winter visitor, 01 Oct–22 Apr, to all wooded habitats, including scrub.

Dendroica caerulescens (Gmelin, 1789) – Black-throated Blue Warbler, chipe azul-negro. Vagrant, recorded once: a ♂ 17 Oct 1995 (PO).

Dendroica coronata (Linnaeus, 1766) – Myrtle Warbler, chipe coronado. Rare winter visitor, with all records 04 Feb–24 Mar, to second-growth habitats.

Dendroica virens (Gmelin, 1789) – Black-throated Green Warbler, chipe dorso verde. Common winter visitor, 16 Oct–22 Apr, to upper levels of primary and secondary forest and their edge.

Dendroica fusca (Müller, 1776) – Blackburnian Warbler, chipe garganta naranja. Rare spring migrant, 31 Mar–06 May.

Dendroica dominica (Linnaeus, 1766) – Yellow-throated Warbler, chipe garganta amarilla. Uncommon winter visitor, 24 Oct–23 Mar, generally confined to planted palms.

Dendroica cerulea (Wilson, 1810) – Cerulean Warbler, chipe cerúleo. Likely a rare spring migrant, but only 1 record: 07 Apr 1993 (eBird).

Mniotilta varia (Linnaeus, 1766) – Black-and-white Warbler, chipe trepador. Common winter visitor, 07 Aug–01 May, to all wooded habitats.

Setophaga ruticilla (Linnaeus, 1758) – American Redstart, chipe flameante. Common winter visitor, 01 Oct–23 May, to nearly all levels of all wooded habitats.

Helminthos vermivorum (Gmelin, 1789) – Worm-eating Warbler, chipe gusanero. Fairly common winter visitor, 07 Sep–07 Apr, to dead leaves and vine tangles in forested habitats.

Limnithlypis swainsonii (Audubon, 1834) – Swainson’s Warbler, chipe corona café. Vagrant, with 1 record, of a bird voice recorded 20 Mar 2002 (RCH).

Seiurus aurocapilla (Linnaeus, 1766) – Ovenbird, chipe suelero. Fairly common winter visitor, 01 Oct–18 Apr, to understorey of forested habitats.

Seiurus noveboracensis (Gmelin, 1789) – Northern Waterthrush, chipe charquero. Fairly common winter visitor, 01 Oct–21 May, to streams and ponds.

Seiurus motacilla (Vieillot, 1809) – Louisiana Waterthrush, chipe arroyero. Fairly common winter visitor, 21 Jul–07 Apr, to forested streams.

Oporornis formosus (Wilson, 1811) – Kentucky Warbler, chipe patilludo. Common winter visitor, 31 Aug–18 Apr, to understorey of forested habitats.

Oporornis philadelphia (Wilson, 1810) – Mourning

Warbler, chipe enlutado. Rare spring migrant, 23 Mar (wintering?; MLZ 44160)–06 May.

Geothlypis trichas (Linnaeus, 1766) – Common Yellowthroat, mascarita común. Fairly common winter visitor, 24 Oct–14 May, to scrub and wet, densely vegetated fields.

Geothlypis poliocephala Baird, 1865 – Gray-crowned Yellowthroat, mascarita pico grueso. Fairly common resident in reeds and flooded savannah.

Wilsonia citrina (Boddaert, 1783) – Hooded Warbler, chipe encapuchado. Common winter visitor, 01 Oct–07 Apr, to understorey of forested habitats.

Wilsonia pusilla (Wilson, 1811) – Wilson's Warbler, chipe corona negra. Common winter visitor, 01 Oct–22 Apr, to lower levels of all wooded habitats, including scrub.

Wilsonia canadensis (Linnaeus, 1766) – Canada Warbler, chipe de collar. Uncommon migrant, 22 Apr–01 May and 05 Sep–03 Nov.

Basileuterus culicivorus (Deppe, 1830) – Golden-crowned Warbler, chipe corona dorada. Fairly common resident of primary forest and mature secondary forest.

Basileuterus rufifrons (Swainson, 1838) – Rufous-capped Warbler, chipe gorra rufa. Rare resident of scrubby second growth.

Icteria virens (Linnaeus, 1758) – Yellow-breasted Chat, buscabreña. Uncommon winter visitor, 05 Sep–07 Apr, to second-growth habitats and scrub.

COEREBIDAE

Coereba flaveola (Linnaeus, 1758) – Bananaquit, reinita-mielera. Uncommon to rare resident of canopy and sub-canopy of forest edge.

THRAUPIDAE

†*Eucometis penicillata* (Spix, 1825) – Gray-headed Tanager, tångara cabeza gris. Extirpated resident, likely formerly rare to uncommon, of primary forest understorey; last recorded in early 1980s (see Howell, 1999).

†*Lanio aurantius* Lafresnaye, 1846 – Black-throated Shrike-Tanager, tångara garganta negra. Extirpated resident, likely formerly fairly common, of primary forest canopy and sub-canopy; last recorded in 1985 (PP). A key sentinel of mixed-species flocks in se. Mexico; its disappearance coincided with the disappearance of other classic flocking species, most notably *Microrhopias quixensis* and *Hylophilus ochraceiceps*.

Ramphocelus sanguinolentus (Lesson, 1831) – Crimson-collared Tanager, tångara sanguinolenta. Fairly

common resident in secondary forest and forest edge.

Ramphocelus passerinii Bonaparte, 1831 – Passerini's Tanager, tångara de Passerini. Fairly common resident in secondary forest and forest edge.

Thraupis episcopus (Linnaeus, 1766) – Blue-gray Tanager, tångara azul-gris. Fairly common resident in forest edge and open areas.

Thraupis abbas (Deppe, 1830) – Yellow-winged Tanager, tångara alas amarillas. Common resident of forest edge and open areas.

Tangara larvata (Du Bus de Gisignies, 1846) – Golden-hooded Tanager, tångara capucha dorada. Uncommon resident of canopy and sub-canopy of primary and mature secondary forest edge.

Chlorophanes spiza (Linnaeus, 1758) – Green Honeycreeper, mielero verde. Uncommon but increasing resident of edge and canopy of primary and secondary forests.

Cyanerpes cyaneus (Linnaeus, 1766) – Red-legged Honeycreeper, mielero patas rojas. Common and increasing resident of edge and canopy of primary forest and secondary forests.

Saltator coerulescens Vieillot, 1817 – Grayish Saltator, picurero grisáceo. Common resident of second-growth habitats and wooded savannah.

Saltator maximus (Müller, 1776) – Buff-throated Saltator, picurero bosquero. Common resident of wooded habitats, especially second-growth forest.

Saltator atriceps (Lesson, 1832) – Black-headed Saltator, picurero cabeza negra. Common resident of wooded habitats, including primary forest. Unknown at Palenque until 1967 (EPE), but now the most numerous *Saltator* species.

EMBERIZIDAE

Volatinia jacarina (Linnaeus, 1766) – Blue-black Grassquit, semillero brincador. Fairly common resident of scrubby second growth and fields.

Sporophila corvina (Sclater, 1860) – Variable Seedeater, semillero variable. Fairly common resident of scrubby second growth, fields, and gardens; apparently a recent colonist, first recorded in 1972 (RAR).

Sporophila torqueola (Bonaparte, 1850) – White-collared Seedeater, semillero de collar. Common resident of scrubby second growth, fields, and gardens.

Oryzoborus funereus Sclater, 1859 – Thick-billed Seed-Finch, semillero pico grueso. Uncommon and declining resident of scrubby second growth and forest edge.

†*Tiaris olivacea* (Linnaeus, 1766) – Yellow-faced Grassquit, semillero oliváceo. Status uncertain: the only records are from the late 1970s and early 1980s (GWL, RAR,

Howell, 1999), hinting at a former small population, presumably in scrubby second-growth habitats.

†*Sicalis luteola* (Sparrman, 1789) – Grassland Yellow-Finch, gorrión-canario sabanero. Extirpated resident, likely common, of savannah and fields; last recorded in 1939 (Brodkorb 1943). This species remains fairly common in savannah to the north of Palenque.

Arremon aurantirostris Lafresnaye, 1847 – Orange-billed Sparrow, rascador pico naranja. Uncommon resident of primary forest understorey.

Arremonops chloronotus (Salvin, 1861) – Green-backed Sparrow, rascador dorso verde. Fairly common resident of understorey in primary and secondary forests.

Aimophila rufescens (Swainson, 1827) – Rusty Sparrow, zacatonero rojizo. Rare resident of understorey in primary and secondary forests, particularly on hill slopes.

Aimophila botterii (Sclater, 1858) – Botteri's Sparrow, zacatonero de Botteri. Presumed to be a former fairly common resident of grassy savannah, but now rare, the only relatively recent records from 08 Sep 1989 (CSE) and 16 Mar 1991 (JCS), although the species occurs regularly in the La Libertad area, a short distance to the northeast.

Ammodramus savannarum (Gmelin, 1789) – Grasshopper Sparrow, gorrión chapulín. Casual winter visitor and migrant. Four specimens (MLZ) taken 28 Feb–01 May 1946, but only 1 record since, of a bird voice recorded 13 km E of Palenque 25 Apr 1993 (LNS 89429).

Melospiza lincolni (Audubon, 1834) – Lincoln's Sparrow, gorrión de Lincoln. Status unclear; apparently a rare winter visitor (Howell, 1999, JCS 13 Mar 1991).

CARDINALIDAE

Piranga rubra (Linnaeus, 1758) – Summer Tanager, tångara roja. Fairly common winter visitor, 16 Oct–01 May, to upper and mid levels of forested habitats and their edge.

Piranga olivacea (Gmelin, 1789) – Scarlet Tanager, tångara escaflata. Rare autumn migrant, 22 Oct–10 Nov (e.g., Paulson, 1986); may also pass through in spring, but not reported at that season.

Piranga ludoviciana (Wilson, 1811) – Western Tanager, tångara capucha roja. Casual winter visitor to wooded habitats, with at least 4 records 05 Feb–30 Mar (PP, RAR, CLW).

†*Piranga leucoptera* Trudeau, 1839 – White-winged Tanager, tångara alas blancas. Extirpated; last definite record in 1983 (RAR). Former status uncertain, but, like *Turdus assimilis*, likely an altitudinal migrant to primary forest canopy in winter.

Habia rubica (Vieillot, 1817) – Red-crowned Ant-Tanager, tångara-hormiguera corona roja. Fairly common to uncommon resident of primary forest. Nearly always outnumbered by *H. fuscicauda*, a pattern reflected in relative capture rates (Table 1).

Habia fuscicauda (Cabanis, 1861) – Red-throated Ant-Tanager, tångara-hormiguera garganta roja. Common resident of primary and secondary forest.

Caryothraustes poliogaster (Du Bus de Gisignies, 1847) – Black-faced Grosbeak, picogordo cara negra. Uncommon resident of primary forest canopy and sub-canopy.

Pheucticus ludovicianus (Linnaeus, 1766) – Rose-breasted Grosbeak, picogordo pecho rosa. Fairly common winter visitor, 22 Oct–01 May, to all wooded habitats, but typically in second growth.

Pheucticus melanocephalus (Swainson, 1827) – Black-headed Grosbeak, picogordo tigrillo. Vagrant; the sole area record was provided by a carefully studied ♀ at San Manuel 23 Jan 2001 (MAP). There was only 1 previous report from Chiapas (see Rangel-Salazar, 1990).

†*Granatellus sallaei* (Bonaparte, 1856) – Gray-throated Chat, granatelo yucateco. Extirpated; formerly a fairly common resident of forests, last recorded in 1946 (5 MLZ specimens).

Cyanocopsa cyanooides (Lafresnaye, 1847) – Blue-black Grosbeak, picogordo negro. Uncommon resident of primary forest understorey.

Passerina caerulea (Linnaeus, 1758) – Blue Grosbeak, picogordo azul. Uncommon winter visitor, 24 Oct–19 Apr, to scrub and brushy fields.

Passerina cyanea (Linnaeus, 1766) – Indigo Bunting, colorín azul. Fairly common winter visitor, 16 Oct–13 May, to second growth, edge, scrub, and brushy fields.

Passerina ciris (Linnaeus, 1758) – Painted Bunting, colorín sietecolores. Uncommon winter visitor, 10 Dec–13 May, to scrubby second growth and brushy fields.

Spiza americana (Gmelin, 1789) – Dickcissel, arrocero americano. Casual migrant: 3 specimens taken 30 Mar–13 May 1946 (MLZ 43934, 44060, 44083).

ICTERIDAE

Agelaius phoeniceus (Linnaeus, 1766) – Red-winged Blackbird, tordo sargento. Vagrant, recorded twice: 31 Oct 1973 (JH) and “a few” 04–08 Aug 1972 (RAR).

Sturnella magna (Linnaeus, 1758) – Eastern Meadowlark, pradero tortilla-con-chile. Uncommon and likely declining resident of open savannah, pasture, and fields.

Dives dives (Deppe, 1830) – Melodious Blackbird, tordo cantor. Common resident of scrubby second growth, including gardens and settlements.

Quiscalus mexicanus (Gmelin, 1788) – Great-tailed Grackle, zanate mexicano. Common and increasing resident of cleared areas and around settlements.

Molothrus aeneus (Wagler, 1829) – Bronzed Cowbird, tordo ojos rojos. Rare and declining brood parasite, resident in pasture, savannah, and second growth; parasitizes *Icterus* sp. and many other species (Friedmann and Kiff, 1985).

Molothrus oryzivorus (Gmelin, 1788) – Giant Cowbird, tordo gigante. Rare to uncommon brood parasite, resident in savannah and at forest edge; at Palenque, depends on *Psarocolius* sp. for hosts.

Icterus prosthemelas (Strickland, 1850) – Black-cowled Oriole, bolsero capucha negra. Uncommon and declining resident of primary forest canopy and edge.

Icterus spurius (Linnaeus, 1766) – Orchard Oriole, bolsero castaño. Common winter visitor, 30 Jul–31 Mar, to second growth and wooded scrub.

Icterus cucullatus Swainson, 1827 – Hooded Oriole, bolsero encapuchado. Uncommon resident of savannah and settlement; a recent colonist, first recorded in 1983 (REW).

Icterus mesomelas (Wagler, 1829) – Yellow-tailed Oriole, bolsero cola amarilla. Uncommon and declining resident of forest edge.

Icterus gularis (Wagler, 1829) – Altamira Oriole, bolsero de Altamira. Rare but perhaps increasing resident of savannah and settlements.

Icterus galbula (Linnaeus, 1758) – Baltimore Oriole, bolsero de Baltimore. Common winter visitor, 05 Sep–08 May, to upper levels of all wooded habitats.

Amblycercus holosericeus (Deppe, 1830) – Yellow-billed Cacique, cacique pico claro. Common resident of primary and secondary forest understorey. Heard more often than seen.

Psarocolius wagleri (Gray, 1845) – Chestnut-headed Oropendola, oropéndola cabeza castaño. Uncommon but increasing resident of primary forest edge and clearings.

Psarocolius montezuma (Lesson, 1830) – Montezuma Oropendola, oropéndola de Moctezuma. Common resident of canopy, edge, and clearings of primary and mature secondary forests and even savannah with large trees. Like the preceding species, often seen only flying overhead.

FRINGILLIDAE

Euphonia affinis (Lesson, 1842) – Scrub Euphonia, eufonia

garganta negra. Fairly common resident that colonized second growth in the early 1980s.

Euphonia hirundinacea Bonaparte, 1838 – Yellow-throated Euphonia, eufonia garganta amarilla. Common resident, chiefly in secondary forest but also in primary forest and clearings.

Euphonia gouldi Sclater, 1857 – Olive-backed Euphonia, eufonia olivácea. Uncommon resident of primary forest.

SPECIES OF DOUBTFUL OR UNCERTAIN OCCURRENCE

An additional 27 species have been reported, sometimes repeatedly, but, on the basis of known altitudinal range, habitat, or distribution (Howell and Webb, 1995; Parker et al., 1996; American Ornithologists' Union, 1998), are of questionable or dubious occurrence:

Crypturellus cinnamomeus (Lesson, 1842) – Thicket Tinamou, tinamú canelo. Although there are a few reports, we feel all are in error and likely stem from lack of experience with tinamou calls. There are no reliable records for this species at Palenque, and it is absent from the dense forests of La Selva Lacandona (pers. obs.).

Harpyhaliaetus solitarius (Tschudi, 1844) – Solitary Eagle, águila solitaria. This eagle has a long, uncomfortable history of reports in SE Mexico (Howell and Webb, 1995), and it was reported at Palenque in 1972 and again in 1983–1985 (e.g., Paulson, 1986). Photographs taken in 1983 of 1 such bird proved, years later, to be of *Buteogallus anthracinus* (KPA in litt., 18 Dec 2007). Reports from elsewhere in the Selva Lacandona (González-García, 1993; Puebla-Olivares et al., 2002) lack documentation. We are unaware of any valid records for the Gulf lowlands of Mexico, but the species has been recorded recently in *highlands* of central Belize (Clark et al., 2006) and foothills near Uxpanapa, Oaxaca (MAP, BS-P, 27 Jan 2001), and a small population apparently occurred formerly in the Sierra de los Tuxtlas, Veracruz (Winker et al., 1992; W. J. Schaldach, Jr., ms.).

Ibycter americanus (Boddaert, 1783) – Red-throated Caracara, caracara come cacao. Perhaps occurred at site, but there are no definite records, even historically. Goldman (1951:440) felt that, in Mexico, the species was confined to the Pacific slope south of the Isthmus of Tehuantepec, but it was also found on the Atlantic slope of southern Veracruz (Lowery and Dahlquist, 1951). The extent to which this species occurred in lowland forests of E Mexico is unknown.

Falco deiroleucus Temminck, 1825 – Orange-breasted

Falcon, halcón pecho rufo. This species may have occurred at Palenque prior to regional deforestation, but it is unlikely to occur there now: there are few, if any, valid records for Mexico in the past 2 decades (Baker et al., 2000). Nonetheless, this species was reported at Palenque in 1983, 2003, 2005, and 2006. In our judgment, each of these reports can be referred instead to *F. ruficularis petoensis*, the northern subspecies of the Bat Falcon that often has the breast orange (Howell and Whittaker, 1995). Locations nearest Palenque that support (small) populations of *F. deiroleucus* are Tikal National Park in Guatemala and, especially, the Mountain Pine Ridge area of the Maya Mountains of eastern Belize (Baker et al., 2000).

Amazona farinosa (Boddaert, 1783) – Mealy Parrot, loro corona azul. In Mexico, this species is now essentially restricted to extensive humid forests of the Selva Lacandona, where it is common; although it has occasionally been seen in extensively fragmented forest. Palenque sits at the northern tip of the Lacandona, but there are no definite records there of this large, raucous species. It perhaps once occurred in these forests, and the lack of old specimens may be the result of a difficulty to collect large, high-flying parrots.

Myiodynastes maculatus (Müller, 1776) – Streaked Flycatcher, papamoscas rayado. Howell (1999) listed this species for Palenque, but we have not located a credible record. We did receive a report, by a highly skilled observer, of 2 calling birds 06 Feb 1981, but such a record is unprecedented and thus questionable because the species winters in South and South Central America and is unknown in Mexico before late March (Howell and Webb, 1995).

Pachyrhamphus polychopterus (Vieillot, 1818) – White-winged Becard, mosquero-cabezón alas blancas. One ♂ reportedly was observed at Palenque in Jul 1983 (Sada, 1989). Although the species had been reported once previously (Nocedal 1980), Howell and Webb (1995) rightly concluded that records for Mexico “required verification.” That verification has been obtained: a ♂ was photographed by Frank Stermitz and David Salas near Ejido San Lázaro (vic. Pico de Oro), Chiapas, 15 Jan 2009 (Carmody, 2009).

Cyclarhis gujanensis (Gmelin, 1789) – Rufous-browed Peppershrike, vireón ceja rufa. This vocal species has been reported at Palenque various times, but we have failed to detect its loud and distinctive song during any of our visits, and Howell (1999) has also not recorded it at the site. The species does, however, occur in wooded savannah only tens of kilometers to the northeast of Palenque, and some records attributed to “Palenque”

(e.g., voice recording FLMNH 1926) are more likely from these nearby areas.

Euphonia minuta Cabanis, 1848 – White-vented Euphonia, eufonia vientre blanco. For a long time the sole record claimed from Mexico was of a ♂ specimen reportedly collected at Palenque 09 May 1946 (Phillips and Hardy, 1965). But locality and date information associated with specimens taken by the collector, Mario del Toro Avilés, have been questioned (Binford 1989:60), so this record is generally dismissed (e.g., Howell and Webb, 1995). The species finally has been documented in Mexico—3-plus were observed and 2 were photographed by Amy McAndrews at Bonampak 04 Jun 2009 (Gómez de Silva et al., 2009b)—suggesting the possibility of occurrence at Palenque and perhaps lending a sliver of veracity to the 1946 record.

We also received reports of the following 18 species, none of which is likely to occur at Palenque and, therefore, all of which we feel were the result of honest mistakes, either in identification or in reporting the locality, or would represent significant enough extensions in range or habitat that full documentation would be needed: *Geranospiza caerulescens* (Vieillot, 1817) [Crane Hawk]; *Busarellus nigricollis* (Latham, 1790) [Black-collared Hawk]; *Buteo albicaudatus* Vieillot, 1816 [White-tailed Hawk]; *Amazona xantholara* (Gray, 1859) [Yellow-lored Parrot]; *Dromococcyx phasianellus* (Spix, 1824) [Pheasant Cuckoo]; *Lurocalis semitorquatus* (Gmelin, 1789) [Short-tailed Nighthawk]; *Streptoprocne rutila* (Vieillot, 1817) [Chestnut-collared Swift]; *Amazilia yucatanensis* (Cabot, 1845) [Buff-bellied Hummingbird]; *Lamprolaima rhami* (Lesson, 1839) [Garnet-throated Hummingbird]; *Atthis ellioti* Ridgway, 1878 [Wine-throated Hummingbird]; *Empidonax flavescens* Lawrence, 1865 [Yellowish Flycatcher]; *Vireo pallens* Salvin, 1863 [Mangrove Vireo]; *Cyanocorax yncas* (Boddaert, 1783) [Green Jay]; *Petrochelidon fulva* Vieillot, 1808 [Cave Swallow]; *Vermivora celata* (Say, 1823) [Orange-crowned Warbler]; *Cyanerpes lucidus* (Sclater and Salvin, 1859) [Shining Honeycreeper]; *Cyanocompsa parellina* (Bonaparte, 1850) [Blue Bunting]; and *Euphonia elegantissima* (Bonaparte, 1838) [Elegant Euphonia]. The parrot, cuckoo, *Amazilia* hummingbird, vireo, swallow, and bunting are known from forests on the Yucatán Peninsula but apparently do not occur in the foothill rainforests of the Sierra de Palenque. The swift, other 2 hummingbirds, flycatcher, honeycreeper, and euphonia are highland species essentially restricted, in Mexico, to cloud forest or other high-elevation habitats (e.g., humid oak forest). The hawks are known from marshes (*Busarellus nigricollis*) or savannah to the north and east of Palenque but have been recorded no closer

than La Libertad, Chiapas, or Balancán, Tabasco. The nighthawk is almost unknown in Mexico, and the only sight records—there are no specimens (Puebla-Olivares et al., 2002)—are from the eastern Selva Lacandona (Howell and Webb, 1995). A record for Palenque is perhaps plausible, but the probability of an identification error is far higher. Lastly, the warbler winters no closer than the highlands of Chiapas and is but a vagrant to the Yucatán Peninsula and Belize (e.g., Parkes, 1970). The authors would be pleased to receive documentation, particularly photographs, videos, or audio recordings, of any of these species or any others that do not appear on the main list.

In addition, Edwards and Papish (2004) attributed ~70 species to “Palenque” for which there are no known records. Many of these species are waterbirds, particularly of the families Anatidae, Ardeidae, Charadriidae, Scolopacidae, and Laridae. This discrepancy appears to have arisen because their definition of what constitutes “Palenque” was extremely broad: it extended the region out to include, for example, the marsh and rolling savannah at La Libertad and parts of the Usumacinta River basin.

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Literature cited

- Alvarez del Toro, M. 1964. Lista de las aves de Chiapas: Endémicas, emigrantes y de paso. Instituto de Ciencias y Artes de Chiapas, Tuxtla Gutiérrez, Chiapas. 82 p.
- American Ornithologists' Union. 1998. Check-list of North American Birds, 7th ed. Am. Ornithol. Union, Washington, D.C. 829 p.
- Baker, A. J., D. F. Whitacre, O. A. Aguirre-Barrera and C. M. White. 2000. The Orange-breasted Falcon *Falco deiroleucus* in Mesoamerica: A vulnerable, disjunct populations? Bird Conservation International 10:29-40.
- Barber, B. R., and N. H. Rice. 2007. Systematics and evolution in the Tityrinae (Passeriformes: Tyrannoidea). Auk 124:1317-1329.
- Binford, L. C. 1989. A distributional survey of the birds of the Mexican state of Oaxaca. Ornithol. Monogr. 43.
- Brelsford, A., and D. E. Irwin. 2009. Incipient speciation despite little assortative mating: The Yellow-rumped Warbler hybrid zone. Evolution 63:3050-3060.
- Brodkorb, P. 1943. Birds from the Gulf lowlands of southern Mexico. University of Michigan Museum of Zoology Miscellaneous Publications 55:1-88.
- Carmody, M. 2009. First confirmed record of White-winged Becard (*Pachyrhamphus polychropterus*) for México. North American Birds 63:526-529.
- Chesser, R. T., R. C. Banks, F. K. Barker, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz and K. Winker. 2009. Fiftieth supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 126:705-714.
- Clark, W. S., H. L. Jones, C. D. Benesh and N. J. Schmitt. 2006. Field identification of the Solitary Eagle. Birding 38: 66-75.
- De Jong, B. H. J., S. Ochoa-Gaona, M. A. Castillo-Santiago, N. Ramírez-Marcial and M. A. Cairns. 2000. Carbon flux and patterns of land-use/land-cover change in the Selva Lacandona, Mexico. Ambio 29:504-511.
- Denevan, W. M. 1992. The pristine myth: The landscape of the Americas in 1492. Annals of the Association of American Geographers 82:369-385.
- Edwards, E. P. and R. Papish. 2004. Checklist of the birds of Belize and the Mexican Yucatan + Tikal and Palenque. Ernest P. Edwards, Sweetbriar, Virginia. 18 p.
- Eisermann, K. 2003. Status and conservation of Yellow-headed Parrot *Amazona oratrix* “*guatemalensis*” on the Atlantic coast of Guatemala. Bird Conservation International 13:361-366.
- Escalante Pliego, P., A. M. Sada and J. R. Gil 1996. Listado de

- nombres comunes de las aves de México. Agrupación Sierra Madre, S.C. México, D.F. 32 p.
- Friedmann, H., L. Griscom and R. T. Moore. 1950. Distributional checklist of the birds of Mexico, pt. I. Pac. Coast Avifauna 29:1-202.
- Friedmann, H. and L. F. Kiff. 1985. The parasitic cowbirds and their hosts. *Proceedings of the Western Foundation of Zoology* 2:226-304.
- Fuller, T., V. Sánchez-Cordero, P. Illoldi-Rangel, M. Linaje and S. Sarkar. 2007. The cost of postponing biodiversity conservation in Mexico. *Biological Conservation* 134:593-600.
- García Fera, L. M. 2009. Un enfoque filogeográfico para la conservación de poblaciones de *Ara macao cyanoptera*. Ph.D. dissertation, Instituto de Ecología, A.C., Xalapa, Mexico. 87 p.
- Goldman, E. A. 1951. Biological investigations in Mexico. *Smithsonian Miscellaneous Collections* 115.
- Gómez de Silva, H. 2009. The spring season: Mexico. *North American Birds*. 63:509-513.
- González-García, F. 1993. Avifauna de la Reserva de la Biosfera Montes Azules, Selva Lacandona, Chiapas, México. *Acta Zoológica Mexicana*. 55:1-86.
- Goodnight, C. J. and M. L. Goodnight. 1956. Some observations in a tropical rainforest in Chiapas, Mexico. *Ecology* 37:139-150.
- Howell, S. N. G. 1999. A bird-finding guide to Mexico. Comstock Publ., Ithaca. 365 p.
- Howell, S. N. G. and S. Webb. 1995. A guide to the birds of Mexico and northern Central America. Oxford University Press, Oxford. 851 p.
- Howell, S. N. G. and A. Whittaker. 1995. Field identification of Orange-breasted and Bat Falcons. *Cotinga* 4:36-43.
- Iñigo-Elías, E. 1996. Ecology and breeding biology of the Scarlet Macaw (*Ara macao*) in the Unsumacinta drainage basin of Mexico and Guatemala. Ph.D. dissertation, University of Florida, Gainesville. 117 p.
- Klicka, J., K. Burns and G. M. Spellman. 2007. Defining a monophyletic Cardinalini: A molecular perspective. *Molecular Phylogenetics Evolution*. 45:1014-1032.
- Krabbe, N. K. and T. S. Schulenberg. 2003. Family Formicariidae (ground-antbirds). In *Handbook of the birds of the world*, vol. 8., J. del Hoyo, A. Elliott and D. Christie (eds.). Lynx Edicions, Barcelona. p. 682-731.
- Lowery, G. H. and W. W. Dahlquist. 1951. Birds of the state of Veracruz, Mexico. University of Kansas Publications of the Museum of Natural History 3:531-649.
- Mendoza, E. and R. Dirzo. 1999. Deforestation in Lacandonia (southeast Mexico): Evidence for the declaration of the northernmost tropical hot-spot. *Biological Conservation* 8:1621-1641.
- Miller, A. H., H. Friedmann, L. Griscom, and R. T. Moore. 1957. Distributional checklist of the birds of Mexico, pt. II. Pac. Coast Avifauna 33:1-435.
- Nelson, E. W. 1901. Descriptions of 5 new birds from Mexico. *Auk* 18:46-49.
- Nocedal, J. 1980. Avifauna de la región Lacanjá-Chansayab, Selva Lacandona, Chiapas. In *Estudios ecológicos en el trópico mexicano*, P. Reyes-Castillo (ed.). Instituto de Ecología, A.C. México, D.F. p. 15-40.
- Parker, T. A., III, D. F. Stotz and J. W. Fitzpatrick. 1996. Ecological and distributional databases. In *Neotropical birds: Ecology and conservation*, D. F. Stotz, J. W. Fitzpatrick, T. A. Parker III and D. K. Moskovits (eds.). University of Chicago Press, Chicago. p. 118-436.
- Parkes, K. C. 1951. The genetics of the Golden-winged x Blue-winged Warbler complex. *Willson Bulletin* 63:5-15.
- Parkes, K. C. 1970. On the validity of some supposed "first state records" from Yucatán. *Willson Bulletin* 82:92-95.
- Patten, M. A., H. Gómez de Silva Garza and B. D. Smith-Patten. 2010. Changes in the avifaunal community of Palenque, Chiapas, in response to loss of rainforest. *Biodiversity and Conservation* 19:21-36. (doi 10.1007/s10531-009-9698-z).
- Patten, M. A., E. Mellink, H. Gómez de Silva and T. E. Wurster. 2001. Status and taxonomy of the Colorado Desert avifauna of Baja California. *Monographs in Field Ornithology* 3:29-63.
- Patten, M. A. and B. D. Smith-Patten. 2008. Biogeographical boundaries and Monmonier's algorithm: A case study in the northern Neotropics. *Journal of Biogeography* 35:407-416.
- Paulson, D. R. 1986. Bird records from the Yucatán Peninsula, Tabasco and Chiapas, Mexico. *Burke Museum Contributions in Anthropology and Natural History* 3:1-9.
- Paynter, R. A., Jr., ed. 1957. Biological investigations in the Selva Lacandona, Chiapas, Mexico. *Bulletin of the Museum of Comparative Zoology* 116:193-298.
- Phillips, A. R. and J. W. Hardy. 1965. *Tanagra minuta*, an addition to the Mexican list. *Willson Bulletin* 77:89.
- Puebla-Olivares, F., E. Rodríguez-Ayala, B. E. Hernández-Baños and A. G. Navarro S. 2002. Status and conservation of the avifauna of the Yaxchilán Natural Monument, Chiapas, México. *Ornitología Neotropical* 13:381-396.
- Rangel-Salazar, J. L. 1990. Abundancia y diversidad en una comunidad de aves en la Reserva de la Biosfera Montes Azules, Selva Lacandona, Chiapas, México. Bachelor's thesis, Universidad Nacional Autónoma de México, Los Reyes Iztacala, D.F. 72 p.
- Remsen, J. V., Jr. and D. A. Good. 1996. Misuse of data from mist-net captures to assess relative abundance in bird populations. *Auk* 113:381-398.
- Román-Cuesta, M. and J. Martínez-Vilalta. 2006. Effectiveness of protected areas in mitigating fire within their boundaries: Case study of Chiapas, Mexico. *Conservation Biology* 20:1074-1086.
- Sada, A. M. 1989. Mexican birds: Codes for ease of observation. Andrés M. Sada, Monterrey. 35 p.
- Stephens, J. L. 1841. Incidents of travel in Central America, Chiapas, and Yucatan, volumen II. Harper and Brothers, New York. 474

- Tashian, R. E. 1952. Some birds from the Palenque region of northeastern Chiapas, Mexico. *Auk* 69:60-66.
- Wheatley, N. and D. Brewer. 2002. Where to watch birds in Central America, Mexico, and the Caribbean. Princeton University Press, Princeton. 436 p.
- Whitmore, T. M., B. Turner, D. Johnson, R. W. Kates and T. R. Cottschang. 1990. Long-term population change. *In* The earth as transformed by human action, B. L. Turner, W. C. Clark, R. W. Kates, J. F. Richards, J. T. Mathews and W. B. Meyer (eds.). Cambridge University Press, Cambridge. p. 25-39.
- Winker, K., R. J. Oehlenschläger, M. A. Ramos, R. M. Zink, J. H. Rappole and D. W. Warner. 1992. Avian distribution and abundance records for the Sierra de Los Tuxtlas, Veracruz, Mexico. *Willson Bulletin* 104:699-718.