

A contribution to Nicaraguan ornithology, with a focus on the pine-oak ecoregion

Jeffrey K. McCrary, Wayne J. Arendt, Liliana Chavarría, Lorenzo J. López, Pablo Antonio Somarriba, Pier-Olivier Boudrault, Aura L. Cruz, Francisco José Muñoz and Donald G. Mackler

Received 27 July 2008; final revision accepted 13 May 2009

Cotinga 31 (2009): OL 89-95

published online 5 June 2009

Reportamos un híbrido (*Vermivora pinus* × *V. chrysoptera*) y 11 especies previamente no documentado en Nicaragua: *Jacana jacana*, *Elvira cupreiceps*, *Dendrocolaptes picumnus*, *Empidonax fulvifrons*, *Tachycineta thalassina*, *Vireo plumbeus*, *V. huttoni*, *V. leucophrys*, *Melanotis hypoleucus*, *Passerculus sandwichensis* y *Zonotrichia capensis*. Diéz especies fueron registradas en el ecosistema de pino-encino en las tierras altas del norte-central de Nicaragua. Documentamos extensiones de rango, y datos nuevos sobre hábitat, distribución y abundancia para 17 especies adicionales.

Owing to Nicaragua's long history of geological discontinuity between northern and southern landmasses, the northern and southern range limits of several species terminate within its borders. Three unique and highly diverse ecological regions (Atlantic and Pacific slopes, Central highlands¹⁵) have resulted, reinforcing Nicaragua's importance in the study of geographical distribution, abundance and the spatio-temporal dynamics of Central American birds, especially given accelerating global climate change.

Our knowledge of the geographical, altitudinal and seasonal distribution of Nicaragua's birds has been greatly enhanced as a result of a growing interest in ornithology in general and, in particular, ecotourism and birdwatching as a hobby in Nicaragua and globally. The published avifaunal record of Nicaragua, recently revised, comprises 712 species, of which >80 species were added in the last decade^{2-5,8-12,16}.

Here we present noteworthy observations of Nicaraguan birds, including 11 species and an additional hybrid form previously unrecorded for the country. Also incorporated are notes on latitudinal and altitudinal range extensions, as well as status confirmations and abundance information for a further 17 species. Four of the 'new' species (Black-banded Woodcreeper *Dendrocolaptes picumnus*, Buff-breasted Flycatcher *Empidonax fulvifrons*, Hutton's Vireo *Vireo huttoni* and Plumbeous Vireo *V. plumbeus*) were observed during a study of winter habitat utilisation by Golden-cheeked Warbler *Dendroica chrysoparia* in the under-studied *Quercus*-associated broadleaf or pine-oak forests of northern Nicaragua. All four species were observed in mixed-species flocks of insectivores between 2 December 2007 and 15 February 2008 (total 240 hours of field work). Six additional species reported here were also observed in the pine-oak ecosystem. All observations in *Quercus*-associated broadleaf, highland

forests were made at 600 m above sea level or higher. See Fig. 1 for site locations mentioned in the species accounts.

Results

Jabiru *Jabiru mycteria*

One at Laguna de Tisma Nature Reserve (NR; 40 m), on 13 April 2007 (LC, GD, PSB), was wading in shallow water <10 m from a flock of Wood Storks *Mycteria americana*. Given the late date in the dry season, it had probably wandered to this area following the desiccation of wetlands elsewhere in the region. This is the first modern-day report in the Pacific region of Nicaragua⁸ (permission was granted by the observers for inclusion in Martínez-Sánchez's checklist). We consider this species to be accidental to the wetlands of the Pacific region.

Fulvous Whistling Duck *Dendrocygna bicolor*

Approximately 100 were observed foraging in a flooded maize field at La Laguna, Lake Apanás (1,060 m), on 15 October 2003 (LC, GD), whilst c.50 (in five different flocks) were at El Portillo, Lake Apanás, on 12 May 2004 (LC, GD). Four flew along the shoreline of Lake Managua just west of A. C. Sandino airport (55 m), on 4 June 2006 (JKM), and 12 were seen perched beside 30 Black-bellied Whistling Ducks *D. autumnalis* in a flooded rice field at Sébaco (500 m), on 22 July 2006 (JKM), with >100 at Lake Moyuá (450 m), on 11 August 2007 (LC, GD), foraging in a shallow, recently flooded area with emergent grasses. Although documented only recently in Nicaragua^{8,10}, it appears to be a common resident in appropriate habitat.

Lesser Yellow-headed Vulture *Cathartes burrovianus*

LJL saw one at a distance of 10 m in a roadside clearing within dry forest at Laguna de Apoyo NR (400 m), on 13 December 2006. It was devouring a

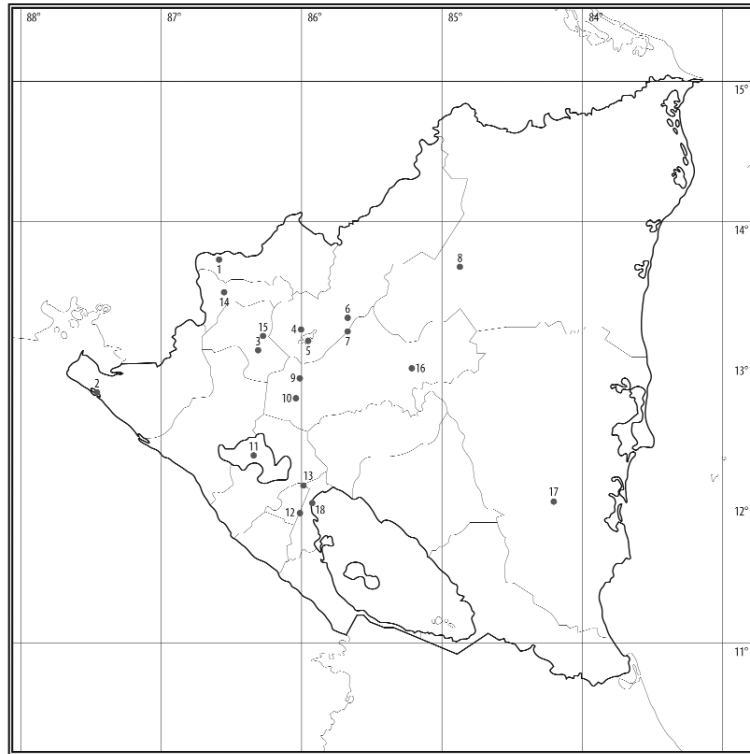


Figure 1. Map of Nicaragua showing locations mentioned in the text. (1) Loma Fría, Dipilto (13°74'N 86°53'W); (2) Estero Padre Ramos Nature Reserve (12°47'N 87°29'W); (3) Cerro El Tisey Nature Reserve (12°97'N 86°36'W); (4) El Jaguar Organic Farm & Cloud Forest Reserve (13°22'N 86°00'W); (5) Lake Apanás (13°09'N 85°57'W); (6) Cerro Chachagón (13°17'N 85°44'W); (7) Peñas Blancas Nature Reserve (13°15'N 85°42'W); (8) Siuna (13°44'N 84°47'W); (9) Sébaco (12°52'N 86°07'W); (10) Lake Moyuá (12°36'N 86°03'W); (11) Lake Managua (12°10'N 86°11'W); (12) Laguna de Apoyo Nature Reserve (11°54'N 86°03'W); (13) Laguna de Tisma Nature Reserve (12°05'N 85°59'W); (14) Tepesomoto Patasta Nature Reserve (13°19'N 86°38'W); (15) Mirafior Nature Reserve (13°43'N 86°31'W); (16) Cerro Musún (12°57'N 85°13'W); (17) Sábalo River (11°59'N 84°20'W); (18) Granada wetlands (12°01'N 85°55'W)

small, dead snake. Three were seen at a range of 50 m perched on fence posts beside Lake Managua (55 m) on 15 February 2007 (JKM, WJA, NK). In both instances, the distinct skin coloration on the head and neck was seen clearly. Four soaring over the shore at Laguna de Tisma NR, on 19 July 2007 (LC, GD, WJA, PSB), and five there on 22 August 2007 (LC, GD, JKM), at times soared just c.3 m above ground, permitting good views of the yellow face and purple nape. The species is a common resident of savannas in the Atlantic region⁸, but has not been reported previously in Nicaragua's Pacific slope region. The species may have been overlooked in these areas, but the possibility of recent colonisation cannot be eliminated.

Solitary Eagle *Harpyhaliaetus solitarius*

Two above highland broadleaf forest at Cerro Musún NR (1,200 m), on 3 August 2006 (JKM), were 'kettling' on the first thermals at 08h00, with Turkey Vultures *Cathartes aura* and Swallow-

tailed Kites *Elanoides forficatus*. The birds soared slowly without flapping, passing in circles, c.500 m overhead. Twenty minutes of observation using a 50× telescope permitted clear views of the grey head and body, in contrast with the blue sky; the birds' primary 'fingers' and a pale-coloured 'window' at the base of the primaries were barely visible; there was a single white band in the short, broad tail. This is the second report in Nicaragua⁸.

Cooper's Hawk *Accipiter cooperii*

One at Laguna de Apoyo NR (300 m) soaring and flapping in northbound flight, c.50 m above ground, at 09h00, on 3 May 2007 (PAS, ALC). Often difficult to distinguish from the migratory population of Sharp-shinned Hawk *A. striatus*, this bird was identified by its rounded tail with a broad white terminal band; the tail appeared longer than the body, and the bird's head projected forward in flight⁶. More than 200 individuals were observed on southbound migration in 2006⁹, although the

Cotinga 31

A contribution to Nicaraguan ornithology, with a focus on the pine-oak ecoregion

species was first reported only recently in Nicaragua^{4,8}. Apparently, a small but regular migratory population frequents Nicaragua and Costa Rica¹⁴.

Wattled Jacana *Jacana jacana*

Three adults at Lake Apanás with ten Northern Jacana *J. spinosa*, on 14 November 2004 (LC, GD), with an adult on a floating island of vegetation at the confluence of the Sábalo and San Juan rivers (20 m), on 22 January 2006 (LC, GD). Although juveniles may be confused with the common *J. spinosa*, adults are easily distinguished by their red wattles, which were clearly sighted on each occasion. Ours is the first report for Nicaragua and a significant range extension (permission was granted by the observers for inclusion in Martínez-Sánchez's checklist⁸). Previously, the species was reported north only to western Panama¹⁴.

Sanderling *Calidris alba*

Six on 28 March 2006 at El Portillo, Lake Apanás, on wet ground recently exposed by a drop in the reservoir's level (LC, SV, GD, MT), were observed from 15 m with 10× binoculars, each having a dark eye contrasting with white face, flanks and abdomen, being much paler than Least Sandpiper *Calidris minutilla*, with black feet and bill. They were seen close to a Wilson's Plover *Charadrius wilsonia*, Killdeers *C. vociferus* and *Calidris minutilla*. This is only the second report in Nicaragua^{8,10} and the first from a wetland in the interior, demonstrating that appropriate habitat may occur along receding lacustrine systems in the dry season (December–April). Sanderling may be a regular winter visitor to Nicaragua that has been overlooked previously.

Snowy Plover *Charadrius alexandrinus*

Twelve in alternate plumage were seen at a distance of 25 m through a 20× telescope at Laguna de Tisma NR (35 m) on 28 July 2007 (LC, GD). All had an open, black collar, black forehead band and postocular stripe. *C. wilsonia* and Collared Plover *C. collaris* were also present, facilitating the identification. Reported only recently in Nicaragua¹⁰, but we consider it to be at least an irregular non-breeding visitor to the country.

Wilson's Plover *Charadrius wilsonia*

Approximately 20 were at Laguna de Tisma NR (35 m), on 21 May 2006, with 30 later that day at Lake Managua west of A. C. Sandino airport (JKM, JTA, MT, SV, WJA). A male was seen on 25 July 2006 at Jiquilillo, Estero Padre Ramos NR (JKM), foraging beside a Whimbrel *Numenius phaeopus* and Semipalmated Plover *Charadrius semipalmatus*. Next day, a pair was seen on a sandbar near a Willet *Tringa semipalmata*. They were easily

identified by the robust bill, pronounced white loreal line, single dark pectoral band (black in the male) and flesh-coloured legs. One was at Laguna de Tisma NR on 28 July 2007 (LC, GD; see Snowy Plover above), with three there on 5 August 2007 and ten on 16 August 2007 (LC, GD). Although recorded only recently in Nicaragua^{8,10}, it appears to be a widespread and common resident in Pacific and central regions of the country, though nesting has yet to be reported.

Sparkling-tailed Hummingbird *Tilmatura dupontii*

An adult female was photographed (Fig. 2) at Laguna de Apoyo NR (250 m), on 15 January 2007 (P-OB). The white postocular spot, white rump-squares and short, straight, thin, dark bill were clearly noted, distinguishing the species from other hummingbirds with a rusty throat and underparts. This represents a significant range extension, although until further observations become available the species should be considered accidental on the Pacific slope. It was known previously from north-west Mexico to north-central Nicaragua^{7,8}.



Figure 2. Adult female Sparkling-tailed Hummingbird *Tilmatura dupontii*, Laguna de Apoyo Nature Reserve, January 2007 (Pier-Olivier Boudraut)

Coppery-headed Emerald *Elvira cupreiceps*

Three males at El Jaguar Organic Farm & Private Reserve (1,350 m), on 15 April 2005 (JR), visited (from nearby perches) the edge of a pool in a small stream to bathe. A lone female at Casa Pintada, 18 km west of Siuna (300 m), on 7 November 2005 (LC), was seen at 4 m distance, at eye level from a second-floor balcony as it fed on arboreal flowers. The curved bill was noted, distinguishing it from other hummingbirds in the region with white or pale-coloured underparts. Listed as probable for Nicaragua⁸, the species was previously considered endemic to Costa Rica, mainly on the Caribbean slope at elevations of 1,480–1,540 m¹⁴. Its known range is estimated at just 5,200 km² (www.iucnredlist.org). These observations represent a significant extension to the known range as well as the first records in Nicaragua.

Pied Puffbird *Notharchus tectus*

One in forest at Laguna de Apoyo NR (450 m), foraging in a *Diphysa americana* (Fabaceae) tree at canopy level, c.10 m above ground, on 22 October 1999 (LJL). Presumably the same individual was present there on 24 October 1999 (LJL, JKM). The larger, resident White-necked Puffbird *N.*

macrorhynchos, shares its 'collared' appearance and large head. This bird, however, was identified by its smaller size, clear white wing patch, white supercilium extending well behind the eye, and dark forehead. Pied Puffbird was known from southernmost Nicaragua^{8,12}. The species is at least accidental to Nicaragua and possibly local in appropriate habitat. Our sightings corroborate the recent first country record and offer at least circumstantial evidence for a northern range expansion.

Black-banded Woodcreeper *Dendrocolaptes picumnus*

Three at 1,380–1,390 m in Tepesomoto Patasta NR, dpto. Madriz, on 17 January 2008 (PAS, ALC, DGM), were in *Pinus oocarpa*–*Quercus sapotifolia* forest within a mixed-species flock dominated by Townsend's *Dendroica townsendi*, Black-throated Green *D. virens* and Hermit Warblers *D. occidentalis*. They were the only species of woodcreeper in the flock, foraging at midlevel on the largest pines, and were distinguished from other woodcreepers by elongate white spots on the throat / upper breast but not on the back or neck. White streaks extended across the crown from the bill to the neck, and faint streaks covered the back and breast. The black barring on the ventral region was barely visible. This is the first record for Nicaragua, but the species was anticipated⁸ because of its known range from southern Mexico to northern Argentina⁷. We consider it rare in appropriate habitat.

Buff-breasted Flycatcher *Empidonax fulvifrons*

One at 1,180 m at Loma Fria, Dipilto, dpto. Nueva Segovia, on 4 January 2008 (FJM, JKM, PAS), was dorsally greyish brown with whitish wingbars, whilst its chest was buff-coloured and the belly whitish. Perched, it exhibited the characteristic *Empidonax* posture, and its more brownish upperparts and buff-coloured chest distinguished it from other *Empidonax*, whilst the similarly plumaged Northern Tufted Flycatcher *Mitrephanes phaeocercus* is overall darker and has a crest. It was in a ravine containing *Pinus oocarpa* and fewer *Quercus sapotifolia* with Poaceae ground cover. The bird moved constantly between small trees and midlevel vegetation in pines, with a mixed-species flock dominated by Yellow-throated Warbler *Dendroica dominica* and *D. virens*. This represents a new country record. The species was expected in Nicaragua⁸, and is known in highlands from the south-west USA to El Salvador and Honduras⁷.

Violet-green Swallow *Tachycineta thalassina*

At least 40 in flight at Cerro El Tisey NR (1,300 m), on 14 January 2007, and several dozen at Loma Fria, Dipilto (1,200–1,350 m) in open highland pine forest (*Pinus oocarpa*), on 13 February 2007 (JKM, PAS, P-OB). The extensive white rump patch, white

face and green back readily identified them. Ours is the first published record for Nicaragua, though Howell & Webb⁷ stated its range to reach north-central Nicaragua. In contrast, Martínez-Sánchez⁸ treated the species only as probable in the country. In Costa Rica, Stiles & Skutch¹⁴ considered it a 'casual to rare, sporadic migrant and winter visitor', occasionally reaching western Panama.

Plumbeous Vireo *Vireo plumbeus*

One at 1,400 m at Cerro Tisey NR, dpto. Estelí, on 24 December 2007 (PAS, ALC), was distinguished from similar species by its uniform grey upperparts, no contrast between the upperparts and head, two white wingbars, and white spectacles. It foraged in pine-oak (*Q. segoviensis*) forest within a mixed-species flock, including Blue-headed Vireo *V. solitarius*, and several warblers. This constitutes a new country record and range extension. It was not listed as even probable in Nicaragua⁸, but a resident population occurs in pine-oak forests south from Oaxaca, Mexico, to southern Honduras⁷.

Hutton's Vireo *Vireo huttoni*

One at 1,380 m in Miraflores NR, dpto. Estelí, on 21 December 2007 (PAS, ALC), was identified by its size, green upperparts, two white wingbars, pale lores, broken white eye-ring, throat paler than rest of olive-grey neck, chest and abdomen. It did not vocalise, and foraged at midlevel in *Quercus segoviensis*-associated broadleaf forest, with c.50% canopy cover. The vireo was part of a mixed-species flock of insectivores dominated by *Dendroica virens*, Western Kingbird *Tyrannus verticalis* and Tropical Parula *Parula pitiayumi*. Not expected in Nicaragua⁸, this constitutes a southward extension of the species' range and a first country record. Hutton's Vireo occurs from the highlands of the western USA to Guatemala (1,200–2,500 m), where it is frequent or common in appropriate habitat⁷.

Brown-capped Vireo *Vireo leucophrys*

One at Peñas Blancas NR (1,200 m), on 6 November 2006 (JKM, StB, SaB), was part of a mixed-species foraging flock dominated by Golden-cheeked Warbler *Dendroica chrysoparia*, Stub-tailed Spadebill *Platyrrinchus cancrominus*, Least Flycatcher *Empidonax minimus*, Chestnut-sided Warbler *Dendroica pensylvanica*, Black-and-white Warbler *Mniotilta varia* and Northern Bentbill *Oncostoma cinereigulare*. It moved through secondary *Quercus sapotifolia* stands bordering mature forest, c.6 m above ground, in the midstorey and lower canopy. The *V. leucophrys* was readily identified by its characteristic vireo bill, white supercilium, yellowish-washed white underparts and brown cap. This is the first record for Nicaragua, where it had been considered probable⁸.

Blue-and-white Mockingbird *Melanotis hypoleucus*

One in a clearing within highland broadleaf oak forest at Miraflores NR (1,100 m), on 12 October 2003 (FJM), was unmistakable due to its greyish-blue upperparts, black mask and white underparts. It foraged with a mixed-species flock, including several Bushy-crested Jays *Cyanocorax melanocyaneus*, Melodious Blackbirds *Dives dives* and *Dendroica* spp. One was seen on 25 February 2005 in a coffee plantation (1,350 m) a few km from the first sighting (FJM). On both occasions, the birds were singing and very active. These are the first reports in Nicaragua⁸ (permission was granted by the observer for inclusion in Martínez-Sánchez's checklist). We anticipate the species will prove to be an uncommon resident in appropriate habitat. Either it was previously overlooked or, like many other highland species, had gone undetected simply because, until recently, the pine-oak ecoregion has been under-studied.

Blue-winged Warbler *Vermivora pinus*

A female / immature was seen at a height of c.10 m among scattered trees in a pasture bordering wetlands, 12 km north of Granada, on 18 February 2007 (JKM, JTA). It was identified by its olive-green crown, greyish-blue wings, short, faint postocular stripe, and dark lores. This is the first record for Nicaragua's Pacific slope, where it is probably rare to uncommon⁸. In Costa Rica, Stiles & Skutch¹⁴ considered the species a 'very uncommon to rare migrant and winter resident . . . most numerous in the Caribbean lowlands'. Howell & Webb⁷ stated that its winter range reaches eastern Panama and encompasses the eastern lowlands of Nicaragua.

Lawrence's Warbler *Vermivora pinus* × *V. chrysoptera*

An adult male at Cerro El Tisey NR (1,350 m), on 22 January 2007 (PAS, P-OB), had a black bib, yellow belly and white vent, two white wingbars on olive-grey wings and mantle, a yellow cap and black ear-coverts. It was in *Pinus oocarpa* / *Quercus sapotifolia* pine-oak forest, within a mixed flock of *Dendroica townsendi*, *Mniotilta varia*, Tennessee Warbler *Vermivora peregrina*, *Vireo solitarius*, *Contopus* sp. and *Empidonax* sp. This hybrid has not been previously reported in Nicaragua. Stiles & Skutch¹⁴ considered the more common phenotype, Brewster's Warbler, a rare migrant to Costa Rica, and this hybrid form was recently seen for the first time in Nicaragua¹.

Cerulean Warbler *Dendroica cerulea*

A male and an immature / female were at Laguna de Apoyo NR (450 m), on 16 March 1999 (LJL); two immatures / females were seen on 18 March 1999, at 200 m, c.2 km south of the first sighting (LJL); a male was near a stream bordering broadleaf forest

at El Jaguar Organic Farm & Private Reserve (1,350 m), on 27 March 2003, and a female was seen there on 7 September 2005 (JR). This globally Vulnerable species (www.iucnredlist.org) is a passage migrant through the Caribbean and along the Caribbean slope of Mesoamerica^{13,14}. Apparently some occur in Nicaragua, where the species is rare and local on the Central Plateau⁸. We expect that northbound passage migrants will prove regular, especially in the north-east of the country, but for now we consider the species an irregular and rare passage migrant on the Pacific slope of Nicaragua.

Black-throated Blue Warbler *Dendroica caerulescens*

Two adult males and a female were at Laguna de Apoyo NR (200 m), on 24 January 2001 (JKM). Two females were seen there (400 m), on 2 January 2003 (JKM), in a mixed-species flock dominated by Yellow Warbler *Dendroica petechia* and *Vermivora peregrina*, feeding on nectar of a vine *Combretum fruticosum* (Combretaceae), c.2 m above eye level from c.5 m distance, offering a prolonged view. The male was unmistakable by its black throat and blue-grey upperparts, and the females had small, white speculums and superciliaries with plain brown upperparts. The species has only recently been found in Nicaragua⁸, though it had been expected because the species' winter range includes the Caribbean and adjacent continental areas^{7,13}. These sightings, far from the Caribbean coast, reveal the species to be at least a rare winter resident in central and Pacific regions of the country.

Golden-cheeked Warbler *Dendroica chrysoparia*

A male was in a mixed-species flock of *Vermivora peregrina*, *Dendroica virens*, *Mniotilta varia* and *Dendroica pensylvanica*, at the edge of broadleaf forest in El Jaguar Organic Farm & Cloud Forest Reserve (1,350 m), on 27 November 2004 (GD). A female and a male were observed in the same area on 23 February 2006, responding to playback of their vocalisations (GD, KF). A male was seen in a secondary *Quercus sapotifolia* stand at Peñas Blancas NR (1,200 m), on 6 November 2006 (JKM, StB, SaB; cf. *Vireo leucophrys*). A male was at El Jaguar Organic Farm & Cloud Forest Reserve, on 4 March 2007 (LC). Males were identified by their white rear underparts with no trace of yellow, black-streaked flanks, black throat and mantle, and dark eyestripe. The female lacked yellow on the underparts, and had the dark eyestripe, yellow ear-coverts, dark-streaked crown and back. This globally Endangered species has been reported on very few previous occasions in Nicaragua^{8,11}. Together, these recent observations mark

important additions to our knowledge of winter habitat and regional distribution.

Townsend's Warbler *Dendroica townsendi*

An adult male at Laguna de Apoyo NR (100 m), on 25 October 2007 (LJL, JKM), was seen clearly at eye level from 5 m as it fed on insects in a *Terminalia catappa* (Combretaceae) tree and a small bush (*Tecoma stans*; Bignoniaceae). It foraged continuously amongst midstorey foliage, accompanied by a *Dendroica petechia*, c.10 m away. This is the first record on Nicaragua's Pacific slope, where we consider it uncommon to common.

Prothonotary Warbler *Protonotaria citrea*

An adult male at Laguna de Apoyo NR (400 m), on 29 December 2006 (LJL, PAS, ALC), was observed at eye level feeding on insects in a vine tangle, permitting clear views of its unmistakable golden-yellow head and underparts, blue-grey wings and olive-green upperparts. *P. citrea* is common in humid areas of the Caribbean region of Nicaragua, but rare and local on the Pacific slope and in the north-central highlands⁸. However, given several sight records and mist-net captures during November–January in humid forest bordering Lake Nicaragua and in dry forest on Ometepe Island, in the area of Peña Inculca on the Istián Isthmus (M. A. Tórez pers. comm.), we consider the species to be common on the Pacific coast.

White-lined Tanager *Tachyphonus rufus*

A male in secondary oak broadleaf forest at Peñas Blancas NR (1,300 m), on 6 November 2006 (JKM, StB, SaB), was identified by the narrow white shoulder line, uniform black body and a characteristic heavy bill. There is a single record in south-east Nicaragua^{8,12}. Our sighting suggests that its range may have expanded much further than expected in recent years, or that the species may be nomadic in its search for food resources.

Savannah Sparrow *Passerculus sandwichensis*

One at Loma Fría, Dipilto (1,200 m), on 11 February 2007 (PAS, P-OB, JKM), with a flock mostly comprising Grasshopper Sparrows *Ammodramus savannarum*, which foraged in Poaceae (grassy) patches below a *Pinus oocarpa* overstorey. It was easily distinguished from other sparrows by its relatively large bill, whitish belly and long, deeply notched tail, and from Vesper Sparrow *Pooecetes gramineus* by its yellow lores (grey in Vesper Sparrow), lack of white eye-ring and prominent white outer rectrices⁷. It may have been an immature, given its white throat, thin malar streaks and indistinct streaking on the breast. The species had not been reported, or even listed as probable, in Nicaragua⁸.

Rufous-collared Sparrow *Zonotrichia capensis*

Seven, 2 km south-east of Cerro Chachagón on the Abisinia–El Cuá highway (1,100 m), on 15 January 2006 (SV), were in a mixed-species flock of Variable Seedeater *Sporophila americana*, White-collared Seedeater *S. torqueola* and Orange-billed Sparrow *Arremon aurantirostris*. They perched c.4 m above ground in trees bordering a pasture. An adult was at El Jaguar Organic Farm & Cloud Forest Preserve (1,300 m) in bushes c.2 m above ground in a grassy pasture, on 20 March 2006 (SV, MT, LC, GD). In both instances, they were easily identified by their distinctive rufous nape below a black border, small crest and 'bow-tie' breast pattern of the males. Despite that its reported range encompasses Nicaragua¹⁴, these sightings are the first for the country⁸ (permission was granted by the observers for inclusion in Martínez-Sánchez's checklist). We anticipate the species will prove to be regular in appropriate habitat.

Discussion

More than one-third (ten of 29) of the newly reported species (or forms) were observed in *Quercus*-associated broadleaf forests of Nicaragua's pine-oak ecoregion in the north-central highlands. Only one of these species, *Dendrocolaptes picumnus*, is known further south than Nicaragua⁷. Because very few observations were made of each of the ten species during c.240 hours of field work, we consider most of them to be rare to uncommon in appropriate habitat. Rather than constituting real changes in distribution, we feel most species had been previously overlooked due to the relative lack of previous ornithological work in Nicaragua's highlands. Comprehensive avifaunal inventories are needed, not only of broadleaf oak and pine-oak associations, but of all major habitats in Nicaragua to develop adequate management strategies for the conservation of the country's avifauna and rapidly dwindling natural areas.

Acknowledgements

The following contributors are cited in the species accounts by their initials: Joseph T. Arengi (JTA), Sandra Brauning (SaB), Steve Brauning (StB), Kevin Frazier (KF), Nicholas Komar (NK), Johnny Rodríguez (JR), Pomares Salmerón Belli (PSB), Moisés Siles (MS), Marvin Tórez (MT) and Sergio Vílchez (SV). We thank Jaime Obando and Alonzo Murillo for field assistance, Oliver Komar and H. Lee Jones for their thorough reviews, and Guy M. Kirwan for his insight and candour. The sightings reported here were made possible through support and funding from several sources: Fulbright Fellowships, US Agency for International Development (USAID), US Forest Service's International Institute of Tropical Forestry (USDA-FS / IITF), Fundación Nicaragüense pro-Desarrollo Comunitario Integral /Asociación Gaia (FUNDECI / GAIA), Alianza para Las Áreas Silvestres

Cotinga 31**A contribution to Nicaraguan ornithology, with a focus on the pine-oak ecoregion**

(ALAS), SalvaNATURA, and Texas Parks & Wildlife Department. We thank in particular, Jerry Bauer, whose efforts to promote conservation and ecotourism in Nicaragua inspired and contributed directly and indirectly to this report.

References

1. Arendt, W. J. & Tórrez, M. A. (2008) Primer reporte del híbrido intergenérico *Vermivora chrysoptera* × *Vermivora pinus* ("Brewster's Warbler") en Nicaragua. *Zeledonia* 29: 25–29.
2. Arendt, W. J. & Tórrez, M. A. (in press) Second documented record of the Arctic Tern *Sterna paradisaea* from mainland Central America. *North Amer. Birds*.
3. Arendt, W. J. & Tórrez, M. A. (2009) First documented record of Red-breasted Blackbird *Sturnella militaris* in Nicaragua. *Cotinga* 31: 119–120.
4. Arengi, J. T. & McCrary, J. K. (2004) Raptor migration monitoring in Nicaragua. *Hawk Migration Stud.* 29: 20–25.
5. Cody, M. L. (2000) Two new species for Nicaragua. *Cotinga* 13: 65–66.
6. Dunne, P., Sibley, D. & Sutton, C. (1988) *Hawks in flight*. New York: Houghton Mifflin.
7. Howell, S. N. G. & Webb, S. (1995) *A guide to the birds of Mexico and northern Central America*. Oxford: Oxford University Press.
8. Martínez-Sánchez, J. C. (2007) *Lista patrón de las aves de Nicaragua: con información de nuevos registros, distribución y localidades donde observar aves*. Managua: Alianza para las Áreas Silvestres.
9. McCrary, J. K. & Young, D. P. (2008) New and noteworthy observations of raptors in southward migration in Nicaragua. *Orn. Neotrop.* 19: 573–580.
10. McCrary, J. K., Arendt, W. J., Morales, S., Arengi, J. T. & López, L. J. (2008) New avian sight records for Nicaragua, with notes on abundance, distribution and habitat use. *Cotinga* 29: 102–107.
11. Morales, S., Martínez-Salinas, A., Arendt, W. J. & Tórrez, M. A. (2008) Redescubrimiento de *Dendroica chrysoparia* en Nicaragua. *Zeledonia* 29: 30–34.
12. Múnera-Roldán, C., Cody, M. L., Schiele-Zavala, R. H., Sigel, B. J., Woltmann, S. & Kjeldsen, J. P. (2007) New and noteworthy records of birds from south-eastern Nicaragua. *Bull. Brit. Orn. Club* 127: 152–161.
13. Raffaele, H., Wiley, J., Garrido, O., Keith, A. & Raffaele, J. (1998) *A guide to the birds of the West Indies*. Princeton, NJ: Princeton University Press.
14. Stiles, F. G. & Skutch, A. F. (1989) *A guide to the birds of Costa Rica*. Ithaca, NY: Cornell University Press.
15. Stotz, D. F., Fitzpatrick, J. W., Parker, T. A. & Moskovits, D. K. (1997) *Neotropical birds: ecology and conservation*. Chicago: University of Chicago Press.
16. Wiedenfeld, D. A., Morales, J. & Lezama, M. (2001) Sight records of new species for Nicaragua and noteworthy records on range and occurrence. *Cotinga* 15: 53–57.

Jeffrey K. McCrary, Lorenzo J. López, Pablo Antonio Somarriba and Aura L. Cruz
FUNDECI / GAIA, Estación Biológica, Laguna de Apoyo Nature Reserve, Masaya, Nicaragua. E-mail: jmccrary2@yahoo.com.

Wayne J. Arendt

USDA Forest Service, International Institute of Tropical Forestry, Sabana Field Research Station, HC 2 Box 6205, Luquillo 00773, Puerto Rico.

Liliana Chavarría, Georges Duriaux and Francisco José Muñoz

Alianza para las Áreas Protegidas, Granada, Nicaragua.

Pier-Olivier Boudrault

Université de Sherbrooke 2500, boul. de l'Université Sherbrooke (Québec) J1K 2R1, Canada.

Donald G. Mackler

College of Natural Resources, Virginia Tech, Blacksburg, VA 24060, USA.