Not only has Nicaragua been largely overlooked in studies of avian distribution and ecology, general information on species richness is scarce and often outdated. Countrywide species lists range from 644 to 69510, much lower than for neighbouring countries. A recent study added three new country records, Green Ibis *Mesembrinibis cayennensis*, Purple-throated Fruitcrow *Querula purpurata* and Tropical Mockingbird *Mimus gilvus*, and made important distributional records of several species. In addition, Cooper’s Hawk *Accipiter cooperii* was reported for the first time in Nicaragua, when 41 individuals were sighted on southbound migration in 2001 and 19 individuals in 2002, along with incidental observations of Eastern Kingbird *Tyrannus tyrannus*. During habitat surveys in several areas of Nicaragua, we confirmed ten species not previously reported in the peer-reviewed literature. In addition, we report nine sightings of a species whose current range is reported as Costa Rica south to eastern Brazil. All locations mentioned are included in Fig. 1. Elevations are stated as metres above sea level. We cite observers by their initials, and the initials of observers other than the authors are given in the Acknowledgements.

**Fulvous Whistling Duck *Dendrocygna bicolor***

There are no published reports from Nicaragua (though see Zolotoff & Lezama). The species is common, even abundant, at several localities. *D. bicolor* even appears in a species list posted at www.bio-nica.org/Biblioteca/BibliAves.htm (Kjelden, October 2005). We made several observations at Lake Moyuá in central Nicaragua: five, 13 March 1998 (JKM, JU); five, roosting near ten Black-bellied Whistling Ducks *Dendrocygna autumnalis* and c.30 Neotropic Cormorants *Phalacrocorax brasilianus*, 11 September 1999 (LJL, JKM); more than 1,500 during a survey of the lake and Tecomapa, Charco and Playitas, other...
El Salvador14 and Panama 3,18. More recently, and have been reported during migration periods in been recovered in Pacific Guatemala and Mexico, Masked Boobies banded in the Galápagos have been recorded 3. In Nicaragua, the breeding range (30ºN–30ºS)23, which includes Cocos Island, Costa Rica. Though one of the most widespread ducks in the world12,15, Fulvous Whistling Duck is perhaps the least studied of all North American waterfowl, and its abundance outside the USA poorly known12. Formerly considered a vagrant in Panama, the species is now known to breed3. In Nicaragua, the species is a common resident in appropriate habitat, as documented by Zolotoff & Lezama33.

Nazca Booby Sula granti
Twenty-two subadults and two adults (photographed), Los Farallones islets, Gulf of Fonseca, 6 March 2004 (JKM, BC). Adults were distinguished from other boobies by the yellow bill, white supercilium, and much paler upperparts. Subadults had white collars which distinguished them from the more common subadult Brown Sula leucogaster and Blue-footed Boobies S. nebouxii. Though no regular migration pattern has been delineated3, Masked Boobies banded in the Galápagos have been recorded in Pacific Guatemala and Mexico, and have been reported during migration periods in El Salvador14 and Panama3,18. More recently, several S. granti were reported from El Salvador in July 2005, one including an individual banded in the Galápagos35. The Los Farallones lie within the species’ proposed breeding range (30ºN–30ºS)33, which includes Cocos Island, Costa Rica. Because there are now records from December, April and July in El Salvador (O. Komar pers. comm. 2006), coupled with the fact that we observed 22 subadults in close proximity to two adults, the Los Farallones should be monitored for potential breeding33.

Long-billed Dowitcher Limnodromus scolopaceus
Eighth, Mateare wetlands, 14 January 2001; 490, wetlands along Lake Nicaragua shoreline 5–10 km north of Granada, 3 March 2001 (JKP); two, in basic plumage in wetlands north of Granada, 26 January 2001 (JKM, JTA); two, 10 km north of Granada on the Lake Nicaragua shoreline, 29 January 2006 (JKM, JMK, WJA). Species identification was confirmed by the extensive visible barring on the flanks; primaries that did not extend beyond the tail; wing-coverts that were dark with brown fringes; a straight supercilium; a limited pale region around chin; dusky breast over buff to whitish belly; and very long, straight bill approximately twice the head length30. The two individuals observed on 29 January 2006 were seen for c.15 minutes and were flushed but did not call upon taking flight. Long-billed Dowitcher’s reported winter range reaches as far south as El Salvador15,18, though only one record exists for the country16. In Costa Rica, evidence suggests that L. scolopaceus is a passage migrant, with arrival in late October–early November27,28. However, Angehr and Ridgely & Gwynne consider Long-billed Dowitcher a winter resident in Panama. Our sight records reveal that it is most likely a ‘winter’ resident in Nicaragua as well.

Snowy Plover Charadrius alexandrinus
Single, foraging near a Wilson’s Plover C. wilsonea in wetlands 5 km north of Granada, 27 January 2001 (JKM, JTA). Distinguished from C. wilsonea by its smoky grey legs, longer and less deep-based bill, white supercilium, and much paler upperparts. Though more data are needed from Mesoamerica to document the full extent of its range22, the species winters along the Pacific coast of Washington (USA) to Baja California and at least rarely from Guatemala to Panama (three records), where perhaps overlooked6,13,26. In El Salvador, C. alexandrinus is a regular migrant and winter visitor17. In Nicaragua, it is listed as a probable visitor by Martínez-Sánchez20, but is likely a winter visitor, though there are as yet insufficient data to suggest the species’ abundance.

Wilson’s Plover Charadrius wilsonea
Single, río La Palma in Los Guatuzos, hunting insects over a muddy field in a floodplain where water had recently receded, 22 February 2000 (OA, RA, RC, YO); single, feeding at edge of flooded fields 5 km north of Granada along the Lake Nicaragua shoreline, c.5 m from a Snowy Plover C. alexandrinus feeding in mud at edge of open water, 27 January 2001 (JKM, JTA); single in basic plumage, sandy beach at Chacocente, 8 September 2002 (JKM PSM), of which most were roosting in groups of 2–25, usually near groups of 2–5 Black-bellied Whistling Ducks; ten, beside a flooded pasture near Marina Chiltepe, 7 January 2000 (JL); ten, flying over the Lake Nicaragua shoreline 5–10 km north of Granada, 8 November 2001 (JKP), and two at the same site, 31 December 2003 (JKM, DK); c.1,000 in a flooded rice field near Sébaco, 14 April 2003 (JKP). Though one of the most widespread ducks in the world12,15, Fulvous Whistling Duck is perhaps the least studied of all North American waterfowl, and its abundance outside the USA poorly known12. Formerly considered a vagrant in Panama, the species is now known to breed3. In Nicaragua, the species is a common resident in appropriate habitat, as documented by Zolotoff & Lezama33.

Long-billed Dowitcher Limnodromus scolopaceus
Eighth, Mateare wetlands, 14 January 2001; 490, wetlands along Lake Nicaragua shoreline 5–10 km north of Granada, 3 March 2001 (JKP); two, in basic plumage in wetlands north of Granada, 26 January 2001 (JKM, JTA); two, 10 km north of Granada on the Lake Nicaragua shoreline, 29 January 2006 (JKM, JMK, WJA). Species identification was confirmed by the extensive visible barring on the flanks; primaries that did not extend beyond the tail; wing-coverts that were dark with brown fringes; a straight supercilium; a limited pale region around chin; dusky breast over buff to whitish belly; and very long, straight bill approximately twice the head length30. The two individuals observed on 29 January 2006 were seen for c.15 minutes and were flushed but did not call upon taking flight. Long-billed Dowitcher’s reported winter range reaches as far south as El Salvador15,18, though only one record exists for the country16. In Costa Rica, evidence suggests that L. scolopaceus is a passage migrant, with arrival in late October–early November27,28. However, Angehr and Ridgely & Gwynne consider Long-billed Dowitcher a winter resident in Panama. Our sight records reveal that it is most likely a ‘winter’ resident in Nicaragua as well.

Snowy Plover Charadrius alexandrinus
Single, foraging near a Wilson’s Plover C. wilsonea, in wetlands 5 km north of Granada, 27 January 2001 (JKM, JTA). Distinguished from C. wilsonea by its smoky grey legs, longer and less deep-based bill, white supercilium, and much paler upperparts. Though more data are needed from Mesoamerica to document the full extent of its range22, the species winters along the Pacific coast of Washington (USA) to Baja California and at least rarely from Guatemala to Panama (three records), where perhaps overlooked2,3,6,13,26. In El Salvador, C. alexandrinus is a regular migrant and winter visitor17. In Nicaragua, it is listed as a probable visitor by Martínez-Sánchez20, but is likely a winter visitor, though there are as yet insufficient data to suggest the species’ abundance.

Wilson’s Plover Charadrius wilsonea
Single, río La Palma in Los Guatuzos, hunting insects over a muddy field in a floodplain where water had recently receded, 22 February 2000 (OA, RA, RC, YO); single, feeding at edge of flooded fields 5 km north of Granada along the Lake Nicaragua shoreline, c.5 m from a Snowy Plover C. alexandrinus feeding in mud at edge of open water, 27 January 2001 (JKM, JTA); single in basic plumage, sandy beach at Chacocente, 8 September 2002 (JKM PSM), of which most were roosting in groups of 2–25, usually near groups of 2–5 Black-bellied Whistling Ducks; ten, flying over the Lake Nicaragua shoreline 5–10 km north of Granada, 8 November 2001 (JKP), and two at the same site, 31 December 2003 (JKM, DK); c.1,000 in a flooded rice field near Sébaco, 14 April 2003 (JKP). Though one of the most widespread ducks in the world12,15, Fulvous Whistling Duck is perhaps the least studied of all North American waterfowl, and its abundance outside the USA poorly known12. Formerly considered a vagrant in Panama, the species is now known to breed3. In Nicaragua, the species is a common resident in appropriate habitat, as documented by Zolotoff & Lezama33.

Long-billed Dowitcher Limnodromus scolopaceus
Eighth, Mateare wetlands, 14 January 2001; 490, wetlands along Lake Nicaragua shoreline 5–10 km north of Granada, 3 March 2001 (JKP); two, in basic plumage in wetlands north of Granada, 26 January 2001 (JKM, JTA); two, 10 km north of Granada on the Lake Nicaragua shoreline, 29 January 2006 (JKM, JMK, WJA). Species identification was confirmed by the extensive visible barring on the flanks; primaries that did not extend beyond the tail; wing-coverts that were dark with brown fringes; a straight supercilium; a limited pale region around chin; dusky breast over buff to whitish belly; and very long, straight bill approximately twice the head length30. The two individuals observed on 29 January 2006 were seen for c.15 minutes and were flushed but did not call upon taking flight. Long-billed Dowitcher’s reported winter range reaches as far south as El Salvador15,18, though only one record exists for the country16. In Costa Rica, evidence suggests that L. scolopaceus is a passage migrant, with arrival in late October–early November27,28. However, Angehr and Ridgely & Gwynne consider Long-billed Dowitcher a winter resident in Panama. Our sight records reveal that it is most likely a ‘winter’ resident in Nicaragua as well.
Momotombo (LJL). Howell & Webb\textsuperscript{13} report breeding populations of Wilson’s Plover from the USA to Panama and north-east Brazil. Wintering populations of northern breeders are found from the Gulf coast of Louisiana, north-east Florida and Texas, south through Baja California and Sonora, Mexico, along the Pacific coast to north-west Peru.\textsuperscript{7} The species was not included in a biodiversity survey of the Moskitia region of Honduras\textsuperscript{2}. In El Salvador, a threatened breeding population is augmented in winter by migrants\textsuperscript{35}. In Costa Rica, the species is a permanent resident on the Pacific Coast\textsuperscript{27}, with small numbers always present on Cocos Island\textsuperscript{9}. In Nicaragua, it probably breeds in small numbers, though more documentation is needed, especially for populations on the Pacific coast.

Marbled Godwit \textit{Limosa fedoa}

Single, foraging in wetlands along Lake Nicaragua, c.5 km north of Granada, 26 January 2001 (JTA, JKM), near two Lesser Yellowlegs \textit{Tringa flavipes} and c.15 Black-necked Stilts \textit{Himantopus mexicanus}. It was distinctive with an upturned, pinkish, black-tipped bill and mottled wings, which at rest extended slightly beyond the tail-feathers. Winters from south-west British Columbia to Colombia and northern Chile\textsuperscript{27}, but in Central America it winters locally south of El Salvador along the Pacific coast to Costa Rica\textsuperscript{13} and Panama\textsuperscript{9}. In Nicaragua, reported as a probable migrant by Martínez-Sánchez\textsuperscript{20}. Our January observation suggests the species is a winter resident at wetlands and shores of Nicaragua, but additional records are needed.

Sanderling \textit{Calidris alba}

Six, Wawa Bar, 25 December 2000, foraging within the intertidal zone with a Baird’s Sandpiper \textit{C. bairdii} and a Least Sandpiper \textit{C. minutilla} (SM), were distinguished by black eyes and bill, and black leading edges to wings in flight; two in basic plumage foraging in surf along sandy beach at Chacocente, 8 September 2002 (see Wilson’s Plover), demonstrating typical behaviour (JMK, PSM). The majority of North America’s Sanderling populations winter in Central and South America between the Tropics of Cancer and Capricorn\textsuperscript{29}. \textit{C. alba} was not found during a survey of the Moskitia region of Honduras\textsuperscript{2}. In El Salvador, Sanderlings are migrants to coasts and present year-round\textsuperscript{26}. During autumn and spring migrations, respectively, migrants arrive in Costa Rica from mid-August through October, and mid-March to early May\textsuperscript{27}. Martínez-Sánchez\textsuperscript{20} did not mention Sanderling as a probable visitor to Nicaragua, though Howell & Webb\textsuperscript{13} report the extent of the species’ winter range from coastal North America to South America. We suggest that Sanderlings are at least uncommon winter residents in Nicaragua.

Baird’s Sandpiper \textit{Calidris bairdii}

Single, Wawa Bar, 25 December 2000, at a distance of 6 m, foraging in a mixed flock of Least Sandpipers \textit{C. minutilla} and Sanderling \textit{C. alba}; see above (SM). Identification was confirmed by the mottled breast, black legs, long wings extending well beyond the tail and lack of a white rump. Flock of ten, Mateare wetlands, with ten White-rumped Sandpipers \textit{C. fuscicollis}, six Pectoral Sandpipers \textit{C. melanotos} and 12 Spotted Sandpipers \textit{Actitis macularia}, 1 May 2003 (JKM). They were easily distinguished from the White-rumped Sandpipers by absence of white in the uppertail-coverts and browner overall coloration. Baird’s Sandpiper breeds in north-west North America and winters in South America\textsuperscript{21}. In spring, northbound migrants are uncommon but regular in neighbouring Costa Rica\textsuperscript{2}. Our December sighting suggests that the species may be a winter resident in Nicaragua, but more evidence is needed.

Ring-billed Gull \textit{Larus delawarensis}

Several in basic and immature plumages (50 and 35, respectively), Lake Xiloá, 20–21 February 1998, and again on 4, 8 and 9 March 1998 (22, 20 and 15 individuals) (JKM, LJJ); 11, 19 March 1998, with Laughing Gulls \textit{Larus atricilla} (JKM); two in basic plumage, flying over shore of Lake Nicaragua on south side of San Miguelito, 9 January 2003 (JKM, JTA). At least five seen again, on 10 January 2003, over the lake just north of San Miguelito; four in basic plumage at Punta San José on Cosigüina, 6 March 2004 (JKM). They were near large flocks and scattered individuals of Laughing Gulls and Caspian Terns \textit{Sterna caspia}, and were distinguished from immature Laughing Gulls and similar species by the paler mantle and yellowish or pale bill with a darker tip; the precise bill tip colour was not noted due to the distance (usually 50–100 m). Regularly winters as far south as northern Central America\textsuperscript{13}. Reported from Honduras\textsuperscript{9} and, although rare, occurs as far south as Panama\textsuperscript{36} and north-west South America\textsuperscript{9}. Apparently rare in El Salvador, as Komar\textsuperscript{17} reported just one, in 1992, at Acajutla, prov. Sonsonate (13º36’N 89º52’W). In Nicaragua, our sightings, including several in January–February, suggest that \textit{L. delawarensis} is a rare to uncommon winter visitor.

White-ringed Flycatcher \textit{Conopias albovittatus}

First documented for Nicaragua in 2003 by Múnera-Roldán \textit{et al.}\textsuperscript{23}, we offer the following additional observations: single, edge of mature humid tropical forest north of the Puerto Cabezas–Siuna Highway at km 51 by Tasawala.
probably has been confused with Social Flycatcher. The species is widespread and common. In the past, it was reported scattered throughout Nicaragua, confirming the species’ reported range is eastern Honduras to Ecuador, mainly in riparian habitat. White-ringed Flycatcher’s superciliary, unlike the superciliary broken at the nape of Social Flycatcher, is continuous. White-ringed Flycatcher’s black crown surrounded by a continuous white eyering distinguishes it from the similar Social Flycatcher. White-ringed Flycatcher’s white-ringed breast-feathers were diffuse. Rufous-winged Tanager T. lavinia and a Wilson’s Warbler Atlapetes albinucha were also observed in the reserve, permitting comparison. Male, 14 April 2002, north of Finca Lindos Ojos near Miraflores, north-east of Esteli, feeding in mid-level foliage with five Common Bush Tanagers Chlorospingus ophthalmicus, two White-naped Brush Finches Atlapetes albicollis and a Wilson’s Warbler Wilsonia pusilla (JTA). Male, in open remnant evergreen broadleaf woodland at El Rosario community, Murra, Nueva Segovia, 24 November 2002 (JPK). It was differentiated from T. lavinia by the lack of chestnut in the wings and the bright turquoise breast. JPK has experience with both species in Costa Rica. Adult male, upper canopy of broadleaf evergreen trees at El Jagüar, 21 January 2006, (WJA, MT); a pair, feeding on Cecropia fruits, 9 March 2006, and later in closed forest in a mixed flock with a pair of T. lavinia, 12 May 2006, c.200 m from the previous sighting (JKM). The 2002 Nueva Segovia sighting, west and north of the first reported sighting, and the more recent 2006 sightings in El Jagüar Cloud-forest Reserve, provide additional information on the species’ habitat use and range in the country, and may constitute a northward range extension as the contemporary range is reported as Costa Rica to western Ecuador, northern Bolivia and eastern Brazil. However, the species simply may have been overlooked, having arrived in the area several years ago following the opening of dense forests as a result of human activities.

**Discussion**

Distributional information on Neotropical birds is generally scant and often ‘hidden’ in obscure local journals and reports. Consequently, much valuable information is inaccessible to those unfamiliar with, or unable to access, such journals. Within the last few decades, however, there has been a burgeoning global interest in the rich biodiversity of the Neotropics. As a result, there has been a surge of professionals armed with state-of-the-art field and analytical technologies. Contemporary biologists, following in the footsteps of the forefathers of Neotropical ornithology, have made significant progress in increasing our knowledge of the diversity, distribution and habitat use of tropical birds, but not all countries share equally the amount of accumulated information or breadth of zoogeographic knowledge of their respective species. In Nicaragua, for example, new species are constantly being added, a trend that should continue for some time as local ornithologists continue to expand their monitoring programmes into additional habitats, and especially into more remote areas. Our sightings of ten additional species further demonstrate that Nicaragua’s avifauna is considerably under-reported. Two of our ten sight records may be extensions of reported ranges. Alternatively, these species may have been present for some time, but simply overlooked. These records serve to increase our knowledge of the contemporary distribution and temporal habitat use of birds within Nicaragua’s borders.

**Acknowledgements**

Our observations were made possible through the support of several institutions and the participation of many individuals: Osmar Arróliga (OA), Raúl Aguilar (RA), Roberto Cerrato (RC) and Yolanda Ortiz (YO) of Fundación Amigos del Río San Juan (FUNDAR); Jerry Bauer (JB) of the USDA Forest Service, International Institute of Tropical Forestry; Bismarck Caballero (BC) of Fundación Luchadores Integrados al Desarrollo de la Región (LIDER); Edgar Castañeda (EC), Sergio Vílchez (SV), Alejandro Martínez (AM), Claudia Gómez (CG) and Marwin Torres (MT) of Alianza para las Áreas Silvestres (ALAS); Jürgen Peter Kjeldsen (JPK) of MS-Denmark; Douglas Knapp (DK) of the American Nicaraguan School; Patrick Shane...
McGill (PSM) of the Cooperative League of the United States of America (CLUSA); Claudia Munera Roldán (CMR), Asociación Colombiana de Ornitología; Robin Henry Schiele (RHS); Jerry Urquhart (JU) of Michigan State University; and José Manuel Zolotoff (JMZ) of Fundación Cocibolca. Fig. 1 was prepared by Jorge Paniagua.

References


Jeffrey K. McCrary,
Conservation Management Institute, College of Natural Resources, Virginia Tech, Blacksburg, VA 24061, USA.
E-mail: jmccrary2@yahoo.com.

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

Salvadora Morales

Joseph T. Arengi and Lorenzo J. López
FUNDECI/GAIA, Biological Research Station, Laguna de Apoyo Nature Reserve, Nicaragua.