First record of Tricoloured Munia (*Lonchura malacca*) for Nicaragua

PRIMER REGISTRO DE *LONCHURA MALACCA* EN NICARGUA

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Summary
We report the first published record of Tricolored Munia (*Lonchura malacca*) for Nicaragua, thus adding to our knowledge of its distribution in the New World. Escaped cage birds have established multi-focal feral populations, thereby expediting the species' range expansion in Mesoamerica from Honduras, El Salvador, Costa Rica and Panama to northwestern South America (Venezuela, Colombia, and Ecuador) and northward to Mexico and the United States of America. Tricoulored Munia has the potential of becoming a major agricultural pest in Latin America and elsewhere in the Western Hemisphere and thus its populations and movements should be closely monitored.

Keywords: invasive species, *Lonchura malacca*, Nicaragua, range expansion.

Resumen
Reportamos el primer registro de *Lonchura malacca* en Nicaragua, incrementando de esta forma el conocimiento acerca de su distribución en el Nuevo Mundo. La especie, ha establecido poblaciones silvestres multifocales, a partir de individuos que han escapado del cautiverio, y ha extendido su distribución en Mesoamérica (Honduras, El Salvador, Costa Rica y Panamá), incluyendo el noroeste de Sudamérica (Venezuela, Colombia y Ecuador) así como también al norte, desde México a Los Estados Unidos de América. *L. malacca* tiene el potencial de convertirse en una plaga mayor agrícola en la región Latinoamérica y en muchos sitios del Hemisférico Occidental y merece monitoreo intensivo.

Palabras clave: especie invasiva, expansión regional, *Lonchura malacca*, Nicaragua.

The Tricoloured Munia (*Lonchura malacca*) is native to China, India, Sri Lanka, Malaysia and Indonesia (Restall 1997). Its introduced range in the Western Hemisphere is ample, encompassing Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Haiti, Honduras, Jamaica, Mexico, Panama, Puerto Rico, United States of America and Venezuela (Restall 1997). On 22 February 2012, during a joint Biodiversity Research Institute–US Forest Service/IITF field banding study in southern Nicaragua, we netted two juvenile plumaged *Lonchura malacca* associated with small groups of 4-7 White-collared Seedeaters, *Sporophila torqueola* (six captured) and 2-4 Ruddy-breasted Seedeaters, *S. minuta* (one captured) in a wetland bordering a mixed woodland-agricultural mosaic along Lake Nicaragua's shoreline near Tirurí *ca*. 2.5 km east-southeast of Cárdenas (Dpto. Rivas) (11° 11'50.69" N - 85° 26'59.82" W - 96 m.a.s.l).

Both birds were in body moult and were "probably between six and eight months old" (R. Restall in litt.). Black head, nape and upper breast feathers characteristic of adults were replacing the juvenal raw umber feathers in the pileum, nape and belly (Fig. 1). Likewise, rust-brown adult feathers (formative plumage) were replacing the juvenal raw umber feathers on the dorsum, wings

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(medium and greater coverts and tertials), upper breast and uppertail-coverts (Fig. 1). Morphometrics of the captured birds closely coincide with published measurements (Restall 1997) of *L. malacca* (averages of nine external characters – in millimeters – were as follows: body mass: 12.15; wing chord: 54.8; central rectrix: 33.65; tarsus: 17.9; exposed bill: 10.26; bill length from nares: 8.03; culmen width: 7.54 and depth: 8.54).

Although neither the IUCN Red List nor Avibase includes Panama in the species' introduced range, *L. malacca*, along with *L. punctulata* are included in the Panamanian Audubon Society's (2010) list for that year. The first published record for Costa Rica, that of an established population, was at La Guinea, Guanacaste in May 1999 (Funes & Herrera 2005) only *ca*. 77 km southeast of our Tirurí banding site. *L. malacca* is included in the 2002 official checklist for Costa Rica (Barrantes *et al*. 2002), but not in the 2010 official list (Comité Científico de la Asociación Ornitológica de Costa Rica 2010). Sandoval *et al*. (2010) confirmed that Tricoloured Munia was introduced as a pet in Costa Rica in the general area of the first sighting and documented subsequent sightings of as many as 500, especially in fields of rice (*Oryza* spp.), which is grown extensively on the Pacific coast. Owing to the species' usual sedentary nature (Restall 1997), large roosts should be sought in areas of known concentration along the Pacific coast.

Sandoval *et al*. (2010) also documented *L. malacca* in Belize (Caye Caulker, August 2003) and Honduras (Lake Yojoa, July 2003). More recently (3 November 2012), in extreme southwest Honduras only about 20 km north of the Nicaraguan Border, Juárez & van Dort (2012) observed three individuals "on the road between Monjarás and Condega" about 5 km southwest of Monjarás. In El Salvador, on several occasions during July 2005, Funes & Herrera (2005) observed 6–12 *L. malacca* feeding on Sorhgum bicolor in Dpto. Usulután (13° 17' N 88° 34' W - 25 m.a.s.l). More recently, on 22 and 23 September 2007, Funes *et al*. (2008) observed four *L. malacca* in a mixed flock of Dickcissel, *Spiza americana* and Blue-black Grassquit, *Volatinia jacarina* in a *Sorghum* spp. field ca. 5 km from Zanjón El Chino (13°45' 13.83" N 90°4' 22.80" W - 4 m.a.s.l). Jones (2004) reported the species in Mexico as early as 2003.

Fig. 1. Immature Tricoloured Munia (*Lonchura malacca*). One of two juveniles mist-netted in a wetland along Lake Nicaragua's shoreline near Tirurí ca. 2.5 km east-southeast of Cárdenas (Dpto. Rivas) (11°11'50.69"N - 85° 26'59.82" W - 96 m.a.s.l - Photo: Oksana Lane).

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It is unsurprising that *Lonchura malacca* has successfully colonized southern Nicaragua, given the close geographic proximity of the more than a decade-old established population inhabiting Guanacaste, Costa Rica, and the species' long history of the establishment of feral populations and range expansion in Latin America and the Caribbean where it has been reported in diverse habitats along a broad altitudinal gradient (Almonte 2006, Carantón-Ayala *et al*. 2008, Moreno 1997, Tossas & Delannoy 2001), including rice-growing regions and marshy country and, in South America, as high as Trujillo (between 1000 and 1500 m.a.s.l) in the Venezuelan Andes (R. Restall *in litt*.). What is surprising is the fact that the species was not reported from Nicaragua much sooner, especially in light of the already extensive establishment of feral populations and northern range expansion into northern Mesoamerica and North America; *L malacca* was reported in Mexico by 1993 (Jones 2004, Olguín-Hernández 2011), with subsequent reports from four separate areas within the states of Yucatán and Quintana Roo (Jones 2004, Olguín-Hernández 2011).

The geographic and elevational ranges of many of Nicaragua's birds remain unknown. Traditionally, research efforts have been towards the more "inviting" natural forested areas such as the Bosawás Biosphere Reserve and Indio Maíz Biological Reserve. Fewer ornithologists have worked in highly disturbed and agricultural areas in the past. This may partially explain why *Lonchura malacca* was not reported from Nicaragua earlier (Martínez-Sánchez 2007; Salmerón & Arendt 2007; McCrary *et al*. 2008, 2009; Morales *et al*. 2008; Hernández *et al*. 2009; Sandoval & Arendt 2011; Zolotoff-Pallais *et al*. 2009).

That we observed and captured so few munias is not unexpected because the species is normally sedentary, preferring to forage within a 5-km radius of the roost (R. Restall *in litt*.); and therefore often does not form large wandering flocks as do such species as Dickcissels, which follow ripening grains over wide geographical expanses. Considering the species' ecology in other areas within its introduced range, *L. malacca* may be widely distributed in agricultural areas throughout Nicaragua, especially where grain crops and natural wetlands are prevalent. To adequately estimate the munia's numbers in Nicaragua and to map its country-wide distribution, the species must be actively searched, even in the northern highlands, especially in view of the 2012 Honduras sightings within only about 20 km of Nicaragua's northern border and because extensive highland areas continue to be cleared for coffee and other agricultural crops such as sorghum, a well known and widely planted, regional favorite food of munias in general. Because *L. malacca* has the potential of becoming an economic pest (Carantón-Ayala *et al*. 2008, Marten 1986, Restall 1997) its numbers should be constantly monitored throughout the region.

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