

## NON-BREEDING DISTRIBUTION AND CONSERVATION OF THE UPLAND SANDPIPER (*BARTRAMIA LONGICAUDA*) IN SOUTH AMERICA

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### Resumen. – Distribución y conservación del Batitú (*Bartramia longicauda*) en América del Sur. –

El Batitú (*Bartramia longicauda*) es una especie migratoria Neártica que fuera de la temporada reproductiva se distribuye en el sur de América del Sur, principalmente en Argentina, Uruguay, Paraguay y sur de Brasil. Al igual que otras especies de aves playeras migratorias, el Batitú enfrenta en la actualidad una serie de amenazas, en su mayoría como resultado de las actividades humanas. Sin embargo la información sobre la especie está dispersa y no fácilmente accesible para identificar e implementar acciones de conservación. En este trabajo recopilamos la información disponible sobre la distribución, abundancia y uso de hábitat del Batitú en América del Sur, como base para: 1) revisar su distribución actual, 2) identificar las principales zonas de concentración no reproductiva, 3) describir el uso de hábitat en dichas zonas, y 4) identificar las principales amenazas para la especie. La información recopilada fue la base para la realización de mapas y para la zonificación. Nuestros resultados sugieren una gran dispersión durante la temporada no reproductiva y la asociación de la especie a zonas rurales y cultivos. Se discuten los resultados obtenidos en el marco de la zonificación realizada y se identifican las zonas de mayor importancia para la especie, aportando información sobre uso de hábitat y amenazas.

**Abstract.** – The Upland Sandpiper (*Bartramia longicauda*) is a Nearctic migratory species that is found in southern South America, mainly in Argentina, Uruguay, Paraguay and southern Brazil, during the non-breeding season. As in the case of other migratory shorebirds, the Upland Sandpiper is threatened mainly by human activities. However, data on the species are dispersed and not easily accessible to identify and implement conservation actions. In this work we compiled available data on distribution, abundances and habitat use of the Upland Sandpiper in South America, as the basis for: 1) reviewing its current distribution, 2) identifying the main non-breeding areas, 3) describing the habitat use in those areas, and 4) identifying the main threats to the species. Information compiled was the basis for preparation of maps of distribution and abundance. Our results suggest the notable dispersion of the species during the non-breeding season, as well as the association with rural areas and croplands. We discuss the results obtained in the framework of the zonation accomplished, identifying the main non-breeding areas, and providing information about habitat use and threats to the species. *Accepted 23 December 2007.*

**Key words:** Upland Sandpiper, distribution, conservation, South America, zonation, *Bartramia longicauda*.

### INTRODUCTION

The Upland Sandpiper (*Bartramia longicauda*) is a Nearctic migrant shorebird. The main non-

breeding range is known to be restricted to southern South America, mainly northeastern Argentina, Uruguay, southern Brazil, Paraguay and eastern Bolivia, where it inhabits

grasslands, pastures, and agricultural lands (Canevari *et al.* 2001, Houston & Bowen 2001, Ridgely *et al.* 2003).

Birdlife International (2006) considers the Upland Sandpiper as a “not threatened/least concern” species, while the U.S. Shorebird Conservation Plan (Brown 2001) ranks it in category 4 (of 5) as a species of high concern. The population was recently estimated as being around 350,000 individuals in North America (Morrison *et al.* 2006, U.S. Fish & Wildlife Service 2006), with a declining trend noted by Houston & Bowen (2001) and Bart *et al.* (2007). No population estimate exists for the non-breeding quarters in South America, with the exception of Paraguay where the species’ non-breeding population was recently estimated in around 5000 birds (H. del Castillo pers. com.).

As for many other shorebirds that use to disperse across vast regions during the non-breeding season, data on Upland Sandpipers are scarce and not easily accessible for conservation purposes. Preliminary observations suggest that this sandpiper could be threatened by human activities in rural areas.

The aim of this work was to improve the current knowledge on Upland Sandpiper distribution and abundance during the non-breeding season in South America, as the basis to contribute to the species Conservation Plan (Vickery *et al.* in prep.). Our specific objectives were: 1) to review the species’ non-breeding distribution, 2) to identify the main non-breeding sites, 3) to describe the species habitat use, and 4) to identify current threats during the non-breeding season in South America.

## METHODS

We compiled available data on Upland Sandpiper distribution and abundances within South America. We consulted several information sources, including the Neotropical

Waterbird Census database (Wetlands International 2006), other ornithological databases (Guyra Paraguay 2006), published and gray literature, museum collections, and made queries to more than 42 specialists from around the region.

Compiled data were stored in database format, totaling 582 Upland Sandpiper records from 11 countries of South America (Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela). Each record included site data (name of locality, region, and geographical coordinates), as well as information on bird counts and dates. The database was used to prepare a series of maps using ArcView software.

The better to describe the Upland Sandpiper distribution and because of difficulties in identifying specific stop-overs or non-breeding sites, we divided the species’ primary non-breeding range into distribution zones and sub-zones. Based on the distribution map from Ridgely *et al.* (2003), we overlapped data on Upland Sandpiper abundances and dates with habitat and current land use information. We used the northern limits of the espinal (Administración de Parques Nacionales 1999) and the Río de la Plata grasslands (Soriano 1991) to distinguish two main distributional zones, which we named “main non-breeding range” and “secondary non-breeding range”. In a second step the main non-breeding range was divided in eight sub-zones based on the sub-regions of the Río de la Plata grasslands (Soriano 1991), each of which was characterized with its Upland Sandpiper abundance.

Observations on Upland Sandpiper’s habitat use and threats were compiled from the various sources of information consulted.

## RESULTS

The highest numbers of Upland Sandpiper

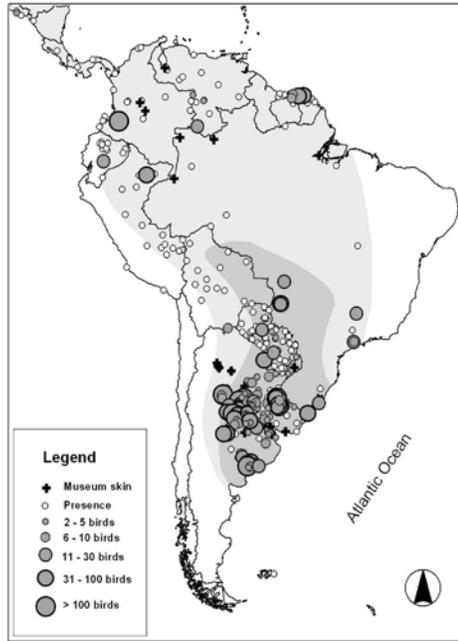


FIG. 1. Upland Sandpiper records and abundances in South America. The basis distribution map is taken from Ridgely *et al.* (2003): wintering range (dark grey) and passage range (light grey).

and repeated sightings were recorded mainly in southern South America, with around 69% of the records from Argentina (221 records), Paraguay (128) and Uruguay (51) (Fig. 1). Additionally, high numbers were also recorded during migration months in some few localities in the Guyanas, Colombia, Ecuador, Peru and southern Brazil (Fig. 1, Appendix 1).

In Argentina, the majority of the records corresponded to pampas and the modified espinal (dry thorny woodland) (Fig. 1), where the landscape is presently covered by crops, such as wheat, linseed, sunflower, maize, soybean and sorghum. The largest numbers recorded in the past 10 years in Uruguay were mainly from the northeastern part of the country (Departments of Artigas and Salto) while, in Paraguay, data showed a broad distri-

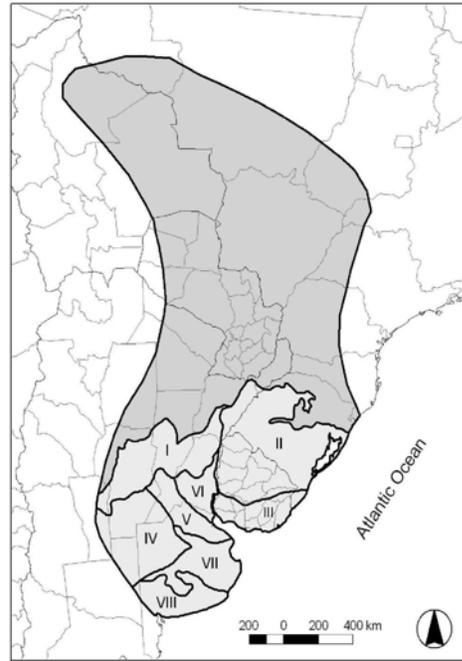


FIG. 2. Upland Sandpiper zonation of the primary non-breeding range based on the map from Ridgely *et al.* (2003): main non-breeding range (light grey) and secondary non-breeding range (dark grey). The main non-breeding range sub-zones are: I) modified espinal, II) northern campos, III) southern campos, IV) inland pampa, V) rolling pampa, VI) mesopotamic pampa, VII) flooding pampa and VIII) southern pampa.

bution but small numbers (Fig. 1), recorded primarily during southbound migration months (September to November).

The zonation of the Upland Sandpiper non-breeding range resulted in two zones (Fig. 2): 1) Main non-breeding range, encompassing the Río de La Plata grasslands region (the pampas of Argentina and the campos of Uruguay and southern Brazil) and the northern portion of the espinal ecoregion in Argentina; records mainly from December to February; and 2) Secondary non-breeding range, encompassing northeastern Argentina, Paraguay, southwest Brazil and eastern

TABLE 1. Characterization of the Upland Sandpiper (UPSA) main non-breeding range (MNBR) sub-zones (see Fig. 2). Habitat descriptions in Soriano (1991).

MNBR sub-zones	Upland Sandpiper numbers
I Modified espinal	UPSA Records = 106 (88 with count data) Averaged count = 31 birds (N = 88) Maximum count = 1265 birds (Miramar-Mar Chiquita Lagoon). Other important localities: NE of Morteros (350 birds) and S of Hernando (160 birds).
II Northern campos	UPSA Records = 48 (43 with count data) Averaged count = 16 birds (N = 43) Maximum count = 105 birds (Baltasar Brum, Artigas, Uruguay).
III Southern campos	UPSA Records = 6 (no count data)
IV Inland pampa	UPSA Records = 18 (15 with count data) Averaged count = 16 birds (N = 15) Maximum count = 80 birds (Ucacha).
V Rolling pampa	UPSA Records = 24 (15 with count data) Averaged count = 9 birds (N = 15) Maximum count = 38 birds (Bigand)
VI Mesopotamic pampa	UPSA Records = 12 (8 with count data) Averaged count = 4 birds (N = 8) Maximum count = 8 birds (Larroque).
VII Flooding pampa	UPSA Records = 5 (3 with count data) Averaged count = 5 birds (N = 3) Maximum count = 10 birds (Ea. El Toro).
VIII Southern pampa	UPSA Records = 19 (17 with count data) Averaged count = 39 birds (N = 17) Maximum count = 350 birds (c. Bajo Hondo).

Bolivia; records from several months, but mainly from September to November.

The sub-division of the main non-breeding range resulted in eight sub-zones (Fig. 2): modified espinal, northern campos, southern campos, inland pampa, rolling pampa, mesopotamic pampa, flooding pampa and southern pampa.

Upland Sandpiper seems to be quite common in many sectors of the non-breeding range, where it was regularly observed in small groups. More than 85% of the compiled records were of 30 or fewer birds, while records of larger flocks were rare; fewer than 5% of the records were of groups of more than 100 birds.

The largest numbers were recorded in the

modified espinal today severely modified by cattle grazing and cultivation, with an average of 31 ind/record and a maximum count of 1265 birds at Miramar (Mar Chiquita Lagoon, Córdoba province, Argentina; Table 1 and Appendix 1). The southern pampas follows in importance, with an average of 39 ind/record and a maximum count of 350 birds recorded at Bajo Hondo (Buenos Aires province, Argentina). Additionally, the northern campos (specially the northwest Uruguay sector) and the inland and rolling pampas showed remarkable Upland Sandpiper numbers, with maximum counts of 105, 80 and 38 birds (Table 1 and Appendix 1).

Non-breeding Upland Sandpipers were recorded in natural grasslands and open saline

steppes but also have adapted to a variety of human-disturbed habitats, including grazed pastures (primarily cattle), alfalfa fields (*Medicago sativa*), other artificial pastures such as oat (*Avena* sp.) and *Agropyron* sp., cultivated lands, where the species was mainly recorded in plowed and stubble fields (wheat, soybean, maize, sunflower) and unflooded rice fields. Upland Sandpipers use croplands when the plants are less than 20 cm tall.

## DISCUSSION

Data compiled indicate that the Upland Sandpiper main non-breeding areas are in central Argentina (espinal and southern, inland and rolling pampas) and in northwest Uruguay (northern campos). In that country, recent data suggest the importance of Artigas and Salto grasslands for this species, with densities of 1.18–1.34 ind/km of transect (J. Aldabe pers. com.). In the inland pampas of Argentina, the species is regularly observed in small groups, with the highest densities recorded in wheat stubble, where groups of 5 to 10 birds are common, sometimes in the same field (I. Roesler pers. com.).

Upland Sandpipers do not concentrate in large numbers during the non-breeding season, instead showing a high dispersion pattern, possibly following the distribution of rural areas and crops. This pattern presents difficulties for identifying key conservation sites, creating a challenger for the species' conservation.

The zonation approach we used resulted in two main zones: main and secondary non-breeding ranges. The main non-breeding range localities are characterized by higher numbers of Upland Sandpipers observed during the austral summer months. In Salto (Argentina), the species was recorded from October to March with the highest counts in the months of December and January (A. G. Di Giacomo pers. com.). In contrast, the sec-

ondary non-breeding range localities are characterized by lower numbers, with the highest counts recorded during the migration months. Data from Bahía de Asunción (Paraguay) clearly revealed that records and abundances were higher during the southward migration period (October and November) (Guyra Paraguay 2006).

Our results also show that still there are many gaps regarding knowledge of Upland Sandpiper non-breeding distribution in South America. The scarcity of records for the Amazon basin shows an important information gap. De Tarso Zuquin Antas (1983) reported that the species migrates by the Central Brazil Flyway. More south, data compiled for Paraguay and Pantanal region suggest a migration corridor along the Paraguay-Paraná rivers system, while record from localities along the Andes of Bolivia, Peru, Ecuador and Colombia, suggest another potential migration route.

We agree with several authors who have suggested that a small population of Upland Sandpipers remains in northern South America during the austral summer months; in Suriname (Haverschmidt 1966), French Guyana (N. Delelis pers. com.), Venezuela (Hilty 2003) and the Orinoco basin.

*Habitat use.* We found that Upland Sandpipers are flexible in habitat use and show regional differences. In northeast Uruguay the species has been recorded in both natural and artificial grasslands, but abundances were significantly greater in natural grasslands grazed by cattle, sheep or pampas deer (*Ozotoceros bezoarticus*) (A. Azpiroz pers. com.). In the inland pampas, however, Upland Sandpipers inhabit crops and pastures, where wheat stubble fields are the preferred habitat, and where abundances in native pastures were similar to those in crops or artificial pastures like alfalfa, oat and *Agropyron* sp. (I. Roesler pers. com.).

*Main threats in South America.* Habitat modifica-

tion appears to be a minor threat to Upland Sandpipers as data compiled showed that the species is common in cultivated lands and other human disturbed habitats. But the association with rural areas and croplands results in other threats. We identified the use of pesticides and other agrochemicals associated with cultivation practices as the main threats to Upland Sandpipers in Argentina and Paraguay. In Argentina, dead birds were found after pesticide spraying in southern Córdoba province (S. Salvador *vide* A. G. Di Giacomo pers. com.) and in Santa Fe province, spraying of agrochemicals was suggested to be a potential cause of the species decline (M. de la Peña pers. com.). However, these are preliminary observations and a detailed assessment is needed to weight the real impacts on the species population.

Grassland burning practices were reported as an important cause of disturbances to Upland Sandpipers and other grassland species. They have been mentioned as one of the main threats to this sandpiper in Paraguay (R. Clay pers. com.) and as a disturbing factor in northern Buenos Aires province (Argentina), where grassland burning for cattle grazing is becoming more common (E. Sierra pers. com.).

The aim of this paper was to provide a brief summary of our contribution to the Upland Sandpiper Conservation Plan. Data compiled was a good basis to identify key conservation actions and information gaps. More detailed studies are needed to better understand the species' migration patterns, habitat use and threats resulting from pasture management and cultivation practices in South America.

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APPENDIX 1. List of localities with records of 20 or more Upland Sandpipers, ordered by distribution zones: MNBR = Main non-breeding range (sub-zones I to VIII), SNBR = Secondary non-breeding range, and MR = Migration range.

Zone	Country	Province/Department	Site	Max. count	Source
I	Argentina	Córdoba	Miramar (Mar Chiquita Lagoon)	1265	P. Michelutti (pers. com.)
	Argentina	Córdoba	NE of Morteros	350	R. Miatello (pers. com.)
	Argentina	Córdoba	South of Hernando	160	R. Miatello (pers. com.)
	Argentina	Córdoba	Bajo de Cagliero	48	Wetlands International (2006)
	Argentina	Córdoba	Unnamed lagoon, close to Ballesteros	48	Wetlands International (2006)
	Argentina	Córdoba	Unnamed lagoon, close to Morrison	39	Wetlands International (2006)
	Argentina	Córdoba	Seeber	35	Blanco <i>et al.</i> (1993)
	Argentina	Córdoba	Embalse Río Tercero	32	Wetlands International (2006)
	Argentina	Santa Fe	Cayastacito	30	M. de la Peña (pers. com.)
	Argentina	Córdoba	East of Córdoba city	25	G. Peralta (pers. com.)
	Argentina	Córdoba	Las Varas	23	Blanco <i>et al.</i> (1993)
	Argentina	Córdoba	Laguna del Francés (c. Varillas)	23	Wetlands International (2006)
	Argentina	Córdoba	Planta Líquidos Cloacales	22	Wetlands International (2006)
	Argentina	Córdoba	Bajo de Marchisio	22	Wetlands International (2006)
II	Argentina	Córdoba	Bajo de Trinchera	21	Wetlands International (2006)
	Uruguay	Artigas	Baltasar Brum	105	Aldabe & Rocca pers. obs.
	Brazil	Rio Grande do Sul	Estação Ecológica do Taim	100	I. Lima Serrano (pers. com.)
	Uruguay	Salto	Cerros de Vera	44	Rocca, Alfaro & García (pers. com.)
	Uruguay	Salto	Colonia Rubio	25	Venzal <i>et al.</i> (in press)
IV	Uruguay	Salto	Estancia Los Venados	20	A. Azpiroz (pers. com.)
	Argentina	Córdoba	Ucacha	80	R. Miatello (pers. com.)
	Argentina	Córdoba	Laguna Ralicó	50	Wetlands International (2006)
V	Argentina	San Luis	Buena Esperanza	50	J. Mazzar Barnett (pers. com.)
	Argentina	Santa Fe	Bigand	38	Blanco <i>et al.</i> (1993)
VIII	Argentina	Buenos Aires	Salto	25	A. Di Giacomo (pers. com.)
	Argentina	Buenos Aires	Bajo Hondo surroundings	350	Delhey <i>et al.</i> (2001)
	Argentina	Buenos Aires	Estancia "El Francés" (c. Cabildo)	93	Delhey <i>et al.</i> (2001)
	Argentina	Buenos Aires	Coronel Pringles	45	Blanco <i>et al.</i> (1993)
	Argentina	Buenos Aires	Goyena	28	Blanco <i>et al.</i> (1993)

APPENDIX 1. Continued.

Zone	Country	Province/Department	Site	Max. count	Source
SNBR	Argentina	Buenos Aires	Cabildo	27	Blanco <i>et al.</i> (1993)
	Brazil	Mato Grosso do Sul	Fazenda São Vicente	70	I. Lima Serrano (pers. com.)
	Paraguay	Central	Bahía de Asunción	16	Guyra Paraguay (2006)
	Argentina	Formosa	Reserva El Bagual	35	Di Giacomo (2005)
	Paraguay	Presidente Hayes	Lagunas Saladas	29	Guyra Paraguay (2006)
	Brazil	Mato Grosso do Sul	Fazenda Campinas	25	I. Lima Serrano (pers. com.)
	Brazil	Mato Grosso	Pantanal del Barão de Melgaço	20	de Tarso Zuquin Antas (2004)
MR	Argentina	Córdoba	Monte Las Barrancas, Salinas Grandes	1100	R. Miatello (pers. com.)
	Colombia	Cauca	Meseta de Popayán	253	Negret (1994 <i>vide</i> R. Johnston pers. com.)
	Peru	Loreto	Iquitos	60	R. Westerduijn (pers. com.)
	Suriname	Marowijne	Río Cottica, close to Moengo	40	Haverschmidt (1966)
	French Guayana	Saint-Laurent du Maroni	Arroceras de Mana	31	N. Delelis (pers. com.)
	Ecuador	Chimborazo	Laguna de Atillo & Ozogoche	30	BirdLife International (2006)
	Venezuela	Amazonas	San Carlos de Río Negro	27	Hilty (2003)
	Brazil	Minas Gerais	P.N. Serra da Canastra	25	Silveira (1998, pers. com.)

