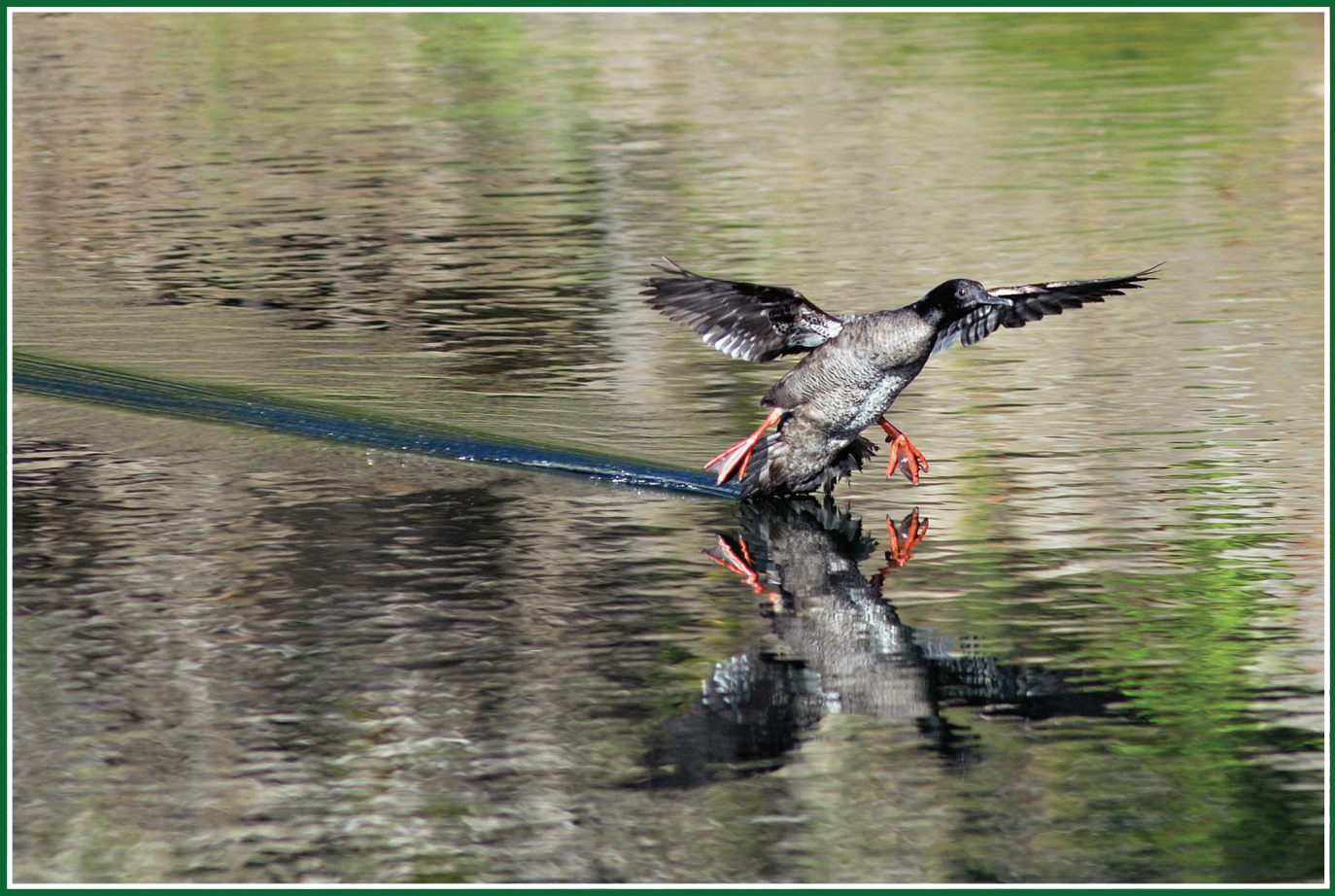
ISSN (impresso) 0103-5657
ISSN (on-line) 2178-7875

Revista Brasileira de Ornitologia

Volume 19
Número 3
Setembro 2011

www.ararajuba.org.br/sbo/ararajuba/revbrasorn



Publicada pela
Sociedade Brasileira de Ornitologia
São Paulo - SP

Revista Brasileira de Ornitologia, 19(3), 447-449
Setembro de 2011

NOTA

Solitary Sandpiper *(Tringa solitaria)* in the Chaco during Migration

Dennis A. Meritt Jr.

DePaul University. Department of Biological Science. 2325 N. Clifton Avenue. Chicago, IL 60614. USA. E-mail: Dmeritt@depaul.edu

Recebido em 12/12/2010. Aceito em 05/03/2011.

RESUMO: Solitary Sandpiper *(Tringa solitaria)* in the Chaco during Migration. The long distance migrant, the Solitary sandpiper foraged for aquatic invertebrates in small bodies of standing water in the Chaco during southern migration. Evidence suggests that they may occasionally depend on these uncommon aquatic resources to complete the journey.

PALAVRAS-CHAVE: Maçarico-solitário; Chaco; Paraguai.

KEY-WORDS: Solitary sandpiper; Chaco; Paraguay.

Solitary sandpipers *(Tringa solitaria)* are long distance migratory birds and, as their common name implies, usually travel alone. Migration is mostly at night (Kaufman 1996). They feed on insects, insect larvae, crustaceans and small amphibians in shallow water or in bodies of water with shallow slopes (Rappole *et al.* 1983, Hayes F. E. *et al.* 1990, D. Meritt *pers. obs.*). In the United States they breed in Alaska and a small area in Minnesota, and throughout Canada (Richards 1988, Sibley 2000). Winter range includes South America east of the Andes as far south as Argentina, Paraguay and Uruguay (Bent 1929, Gore and Gepp 1978). The Solitary Sandpiper is known in Paraguay to be a migrant and a winter resident throughout the country (Wetmore 1927, Brodkorb 1938, Hayes *et al.* 1990, Narosky and Yzurieta 2006). During one year of study in an area of Chaco of 35 km radius, the sandpiper was only found during the month of February (Brooks 1997). Neris and Coleman (1991) during studies conducted in similar habitat in Colonia Neuland in Paraguay in 1988 and 1989 considered this species as rare (observed once or twice during their study) and found at "Tajamars", man-made seasonal water storage areas. Hayes and Fox (1991) in observations at the Bahia of Asuncion in Paraguay gave mean group size as 1.3 (n = 43; SD = 1). Early and late months for presence in Paraguay are given as August and May (Castillo and Clay 2005).

During southern migration these sandpipers pass through the seasonally dry Chaco which largely consists of thorny, stunted vegetation in which bromeliads and cacti are common, as are xeric adapted shrubs and trees. A detailed description of this habitat is available in Short (1975) who has characterized this habitat as thorn forest with primary tree species being Algarroba *(Prosopis alba* and *P. nigra)* and Quebracho *(Aspidosperma quebracho-blanco* and *Schinopsis quebracho-colorado)*. This study reports the use of the Paraguayan Chaco by Solitary sandpipers during southern migration.

METHODS

Birds were mist-netted at the 280 ha Chaco Center for Conservation and Research (CCCR) located at Fortin Toledo, Boqueron, Chaco, Paraguay (22°21'S, 60°20'W). Near the Trans Chaco highway, it is approximately 30 km west of the Mennonite community of Filadelphia. This region is the home of Proyecto Tagua, which is the conservation management program for the Chacoan peccary, *Catagonus wagneri.* A description of the project and its activities may be found in Benirschke and Meritt (1984), Byrd *et al.* (1988) and Benirschke *et al.* (1990).

Mist netting began in 1999 and continues today. Netting was carried out in the austral spring and winter for 5 to 19 days during each sampling period. In nine years six austral spring sessions totaling 79 days and six austral winter sessions totaling 59 days of captures. Five 18 m long by 2.43 m high, 50 denier, 2 ply nylon nets of 32 mm or 38 mm mesh size were used in the same location each session. More than 5000 birds of 97 species were captured during these netting sessions.

Captured birds were banded with privately purchased leg bands conforming to United States Fish and Wildlife Service (US/FWS) standard sizes. Unique combinations of plain aluminum bands, choice of leg banded and colored anodized aluminum bands allowed visual

identification of banding year. Weight was measured with Pesola spring scales (to the nearest g), wing cord (in mm), and sex, fat state and reproductive activity were noted after identification and banding. In some years additional measurements or samples were taken for additional studies including collection of tail feathers and toe nail snips. Captures at the site varied with season and year ranging from a low of 83 to 1046 individuals.

RESULTS

In 2003 during austral spring, transient Solitary sandpipers were observed and captured for the first and only time. All captured birds foraged in shallow aquatic habitat during the study period. Sandpipers picked insects and insect larvae from the water surface. Nine adults (aged by plumage) were netted and banded between 18 October and 2 November. One individual was recaptured three times during this period allowing multiple weight measurements. The birds captured at the study site had individual arrival weights of 40, 43, 46, 41, 42, 49, 45, 51 and 42 g. The individual that was captured three times had an initial weight of 43 g and subsequent weights of 45 g two days later and 44 g ten days later. No comparable weights are available for south bound migratory Solitary sandpipers. Various publications provide weights of adult birds ranging from 50 to 51 g (Sibley 2000, Anonymous 2006, 2007, Whatabird.com 2007). Seven of the nine captured birds were less than stated weights with mean weights for all birds of 44.33 g (n = 9; SD 3.53 g).

It is important to note that all captured sandpipers on arrival were thin, showed significant pectoral muscle wasting, had prominent keels, were in most cases on the low end of normal weight ranges and showed moderate dehydration. This is an unexpected finding for a species that is thought to casually migrate south, taking advantage of available resources. It is possible that resources were in short supply in route to this area of the Chaco hence the birds' poor condition.

DISCUSSION

Sandpipers used seasonal shallow bodies of water in the Chaco at Fortin Toledo as a source of moisture and aquatic invertebrate food during their southern migration from North America. The two bodies of water were elliptically shaped 2.43 × 5.48 m long with an overall depth of 15.2 cm; and a body of water 4.57 m wide × 12 m long with gently sloping sides. These two bodies of water were located within 15 meters of each other. An adjacent water filled depression 2.13 m wide × 2.43 m long with a depth of 10 to 15 cm was not used. Each of these water sources had mosquito larvae as well as other aquatic larval forms, an ideal food source for these migrants.

The mean weights of north bound Solitary Sandpipers in Venezuela were 48.40 g (n = 104; SD ± 8.56 g; Range 31.1 – 65.1 g) (Thomas 1987). For seven individuals where more than one weight was recorded the mean weight change was 0.64 ± 2.6 g (-6.8 to +8.6) with a mean stopover time of 5.1 ± 3.3 (1 to 9) days. Stopover time at the Chaco location for south bound birds was more than ten days for some individuals.

During this study period the spring rains came early and were of sufficient quantity to flood then fill low lying areas of Chaco as described here. This was unusual and allowed plant growth and new leaf production to start earlier than normal. Simultaneously there was an increase in insect life especially aquatic larval forms. These circumstances, while exceptional, provided a rich stop-over site for Solitary sandpipers as well as other migrating avian forms requiring a source of water and abundant food especially aquatic invertebrates.

Based on these preliminary observations it appears that low lying areas within the Chaco that are seasonally filled with water and associated aquatic invertebrates may be essential to successful migration of some species of migratory shore birds from North America. This observation argues for land conservation efforts to preserve natural habitat in this unique ecosystem.

ACKNOWLEDGMENTS

Support from the Scott Neotropical Fund allows the operation of the Chaco Center for Conservation and Research (CCCR) and "Proyecto Tagua". A portion of these funds supported this work. Juan Campos Krauer, Ivan "Coco" Benitez and Victor Robles of "Proyecto Tagua" generously gave of their time and talents. Helpful suggestions were provided by anonymous reviewers. This is publication number 10/10/10 from the Center for the Study of Biodiversity at DePaul University.

REFERENCES

Anonymous. (2006). Aknhys.uaa.alaska.edu/zoology/species/Solitary Sandpiper_AFG_final_pdf.

Anonymous. (2007). Smithsonian Migratory Bird Center. Nationalzoo.si.edu/scbi/migratorybirds/life_history/Solitary Sandpiper.

Bent, A. (1929). Life histories of North American shore birds. Part II. Smithsonian Institution. United States National Museum. Washington, D.C. Bulletin 146. 1-16.

Benirschke, K. B. and Meritt, D. A. (1984). Quest for the Giant Peccary: The Chaco Revisited. *Zoonooz (San Diego),* 58(4):13-15.

Benirschke, K. B.; Byrd, M. and Meritt D. A. (1990). New observations on the Chacoan peccary, *Catagonus wagneri.* P. 341-347. *In:* 32nd International Symposium Erkrankungen der Zootiere (Eskilstuna, 1990). Academie-Verlag, Berlin.

Brodkorb, P. (1938). Further additions to the avifauna of Paraguay. *Occasional Papers of the Museum of Zoology.* University of Michigan. No. 394. 1-5. Ann Arbor, Michigan.

Brooks, D. M. (1997). Avian seasonality at a locality in the central Paraguayan Chaco. *Hornero,* 14:193-203.

Byrd, M. L.; Benirschke, K. B. and Gould, G. C. (1988). Establishment of the first Captive Group of Chaco Peccary, *Catagonus wagneri. Zool. Garten,* 58:265-274.

Castillo, H. and R. Clay. (2005). Atlas de las Aves de Paraguay. Asociacion Guyra Paraguay. Asuncion.

Gore, M. and A. Gepp. (1978). Las Aves Del Uruguay. Mosca Hnos. S. A. Montevideo. 124.

Hayes, F. E.; Goodman, S. M.; Fox, J. A.; Granizo Tamayo, T. and N. E. Lopez. (1990). North American Bird Migrants in Paraguay. *Condor,* 92:947-960.

Hayes, F. and J. Fox. (1991). Seasonality, habitat use, and flock sizes of shorebirds at the Bahia de Asuncion, Paraguay. *Wilson Bulletin,* 103(4):637-649.

Kaufman, K. (1996). Lives of North American Birds. Houghton Mifflin Company, New York. 174.

Narosky, T. and D. Yzurieta. (2006). Aves de Paraguay: guia para la identificacion. 1a ed. Buenos Aires. Vazquez Mazzini Editores. 84.

Neris, N. and F. Colman. (1991). Bol. Museo Nacional Historia Natural Paraguay. No. 10. 1-10.

Rappole, J. H.; Morton, E. S.; Lovejoy III, T. E. and Ruos, J. L. (1983). Nearctic avian migrants in the Neotropics. Fish & Wildlife Service, U.S. Department of the Interior, and World Wildlife Fund-US., Washington, D.C.

Richards, A. (1988). Shorebirds: A complete guide to their behavior and migration. W. H. Smith Publishers Inc., New York. 179-181.

Short, L. E. (1975). A Zoogeographic Analysis of the South American Chaco Avifauna. *Bulletin of the American Museum of Natural History,* 154(3):164-352. New York.

Sibley, D. A. (2000). The Sibley Guide to Birds. National Audubon Society. Alfred A. Knopf, New York. 171.

Thomas, B. T. (1987). Spring Shorebird Migration through Central Venezuela. *Wilson Bulletin,* 99(4):571-578.

Wetmore, A. (1927). Our migrant shorebirds in southern South America. United States Department of Agriculture. Technical Bulletin No. 26. October, 1927. Washington, D.C. 12-13.

Wild Birds Unlimited. (2007) Whatabird.com. Field Guide to Birds of North America. Solitary Sandpiper. http://whatabird.wbu.com/obj/425/identification/Solitary_Sandpiper. 1-4.