Second Shorebird Science in the Western Hemisphere Meeting, 13–19 May 2007, Maturín, Venezuela

INTRODUCTION by Richard Lanctot

The 2nd Shorebird Science in the Western Hemisphere meeting was held in conjunction with the VIII Neotropical Ornithological Congress in Maturín, Venezuela, between 13 and 19 May 2007. The 1st Shorebird Science in the Western Hemisphere meeting took place in Boulder, Colorado, in February 2006 (see *Wader Study Group Bulletin* 109: 15–66). In Boulder, participants expressed a desire to continue to have meetings on an annual or biannual basis, to hold these meetings alternately between Latin and North America, and to hold the Latin American meetings in conjunction with the Neotropical Ornithological Congresses that occur once every four years. Thus, this 2nd meeting at the VIII Neotropical Ornithological Congress was the outcome of these desires.

The 2nd Shorebird Science in the Western Hemisphere meeting consisted of a round table discussion on the Western Hemisphere Shorebird Group and three symposia. Symposia included talks surrounding Neotropical endemics, Nearctic migrants, and site-based shorebird conservation (see summaries and abstracts below). These symposia originated from conversations that occurred at the first meeting in Boulder. In addition, six general papers and 12 posters on shorebirds were presented (authors who gave permission to reprint them are below). Representatives from virtually all countries in the Western Hemisphere were present.

The presence of a large number of people studying shorebirds at the congress also allowed a number of impromptu meetings to take place. These included the inaugural meeting of the Hudsonian Godwit Working Group (see below) and many other informal meetings. I think most people would agree that such personal exchanges lay the groundwork for the establishment of other collaborative efforts. This certainly occurred during the 1st meeting in Boulder. Only the future will reveal the success of this meeting.

I want to thank the leaders of the symposia, the many presenters, and the people behind the scenes that allowed the science to take place, and the participants to attend – you know who you and your organizations are. I also want to encourage everyone to participate in the Western Hemisphere Shorebird Group, the Western Hemisphere Shorebird Reserve Network, the Shorebird Research Group of the Americas, the Program for Regional and International Shorebird Monitoring, the Shorebird Sister School Program, or other local organizations that contribute to the conservation of shorebirds. Only your efforts will keep other species from going the way of the Eskimo Curlew – remember our motto *not in our lifetimes*. Hope to see all of you at the 3rd Shorebird Science in the Western Hemisphere meeting that will be held at **Sinaloa (Mazatlan or Culiacan), Mexico, in late March 2009**. Local organizers will be Guillermo Fernandez (*gfernandez@ola.icmyl.unam.mx*) and Xico Vega (*xicovega@itesm.mx*), but additional help will be needed for the various committees needed to run a four to five day meeting. In addition to the regular presentations and posters, Brett Sandercock has generously offered to teach a demography workshop prior to the formal meeting. This third Shorebird Science in the Western Hemisphere meeting will focus entirely on shorebirds and promises to be the largest meeting yet. Mark your calendars!!

ROUND TABLE DISCUSSION: THE WESTERN HEMISPHERE SHOREBIRD GROUP

Organizers: Richard Lanctot (*Richard_lanctot@fws.gov*), Stephen Brown, Guillermo Fernandez, Robert Gill, Julián Torres-Dowdall and Graciela Escudero

In February 2006, shorebird biologists decided to form the Western Hemisphere Shorebird Group (WHSG) during the 1st Shorebird Science in the Western Hemisphere Meeting in Boulder, Colorado. This new and exciting group represents the first time biologists have tried to study all shorebirds of the Americas in a comprehensive fashion, from peeps to curlews, from Arctic-breeders that migrate to Tierra del Fuego to Andean endemics. As a reminder, we proposed that this group would function as the "glue" that binds the many other shorebird initiatives together throughout the Western Hemisphere. This would include the Shorebird Research Group of the Americas (research branch), the Program for Regional and International Shorebird Monitoring (as well as the Waterbird Survey and International Shorebird Survey, i.e., the monitoring branch), the Western Hemisphere Shorebird Reserve Network (site-based conservation branch), Shorebird Sister Schools Program (outreach/education branch), the US and Canadian Shorebird Conservation plans and councils (national implementation framework branches), and the many other state and regional shorebird entities.

The WHSG round table was well attended by 50 people from 16 countries, including Chile, Argentina, Uruguay, Paraguay, Ecuador, Columbia, Venezuela, Suriname, French Guiana, Guyana, Panama, Cuba, Mexico, Australia, Canada and the United States. The bulk of the participants were from countries other than the US and Canada (39 of 50 attending the round table), and the meeting was held in both Spanish and English. The round table began with Richard Lanctot giving an overall presentation describing the history of the formation of the group, the need and possible functions of the group, and the results of a questionnaire sent out after the Boulder meeting addressing the need and role of the group (see below). Following this, Stephen Brown of the Manomet Center for Conservation Sciences, described the form and function of the Shorebird Research Group of the Americas; Charles Duncan, also from Manomet, described the Western Hemisphere Shorebird Reserve Network; and finally, Richard Lanctot described activities occurring within the Program for

Regional and International Shorebird Monitoring.

The questionnaire tried to address the importance of the proposed principal tasks of a Western Hemisphere group, including to 1) organize and hold scientific meetings once every two years, 2) establish a website with links to information on a wide variety of shorebird topics at various geographic scales, and 3) prepare a bi-annual electronic newsletter that would report on ongoing projects, provide regional summaries, and foster a hemispheric-wide shorebird identity. Fifty-two people responded to the electronic questionnaire, and of those that stated their country of residence, 6 were from Canada, 28 were from the United States, 1 was from Central America, 4 were from northern South America, and 5 were from southern South America. Everyone indicated they thought the WHSG should form; 82% (n = 51) indicated having meetings was of high or very high importance; 65% (n = 51) indicated having a shorebird website was of high or very high importance; 42% (n = 48) indicated having a newsletter was of high or very high importance; and 28% (n = 42) indicated having a logo was of high or very high importance. Despite the questionnaire response being biased toward the United States and Canada, the primarily Latin American participants at the round table voiced similar needs. Discussion included the importance of transferring information within and across hemispheres via all of these media. Various people expressed the need to share and learn about conservation, research, and outreach/education issues. Several people indicated they thought a joint project involving the entire flyway should be implemented as a way of galvanizing people around a common theme. Additional discussion centered on the role a website might play, and that this WHSG website would serve as a portal to many other websites currently in existence throughout the hemisphere. Participants agreed to provide information in an as needed basis for completing the website. Given the relative high importance placed on holding bi-annual meetings, we decided to plan the next meeting immediately. Kindly, Guillermo Fernandez and Xigo Vega offered to hold the next meeting in Sinaloa (Mazatlan or Culiacan), Mexico, in late March 2009.

Several other issues of importance have come to light since (and because) the last two meetings have taken place. First, the location to hold meetings continues to be financially and logistically difficult. This is especially relevant given our desire to have the entire Western Hemisphere represented. Meetings held in conjunction with the Neotropical Ornithological Congress make it easier for Latin Americans to attend but in some cases can impede attendance by North Americans. A similar situation occurs, but in reverse, when the meetings are held in the United States or Canada. Restrictions for traveling to foreign countries and insufficient funds seem to be the most troublesome obstacles. Travel for the first two meetings have been offset by funds from various government and non-government organizations, but there is an obvious need to establish an endowment to help pay for travel over the long-term. One potential solution would be to have a silent auction at the next meeting to raise money. Second, a mechanism is needed to raise funds to pay for people to create and maintain the website (the newsletter will come later). The website would require an initial investment of funds to establish the site, and above all, require many people throughout the hemisphere to provide relevant information. Several people are taking steps to raise funds towards this endeavor. Third, there continues to be a need to translate documents (and websites) in a timely fashion into English, Spanish, and Portuguese as needed. We encourage all people who have an interest in helping in any of these areas to contact Richard Lanctot (*Richard_lanctot@fws.gov*).

SYMPOSIA

CHALLENGES AND ADVANCES WITH THE CONSERVATION OF IMPORTANT SITES FOR SHOREBIRDS IN THE NEOTROPICS

Organizers: Charles Duncan (*cduncan@manomet.org*) and Rob Clay (*rob.clay@birdlife.org.ec*)

This symposium was organized with the goal of reviewing the challenges and advances with the conservation of migratory and resident shorebirds in the Western Hemisphere, with a particular focus on key sites in the neotropics. Site-based conservation is central to the conservation of shorebird species and their habitats across the Americas. Examples were provided from five countries of the diverse challenges facing shorebird conservation and the ways these have been addressed.

In the first presentation, Xico Vega and Miguel Ángel Cruz described the use of novel legal tools, such as conservation easements, in addition to more traditional mechanisms (e.g. land purchase), to conserve shorebird habitats on privately-owned lands in Mexico. In the next presentation, Silvia Ferrari and her co-authors highlighted the importance of participatory processes, and especially those involving local communities and governments, in the conservation of four WHSRN sites in Argentina. Next, Rosabel Miró and Karl Kaufmann summarized how working with the national government and international partners has advanced the conservation of Panama Bay, including its recognition as a Ramsar Site and a WHSRN site of Hemispheric Importance. In the next presentation, Inês Serrano contrasted the conservation status of the two WHSRN sites in Brazil, where the recognition and management of one site at the federal level has brought significant benefits in terms of on-the-ground conservation. Finally, Otte Ottema and Arie Spaans discussed the conservation of shorebirds at the three WHSRN sites in Suriname, where one of the most significant challenges is the dynamic nature of the coastal environment. This has been addressed by designating almost the entire coastline as a series of multiple-use management areas, though hunting remains a major threat. Overall, symposium participants heard about a wide variety of threats to key sites for shorebirds in the neotropics, and about a diverse array of solutions that have been applied. However, a common thread through all of the presentations

was the importance of building partnerships to give value to the conservation of shorebirds and shorebird habitats at these key sites. Such partnerships varied from working with private landowners, local communities, businesses, governments and academia, through working with national governments to working with international organizations and initiatives. While the extent to which each type of partnership was developed at any one site varied, it was clear from all five presentations that developing partnerships in a coordinated way with stakeholders at all levels is key to successful site conservation.

Conservación de tierras privadas: Un Nuevo y práctico mecanismo legal para la conservación de las aves playeras

Private land conservation: a new and practical legal mechanism to protect shorebirds in Mexico

Xicotencatl Vega (*xicovega@itesm.mx*) & Miguel Ángel Cruz

There is international concern about the future of shorebirds along the Pacific coast and high lands of Mexico, including species such as: Marbled Godwit (*Limosa fedoa*), Snowy Plover (*Charadrius alexandrinus*), Mountain Plover (*C. montanus*), Upland Sandpiper (*Bartramia longicauda*), and Long-billed Curlew (*Numenius americanus*) with a distribution extending along the Americas. Population studies indicate drastic decline, therefore, conservation plans must be formulated and implemented to prevent extinctions. Mexico has begun a series of protection schemes that allows and enhances the continuity of biological processes in habitats considered critical for the survival of these species. Pronatura is the pioneer non-governmental organization using the conservation tool known as "Private Land Conservation Programs". Pronatura's network currently protects over 500,000 hectares (1,235,000 acres) of important habitats under this Program. Some of these habitats are critical for shorebirds. In Sinaloa there are 6,500 hectares (16,000 acres) in the Peninsula de Lucenilla under a conservation easement, protecting nesting habitat for Snowy Plovers, American Oystercatcher (*Haematopus palliatus*) and wintering habitat for Marbled Godwit, Willet (*Tringa semipalmata*), Western Sandpiper (*Calidris mauri*) and other shorebird species. Santa María Bay hosts one of the most important wintering populations of Western Sandpiper which is considered one of the most important wintering habitats in NW Mexico. Pronatura purchased 350 hectares (865 acres) to insure long term conservation and habitat restoration. Pronatura purchased 18,500 hectares (45,700 acres) of grassland habitat in Janos, Chihuahua. In the states of Coahuila and San Luis Potosi currently there are more than 17,000 hectares (42,000 acres) are under different conservation schemes. Projects are focused to protect natural resources in coordination with land owners. Private Land Conservation is restricted or conditioned to protect shorebirds and constant bird monitoring as indicated in Management Plans. Private Land Conservation is a new option extending shorebird and habitat protection over heretofore unavailable lands.

Manejo y conservación de aves playeras migratorias en Argentina: experiencias locales en cuatro sitos de la Red Hemisférica (RHRAP)

Management and conservation of shorebirds in Argentina: local experiences at four sites of the Western Hemisphere Shorebird Reserve Network (WHSRN)

Silvia Ferrari (*sferrari@uarg.unpa.edu.ar*), Zonia Sawicki, Carlos Albrieu, Nora Loekemeyer, Silvia Gigli & Enrique H. Bucher

Argentina plays a role of hemispherical importance for numerous shorebirds, both neartic and neotropical, which has been the basis for the inclusion of wetlands as part of the Western Hemisphere Shorebird Reserve Network. At present it includes four sites: Dulce River wetlands and Mar Chiquita lagoon, located in the center of Argentina (Cordoba), San Antonio bay (Rio Negro), Gallegos river estuary (Santa Cruz), and Atlantic Coast Reserve (Tierra del Fuego). A short description and the ornithological importance of each is presented, together with discussion of threats to their conservation, accomplished progress, and future challenges. In all of the sites, environmental education actions, training, and research projects are carried on, with the intervention of governmental agencies and important contributions from universities and local and international NGOs. The greatest challenge is to make the uses of the land compatible with the conservation objectives, for which the accomplishment of the managing plans that are in different stages of development, with community participation, is indispensable.

Panamá: Conservación en colaboración con el govierno nacional

Panama: Conservation with government collaboration

Rosabel Miró Rodríguez (*rosabelmiro@mac.com*) & Karl Kaufmann

The Panama Audubon Society (PAS) started working closely with the Autoridad Nacional del Ambiente (ANAM) in 1998 when it asked to have the Upper Bay of Panama (UBP), an important shorebird migration site adjacent to Panama City, placed on the Ramsar Convention list of Wetlands of International Importance. ANAM was very favorable to the proposal but lacked the resources to gather the information it needed to commit to the requirements of the designation. PAS then had to develop skills to fund and carry out the requisite studies itself. Further work with ANAM included designating the UBP as a Western Hemisphere Shorebird Reserve Network site, and sponsoring with them a major dedication ceremony involving over 70 participants from nine different countries. In doing this work, PAS became an influential conservation organization in Panama and continues to work with ANAM to provide protection for the UBP.

Challenges and advances at the Brazilian WHSRN sites

Ines L. Serrano (*ines.serrano@ibama.gov.br*)

Brazil has two WHSRN sites, the Área de Proteção Ambiental das Reentrâncias Maranhenses (APA) and the Parque Nacional da Lagoa do Peixe. Both were designated in 1991 and both are included in the Brazilian Conservation Unities System. The APA encompasses 16 municipalities and is managed by the government of the state of Maranhão. It entirely lacks infrastructure, a management plan and budget. The great majority of the land is private property, that of the Navy, or is occupied by illegal settlers. The communities use small-scale fishing for subsistence or to supply urban centers such as São Luiz e Alcântara. They lack basic infrastructure such as water supply and distribution, sewerage or electricity. Ecotourism is still an incipient activity in the region. The main challenges to the conservation of biodiversity are: the difficulty of inserting a conservation unit in a region with serious socio-economic problems; the differences between the social and environmental priorities; and taking advantage of ecotourism as a source of income for the local communities. In contrast, Lagoa do Peixe is managed by the federal government and has an office with staff, a budget and a management plan. After the creation of the park and its inclusion within WHSRN, numerous activities of research, environmental education and ecotourism began to develop, generating alternative sources of income for the local communities. Among the biggest challenges are: the purchase of the many remaining private properties, shrimp fishing; illegal hunting; drainage of waters for rice farms and the associated use of pesticides; and finally the increased vehicle usage of the beach during the summer.

Challenges and advances in shorebird conservation in the Guianas, with a focus on Suriname

Otte Ottema (*research@stinasu.sr*), Stinash, Suriname & Arie Spaans

Throughout the year, the muddy coast of the Guianas in northeastern South America is a very important staging area for North American breeding shorebirds. Highest numbers are found along the coast of Suriname, where up to 1.3 million birds currently occur during the southbound migration peak. Lower numbers occur in French Guiana (760,000) and Guyana (no recent counts). Three coastal wetlands in Suriname have been designated as Western Hemisphere Shorebird Reserve Network sites of Hemispheric Importance. Current shorebird numbers are lower than in the 1970s and 1980s. In Suriname, numbers of at least five species have decreased by 40–80%. In French Guiana, at least seven species show a negative trend. The government of Suriname has made significant advances with the conservation of shorebirds. Most of the coast has been designated as Multiple Use Management Areas (MUMA), while two important shorebird areas are protected as nature reserves. Moreover, since 2002 all shorebird species are fully protected by law (not the case in French Guiana and Guyana). However, notwithstanding their protected status, shorebirds are still hunted and trapped in high numbers (several tens of thousands each year). Strict enforcement of the Game Law rules is essential, and the success of an education and awareness campaign initiated in 2006 needs to be built upon.

SYMPOSIA: ENDEMIC NEOTROPICAL SHOREBIRDS

Organizers: Graciela Escudero (*gescudero@cenpat.edu.ar*), Julián Torres-Dowdall and Monica Abril

Concern about the lack of information on population sizes and trends of South American shorebirds and the urgent need to study endemic neotropical shorebird species was a general consensus at the 1st Shorebird Science in the Western Hemisphere meeting in Boulder, US. The shorebird community has been aware of the lack of knowledge about these species for at least the last ten years, announcing publicly that actions should be taken. Shorebirds are declining worldwide but we have no tools to asses the current status and population trends of endemic shorebirds in the neotropics. The neotropics supports 27 endemic species, and two endemic families, the Seed-snipes (Thinocoridae) and the monospecific family of the Magellanic Plover (Pluvianellidae, sensu Paton *et al.* 2003). However, the sparse information about these species is scattered and sometimes remains unpublished or as gray literature. Furthermore, local researchers fail to get funding for monitoring or researching those species that are not on the red list or are poorly known. The goal of the Endemic Neotropical Shorebirds Symposium was to gather interested researchers to evaluate the current state of knowledge, to identify priorities for research and conservation, to discuss strategies and funding possibilities and to develop a functional network willing to change the current situation. The presentations in the symposia follow this summary. The work presented showed the importance of general surveys and the associations between groups to enhance the capabilities of local researchers to increase knowledge about the shorebirds that are endemic to the neotropics. After the symposia, a Yahoo Group was created to increase communication between those interested in these species (if you are interested in joining, send an e-mail to: *avesplayerasdelneotropico@yahoogroups.com.ar*).

Up-to-date knowledge of the Magellanic Plover (*Pluvianellus socialis*), an endemic shorebird of Southern Patagonia: putting together the pieces of the puzzle

Silvia Ferrari (Universidad Nacional de la Patagonia Austral, Unidad Académica Río Gallegos, Río Gallegos, Santa Cruz, Argentina *sferrari@uarg.unpa.edu.ar*), Carlos Albrieu, Santiago Invertí & Carmen Lishman

The Magellanic Plover (*Pluvianellus socialis*) is a species endemic to southern Patagonia, with an estimated population of less than 1,500 individuals. We report findings on distribution, migratory movements, abundance, habitat and reproductive biology, in the zone of the highest known densities: south-central Santa Cruz Province, Argentina. Also, in the interest of combining and reporting dispersed information on the species, we surveyed researchers within its geographic

range for encounters and observations. We report the largest known group of individuals encountered, almost 15% of the population; the discovery of at least two successful nesting attempts within a breeding season; a high rate of hatching success (12 of 17 nests, ~70%), in the 2006–2007 season, and the extension of the breeding range. Although we present some indications that the global population is higher than previously estimated, an accurate estimate is difficult because it is a rare species with a patchy distribution that uses highly variable breeding habitat within and between years.

Distribution, relative abundance, and habitat use of four species of neotropical shorebirds in Uruguay

Matilde Alfaro (Asociación Averaves, Universidad de la República, Facultad de Ciencias, Montevideo, Uruguay. *malfaro@fcien.edu.uy*), Adrián Azpiroz, Thierry Rabau & Martin Abreu

Due to its location in south-eastern South America and to the suitable habitats found within its borders, Uruguay harbors numerous species of Nearctic and Neotropical shorebirds. Here we describe the distribution, relative abundance, habitat use, and seasonality of Collared Plover (*Charadrius collaris*), Two-banded Dotterel (*C. falklandicus*), Rufous-chested Plover (*C. modestus*) and Tawny-throated Dotterel (*Oreopholus ruficollis*) in Uruguay. We analyzed information from the literature, scientific collections, and databases from regional census programs and complemented these sources with our own personal observations. The Collared Plover was the most widely distributed species. It is present year-round and is found principally on sandy beaches and sand dunes along the sea coast and along inland rivers and streams. Breeding activity has been documented between Nov and Feb. The other three species are winter migrants from Patagonia and are present in the country mainly during fall and winter (Apr–Sep). The Two-banded Plover inhabits Uruguay's south coast from San José to Rocha Departments, using sandy beaches and mudflats as foraging and roosting areas. The largest concentrations of both Rufous-chested and Tawny-throated Dotterel are observed in grazed grasslands in southern and northern Uruguay, frequently in association with other bird species. The Rufous-chested Dotterel also inhabits beaches and mudflats, and according to the available data, it is the species found in the largest groups. This study updates knowledge on distribution and status of four Charadriinae shorebirds in Uruguay and we hope it will stimulate further research of these little-known taxa.

Breeding ecology of the Two-banded Plover *(Charadrius falklandicus)*

Gabriel Ernesto García-Peña (Dept of Biology and Biochemistry, University of Bath, United Kingdom *gegp20@bath.ac.uk*), Maria de los Ángeles Hernández & Luis Oscar Bala

Developing strategies to mitigate the human impact on shorebird populations requires knowledge of the conservation status of shorebird species. The conservation status of endemic Neotropical species is poorly understood as information on the size of populations, on migratory movements and on reproductive ecology is scanty. Here we investigate the breeding ecology of a Neotropical species, the Two-banded Plover, in three study sites in Chubut, Argentina. We found: (1) that the species aggregates in breeding habitats despite the fact that it shows variation in nesting sites, (2) that hatching success is lower than fledging success and (3) that females can produce three clutches during a breeding season after nest failure. For this study we have initiated the individual ringing of plovers. Long term monitoring of individually ringed birds will provide information on mate fidelity, breeding site fidelity and migratory destinations during the austral winter.

Fluctuations in resident shorebird populations at two Paraguayan wetlands: Bahía de Asunción and the Yacaré Sur Lagoons

S. Centrón (Guyra Paraguay-Conservación de aves, Asunción, Paraguay. *silviac@guyra.org.py*), Arne J. Lesterhuis, Rob P. Clay & Cristina Morales

Shorebird species endemic to the neotropics have received very little attention to date in Paraguay, with available information largely restricted to basic knowledge regarding distribution. Of the nine species that occur in the country, all but two (Giant Snipe *Gallinago undulata* and Pied Lapwing *Vanellus cayanus*) are widely distributed. Here we present an analysis of census data for two common resident shorebirds, White-backed Stilt *Himantopus melanurus* and Collared Plover *Charadrius collaris*, gathered from September 2000 to July 2005 at two globally important wetlands in Paraguay: The Bahía de Asunción, a shallow bay along the Paraguay River, and the Yacaré Sur lagoons, an extensive area of saline wetland habitats within the central Paraguayan Chaco. In total, 187 censuses were conducted in the Bahía de Asunción and 25 in the Yacaré Sur lagoons. At both sites, numbers of *Charadrius collaris* frequently surpass the 1% of the biogeographic population importance threshold, while the Yacaré Sur lagoons periodically hold over 1% of the global population of both species. Counts of the species at both sites show considerable seasonal and inter-annual fluctuations. This variation is believed to be related to local changes in water levels and therefore habitat availability at both sites.

The Neotropical Waterbird Census and knowledge of neotropical shorebirds in Colombia

Richard Johnston-González (Calidris – Asociación Para el Estudio y Conservación de Las Aves Acuáticas en Colombia, Valle del Cauca, Colombia *rjohnston@calidris.org.co*), Viviana Peña Herrera & Luis Fernando Castillo

The Neotropical Waterbird Census (NWC) is a monitoring tool used in South America since 1990. In Colombia, it began in 1992 and between 2002 and 2006 has been developed continuously. We assess whether this initiative could provide information on key aspects of nine species of neotropical shorebirds currently reported in our country. We review what it has achieved in relation to five goals: (1) increasing the awareness of the value of wetlands, (2) providing the basis for estimating waterbird populations, (3) monitoring changes in waterbird numbers, (4) improving knowledge of little-known waterbird species and (5) identifying and monitoring sites that qualify as wetlands of international importance (Ramsar Sites). Six neotropical shorebird species were

registered by NWC in Colombia during 2002–2006. In recent years (2005–2006), NWC has shown that more localities and species of neotropical shorebirds could be monitored if the involvement of volunteers and ornithological organizations is increased. NWC is starting to provide fine-scale information on the distribution of little-known species such as Pied Lapwing (*Vanellus cayanus*) and shows range extensions for other species. Two Ramsar sites, one potential WHSRN site and other eight Important Bird Areas (IBAs) have been visited by NWC, but not in a systematic fashion. Five neotropical shorebird species have been recorded at such sites, most of them in the Andean region. Only one species, Noble Snipe (*Gallinago nobilis*), has been reported in all five years of the NWC, but in only a few localities. For other species, there are temporal gaps in the data or only occasional records, so the data are of limited use in relation to the analysis of abundance and population trends. The relevance of NWC to our knowledge of neotropical shorebirds in Colombia could be improved if it is expanded in key regions (Andes and Llanos) and if regular, periodical visits can be maintained.

SYMPOSIA: THE ECOLOGY OF NEARCTIC SHOREBIRDS DURING THE NON-BREEDING SEASON

Organizers: Guillermo Fernández (*gfernandez@ola.icmyl.unam.mx*) and Stephen Brown (*sbrown@manomet.org*)

The symposium on the ecology of Nearctic shorebirds during the non-breeding season was organized to share information on current research on potential limiting factors of this unique group of birds. Perhaps the greatest void in our understanding of shorebird populations concerns winter ecology. Because migratory shorebirds may spend over 70% of the year at stopover areas and wintering grounds, the conservation of many shorebird species depends on our ability to understand the limiting factors affecting their populations during the non-breeding season. For some species, little research has been conducted during the eight months outside of the breeding season.

More than 30 people attended all or most symposium presentations and participated in the closing discussion. The ecology of Nearctic shorebirds symposium was well diversified with five presentations describing large-scale research and survey efforts, as well as more intensive, site-specific research designed to increase knowledge at the local scale. In the first presentation, Marian Hernández and her colleagues described the diet of Red Knots (*Calidris canutus rufa*), White-rumped Sandpipers (*C. fuscicollis*), and Hudsonian Godwits (*Limosa haemastica*) at Península Valdés, Patagonia Argentina, during the northward migration. Next, Daniel Blanco and Bernabe López-Lanús described the distribution and number of Upland Sandpipers (*Bartramia longicauda*) found in South America during the non-breeding season. In the third presentation, Nathan Senner described the recently published Hudsonian Godwit (*Limosa haemastica*) Conservation Action Plan. (Unfortunately, Mauricio Cotera was not able to attend the meeting to discuss the importance of the halophyte grassland for Mountain Plovers *Charadrius montanus* in northeastern Mexico.) Next, David B. Lank and Guillermo Fernández summarized what is currently known about the effects of habitat loss on migratory shorebirds during the non-breeding season. The last presentation, by Khara Strum and colleagues, characterized and measured plasma cholinesterase in four upland and five wetland species of shorebirds in three states in USA during northbound migration.

The symposium was successful in bringing together biologists from different countries and developing a more comprehensive view of shorebird research during the non-breeding season. The topic of shorebird winter ecology offers a great deal of exciting research that is still largely untapped, with untold potential for helping us better protect global shorebird populations. Significant coordinated work is needed to determine which factors limit most shorebird species. While the work needed varies among shorebird species, significant knowledge gaps hamper conservation efforts for almost all species. Only through coordinated efforts, involving multiple investigators and institutions working in different geographic areas, can large scale impacts be assessed. There is an urgent need to determine which specific factors are most important for each species, so that conservation action can be targeted effectively. Symposium attendees (and readers of this report) are encouraged to participate in the Shorebird Research Group of the America (SRGA) – a group designed to bring shorebird researchers together to increase our knowledge of shorebirds in the Americas and ensure that information is available for conservation purposes.

Ensamble de aves playeras migratorias en Península Valdés, Patagonia Argentina: Variaciones en su dieta

Variations in the diet of migrant waders at Valdés Peninsula, Argentinean Patagonia

María de los Ángeles Hernández (Centro Nacional Patagónico CENPAT-CONICET, Argentina *marianh@cenpat.edu.ar*), Luis Oscar Bala & Luciana Raquel Musmeci

La costa de Península Valdés es frecuentada anualmente por diversas especies de aves playeras migratorias, entre las que se destacan el Playero Rojizo (*Calidris canutus rufa*), el Playero de Rabadilla Blanca (*Calidris fuscicollis*) y la Becasa de Mar (*Limosa haemastica*) entre otras. Estas especies realizan aquí paradas de alimentación y descanso entre los meses de marzo y abril, cuando se desplazan hacia el Hemisferio Norte. El objetivo del trabajo consistió en estudiar la dieta de las aves, mediante el análisis de sus fecas, determinar la selección de presas y comparar sus dietas. Se encontró una presa preferente común a las 3 especies de aves, la almeja *Darina solenoides*. El Playero de Rabadilla Blanca consume almejas de tallas 5 a 24 mm y selecciona positivamente aquellas entre 7 a 16 mm. El Playero Rojizo consume almejas de tallas entre 3 y 29 mm, pero selecciona individuos de 9 a 26 mm y la Becasa de Mar consume almejas de 3 a 34 mm, pero selecciona aquellas entre 9 a 34 mm. La segunda presa en importancia para cada especie de ave es diferente, la Becasa de Mar preda poliquetos *Glycera americana*, en cambio el Playero Rojizo lo hace sobre la almeja, *Tellina petitiana* y el Playero de Rabadilla

Blanca sobre insectos. Más allá de lo anterior, la economía trófica de las aves es estrictamente dependiente del recurso almejas (*Darina solenoides*), especie que presenta poblaciones muy densas en playas de la Península Valdés y que sufre la presión predatoria sobre diferentes rangos de tallas, aunque el más afectado es el intervalo de 9 a 16 mm.

Distribución y conservación del batitú (Bartramia longicauda) *en América del sur*

Non-breeding distribution and conservation of the Upland Sandpiper (*Bartramia longicauda*) in South America

Daniel E. Blanco (Wetlands International, Buenos Aires, Argentina. *deblanco@wamani.apc.org*) & Bernabé López-Lanús

El Batitú (*Bartramia longicauda*) es una especie migratoria neártica que fuera de la temporada no 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 accesible para identificar e implementar acciones de conservación. En este trabajo recompilamos toda la información sobre la distribución y abundancia del Batitú en América del Sur, como base para: 1) definir mejor su distribución actual, 2) identificar principales zonas de concentración no reproductiva, 3) describir el uso de hábitat en dichas zonas y 4) identificar las principales amenazas para la especie. Se destaca la gran dispersión de este chorlo y la asociación a zonas agrícolas altamente antropizadas. Se discuten los resultados obtenidos y se proponen acciones de conservación en el marco de las iniciativas existentes en la región.

The status and conservation of Hudsonian Godwits (*Limosa haemastica*) during the non-breeding season

Nathan R. Senner (Commonweal Ocean Policy Program, USA. *nathan.senner@gmail.com*)

The Hudsonian Godwit (*Limosa haemastica*) breeds across the Canadian and Alaskan arctic and sub-arctic and spends the non-breeding season in southern South America. Little is known about its natural history or migration routes. Combined with its small population size and its use of a number of imperiled habitats, this lack of knowledge has caused Hudsonian Godwits to be labeled a species of high conservation concern. In an effort to address these issues, the Western Hemisphere Shorebird Reserve Network supported the writing of the Hudsonian Godwit Conservation Plan. The goal of the plan is to generate broader interest in monitoring, researching, and conserving godwits in addition to identifying threats to their conservation, possible actions and strategies to address those threats, and consolidating and reporting on recent information learned about godwits. This paper presents the findings of the plan that relate to the status and conservation of godwits during the non-breeding season. Those findings include the identification of 23 sites in South America that are considered sites of conservation importance; three of which are considered to be of paramount importance: Isla Chiloé, Chile; Bahía Lomas, Chile, and Bahía San Sebastian, Argentina. The plan also identified five questions that should guide research efforts in the coming years. In addition, the plan identified the major conservation threats facing godwits in South America; the most important of these are: the growth of aqua-cultural practices in central Chile; the proposed construction of a ferry terminal at Bahía San Sebastián; the proximity of many important sites to major shipping routes; and the accumulation of agro- and petrochemicals in intertidal habitats at sites in northern Argentina. Finally, the plan presented a timeline for the completion of research and conservation projects that should guide the activities of scientists and conservationists interested in Hudsonian Godwits until the year 2015.

Effects of habitat loss on shorebirds during the non-breeding season: state of knowledge and suggestions for action

Guillermo Fernández (Unidad Académica Mazatlán, ICML– UNAM, Universidad Nacional Autónoma de México. *gfernandez@ola.icmyl.unam.mx*) & David B. Lank

Many Western Hemisphere shorebirds are migrants that move from northern breeding grounds to wintering areas in Central and South America. Shorebirds differ from many other groups of avian migrants by their extremely long and demanding flights, gregariousness, restriction to a limited number of sites, long life-spans, and low recruitment. Migration monitoring data suggest that population declines are occurring in many shorebird species that breed in North America, and non-breeding habitat loss is thought to be a contributing factor. Considerable habitat loss and degradation from anthropogenic activities have influenced wetlands across the shorebird non-breeding range. If we wish to predict the consequences of habitat loss for shorebird populations, we must not only quantify changes in available habitat area, but also understand the role of density dependence as populations pack into or expand from areas, as demonstrated in European shorebird populations. In contrast, little is known about the population or behavioral ecology of the shorebirds that winter south of the United States. We briefly review our knowledge of the effects of habitat loss on shorebirds during the non-breeding season in the neotropics, illustrated with several examples, to highlight the many unanswered questions. It is crucial to gain a better understanding of population constraints in this region because shorebird populations are influenced by habitat alterations across the non-breeding range. The relative importance of non-breeding versus breeding season density dependence remains to be assessed for most species.

Plasma cholinesterases for monitoring pesticide exposure in neotropical migratory shorebirds

Khara M. Strum (Division of Biology, Kansas State University. *kmstrum@ksu.edu*), Matilde Alfaro, Ben Haase, Michael J. Hooper, Kevin A. Johnson, Richard B. Lanctot, Arne J. Lesterhuis, Leticia Lopez, Angela C. Matz, Cristina Morales, Benjamin Paulson, Brett K. Sandercock, Julian Torres-Dowdall & María Elena Zaccagnini

Organophosphorus (OP) and carbamate (CB) pesticides are commonly used agrochemicals throughout the Western

Hemisphere. These have caused mortalities in migratory birds and adverse physiological effects in trials with captive birds. Migratory shorebirds use a variety of habitats while over-wintering in temperate South America and during migration through the Great Plains of the United States. Habitats where risk of exposure is high include rice fields and sod farms where agrochemicals are used. Cholinesterase (ChE) is a specific biomarker for monitoring OP and CB exposure and can be measured using standard laboratory procedures. Plasma ChE activity is useful as a non-lethal means of monitoring avian exposure to OPs and CBs. Many variables can affect enzyme activity and reactivation assays are not always possible, thus reference ChE values are a necessary component of monitoring exposure. During northbound migration in 2006, we sampled four upland and five wetland species of shorebirds at four pesticide-free sites in North America, characterizing and measuring plasma ChEs in all species. Small-bodied species had higher levels of ChE activity in plasma than large-bodied species. Acetylcholinesterase (AChE), the enzyme whose inhibition leads to poisoning symptoms, showed less inter-species variation than butyrylcholinesterase (BChE). Plasma ChE activities varied with date of capture in three of five species. Sex differences were significant in one of two species tested. Our research presents reference cholinesterase values for migratory shorebirds and provides the framework for future eco-toxicological studies of neotropical–nearctic migrant shorebirds.

HUDSONIAN GODWIT WORKING GROUP

This first ever meeting of the Hudsonian Godwit Working Group was convened during the Neotropical Ornithological Congress in Maturin. The event was well attended, with representatives from six countries, of which five were in Central or South America.

The main objective was to decide what members hoped would be accomplished through the formation of the group. The broad consensus was that the most important role that the group could play would be to improve the amount of information passing along the length of the Western Hemisphere concerning Hudsonian Godwits. That information should include: work summaries, conservation alerts, requests for collaborators, new technologies and methodologies, interesting observations, and grant opportunities. Those present also hoped that the working group would be able to take the lead in generating new interest in Hudsonian Godwits and in pushing for conservation initiatives addressing threats specific to godwits.

In response to the concerns voiced by many present, the secondary objective was to create an organizational structure that would maximize the amount of information disseminated to scientists, conservation workers, and education specialists interested in Hudsonian Godwits throughout the Western Hemisphere.

In the end, it was agreed that each country would designate a representative whose role it was to ensure that everyone in their country interested in godwits became involved in the group, but also to take the lead in passing information pertaining to their country on to the rest of the group. The creation of a list-server specifically designated to the topic of Hudsonian Godwits was also labeled a high priority. The meeting closed with a call for the designation of country representatives for those countries not present, primarily Canada, and for there to be a push to build upon the recent completion of the Hudsonian Godwit Conservation Plan by identifying important conservation concerns at the local level so that group members could begin acting on those concerns. Finally, Nathan Senner was asked to remain the contact person for the group; he can be reached at *nrs57@cornell.edu*.

GENERAL PAPERS

Tendencias preliminares en la abundancia (1993–2007) de aves playeras de pastizal: poblaciones declinando o cambios en el uso de hábitat?

Preliminary trends in the abundance (1993–2007) of grassland shorebirds in the Pampas: declining populations or changes in habitat use?

Eugenio Coconier (Aves Argentinas/AOP, Buenos Aires, Argentina. *coconier@avesargentinas.org.ar*), Juan Raggio, Gabriel Castresana, Pablo Rojas, Federico Bruno, Daniel MacLean, Ramón Moller Jensen, Lucas Verniere, Carlos Corbella, Cristóbal Doiny Cabre, Reginaldo Lejarraga, Darío Unterkofler, Diego Monteleone, Ulises Ornstein, Federico Schulz, Aníbal Parera, Carlos Figuerero, Fabián Rabuffetti, Adrián Di Giacomo & Daniel Blanco.

Las aves migratorias neotropicales presentan numerosos ejemplos de alarmantes disminuciones poblacionales. En algunos casos estas disminuciones se asocian con la mortalidad en las áreas de invernada o durante la migración. Durante primavera y verano de 2006–2007 realizamos más de 2000 censos de chorlos de pastizal en la ecorregión de las Pampas de Argentina. Nuestro objetivo fue repetir y comparar las abundancias observadas en esta campaña con el trabajo realizado por Wetlands International en 1993 con un esfuerzo similar. Las especies de interés fueron *Bartramia longicauda*, *Tryngites subruficollis*, *Pluvialis dominica* y *Calidris melanotos*. La metodología utilizada consistió en formar grupos de al menos dos observadores calificados, que visitaron áreas predeterminadas, en las que realizaron transectas desde vehículos en movimiento y puntos fijos cada 5–10 km, con observaciones en el radio de giro completo del vehículo, realizando caracterizaciones del hábitat y contando el número de ejemplares de las especies objeto del relevamiento. Se relevaron 9 áreas en las provincias de Buenos Aires, Entre Ríos, Corrientes, Córdoba y Santa Fe, formándose 9 grupos con un total de 26 personas. Los resultados preliminares para las pampas de Argentina arrojan un patrón consistente con la disminución de las abundancias en las subregiones más transformadas por la agricultura en los últimos 10 años. Sólo se observa un aumento de la abundancia regional de *Bartramia longicauda* en zonas menos transformadas por la agricultura, aunque también se observa su casi desaparición de las zonas más agrícolas. Por otro lado, *Pluvialis dominica* y *Tryngites subruficollis* presentan las tendencias más marcadas de disminución en abundancia en las mismas regiones entre 1993–2007. Este proyecto es financiado por NMBCA-USFWS.

Biometry and molt of Magellanic Oystercatchers *(Haematopus leucopodus)* in Argentina

Graciela Escudero (Centro Nacional Patagónico (CONICET), Puerto Madryn, Chubut, Argentina *gescudero@cenpat.edu.ar*)

Little is known about the Magellanic Oystercatcher (Haematopus leucopodus), an endemic species from southern South America. To illustrate this further, we found only three citations since 1945 for this species on the ISI Web of Science, versus 363 citations for the Eurasian Oystercatcher *H. ostralegus*. Our studies on the Magellanic Oystercatcher aim to increase our knowledge of the species. We provide new data on age composition, site fidelity, wing pattern, primary and body molt, and morphometrics. This is based on two catches of 42 birds at coastal sites in late winter (mid-Aug) and in early summer (mid-Nov), 11 birds in the collection of the Museo Argentino de Ciencias Naturales and resightings of color-banded birds.

Our results show that adults move inland during the breeding season (Sep–Feb) but many, if not all, first and second year birds stay on the coast during the breeding season.

To date, no published data are available on age of first breeding for Magellanic Oystercatchers (Hockey 1996), yet this is an important life history variable. The coastal wintering range of the Magellanic Oystercatcher stretches more than 1,000 km, and despite some loss of color bands, 23% of the 27 ringed birds were resighted, indicating substantial winter site fidelity.

Adults are heavier and have longer wings than first or second year birds (ANOVA; $F_{2,36} = 19.4$, $P < 0.0001$ for weight; $F_{1,25} = 10.8$, $P = 0.003$ for wing), suggesting that growth takes more than one year. Our measurements agree with other studies, but extend some of the minimum and maximum values recorded. Primary molt progresses outward from mid summer to early winter in adults, but non-breeding immatures already show advanced molt by early summer. Most individuals (10/12) at the summer site showed a little body molt. Surprisingly, all six immatures also showed body molt in late winter, and one of these had already molted four inner primaries.

Previous work states that the Magellanic Oystercatcher lacks the black-tipped outer secondaries of the partly sympatric American Oystercatcher *H. palliatus*, and that the unmarked white secondaries of the Magellanic Oystercatcher are a unique feature among oystercatchers. However, all 11 birds (9 adults) examined in the museum showed much dark on at least the outermost secondary. The outer vane of the outer secondary is completely black except for a terminal white tip, the black often curving inwards onto the inner vane towards the tip. We recorded variable amounts of dark markings on the outer 1–4 secondaries and it seems that this should be considered normal for Magellanic Oystercatchers. Bill length is fully grown after one year. We deduce from inspection of abrasion of the bill tips that on the coast birds probe for buried prey in soft sediments, or open hard-shelled prey by hammering. Shorter-billed individuals were more likely to hammer than long-billed individuals. American and Blackish *H. ater* Oystercatchers do not hammer. These patterns suggest that intra- and inter-specific competition drives feeding behavior and prey choice in this species. We estimate that adults store over 100 grams of fat and protein resources in late winter, and calculate that this suffices for migration distances that are larger than the total distribution range of the species, much more than previously thought.

Ecological patterns associated with *Calidris canutus* overwintering in Bahía Lomas (Tierra del Fuego, Chile)

C. Espoz (Departamento de Ciencias Básicas, Universidad Santo Tomás, Chile. *cespoz@ust.cl*), A. Ponce, R. Matus, N. Rozbaczylo & L. Niles

Bahia Lomas (52ºS) is the most important wintering site in South America of the Red Knot *Calidris canutus rufa*. This site alone supports 54.6% of the South American population of this subspecies. In the last decade, the numbers of knots in South America during the austral summer have decreased dramatically. In Tierra del Fuego, numbers fell from 53,232 birds in 1986 to just over 17,360 in 2007. The primary reason for this decrease has been the decline of North American stopovers, but future survival of the species depends on productive and protected wintering areas. Annually these birds travel around 28,000 km (from the Arctic to Tierra del Fuego and back), so food availability in wintering areas is crucial to their survival. In this study, we characterize the macroinfauna present in the mudflats of Bahia Lomas, emphasizing the establishment of trophic relationships between invertebrates and knots. We examined the availability of prey in the foraging area in terms of its distribution and abundance, and the diet choice of the knots through the analysis of stable isotopes. The main species present in the mudflats were bivalves, polychaetes and amphipods. Among polychaetes, the dominant families were Phyllodocidae, Spionidae and Paraonidae, while the most abundant bivalve was *Darina solenoides.* According to the stable isotope analysis, *D. solenoides* is the main prey of Red Knots in Bahia Lomas. Based on our findings we recommend ecological studies and monitoring surveys that would contribute to the conservation of knots and other migratory and resident birds using the tidal flats of Bahia Lomas.

Using satellite telemetry to investigate migration ecology of Numenini shorebirds

El uso de telemetría satelital para investigar la ecología de migración de aves playeras (Numenini)

Robert E. Gill, Jr. (U.S. Geological Survey, Alaska Science Center, Anchorage, Alaska. *Robert_gill@usgs.gov*), Lee Tibbitts, David C. Douglas, Daniel R. Ruthrauff, Theunis Piersma, Brian J. McCaffery & Colleen M. Handel

Recent miniaturization of satellite transmitters (PTTs) now allows us to study movements of the larger species of shorebirds. In 2005 and 2006, we used satellite telemetry to track 12 Bar-tailed Godwits (*Limosa lapponica*), 10 Bristle-thighed Curlews (*Numenius tahitiensis*), and 1 Whimbrel (*N. phaeopus*) for 1–5 months each. Birds were captured on nesting areas and tagged with either battery-powered implantable or external mounted solar-powered PTTs. Post-breeding curlews and godwits spent 8 to 12 weeks in western Alaska at upland and intertidal staging sites, respectively. The Whimbrel departed Alaska in mid August, stopped for 3 weeks near the Salton Sea in southern California, and continued on to Parque Sanquianga on the Pacific coast of Colombia. Curlews and godwits made remarkable nonstop flights. Total tracking distance for curlews (n = 9) from their last reported location in Alaska to their first landfall on atolls in the South Pacific (or last reported location) ranged from 7,050–9,725 km (8,800 ± 900), and their flight duration ranged from 5.7–8.3 days (7.2 ± 1.2). Godwits also traveled great distances to non-breeding areas in New Zealand and Australia and to atolls in the western Pacific. Godwits (n = 5) flew nonstop for at least 7,000–10,800 km (8,600 ± 1,600) and 5.5–9.6 days (7.0 ± 1.6). Based on observations, some of these tagged godwits have made at least three trips between breeding and non-breeding areas. Over the next three years we will continue work with Bar-tailed Godwits and Bristle-thighed Curlews and begin PTT-tracking of Long-billed Curlews (*N. americanus*), Whimbrels, and Hudsonian (*L. haemastica*) and Marbled (*L. fedoa*) Godwits.

Modeling the population dynamics of a Neotropical migrant: The demography of the Upland Sandpiper

Brett K. Sandercock, (Division of Biology, Kansas State University, Manhattan, Kansas *bsanderc@ksu.edu*)

Population declines in migratory shorebirds are a global conservation concern. Development of effective conservation strategies would be aided by robust estimates of demographic rates and a better understanding of their contributions to variation in rates of population change. Moreover, a mechanistic understanding of the impacts of environmental factors on demographic processes would help in allocation of resources for conservation of wintering, stopover or breeding sites. First, I present a general population model that can be used to synthesize demographic data on age at maturity, fecundity, and seasonal estimates of survival for different species of shorebirds. Second, I parameterize the model with field data from a six-year population study of Upland Sandpipers (*Bartramia longicauda*). Uplands breed as yearlings but fecundity rates are low because clutch size is usually four eggs, nesting success is low (10–30%), and most females lay only one clutch. Survival of radio-marked birds during the breeding period is high (0.90 over 4 months) and annual apparent survival of adults is moderate (0.80). Major knowledge gaps in our understanding of the annual cycle of Upland Sandpipers still remain. Nevertheless, initial model results indicate that survival rates will have the greatest effect on population change, which provides avenues for future research and conservation.

GENERAL POSTERS

Dieta del tero Vanellus chilensis *y abundancia de presa en el Aeropuerto Internacional de Carrasco, Canelones, Uruguay*

Diet of the Southern Lapwing *Vanellus chilensis* and prey abundance in the Carrasco International Airport, Canelones

Diego Caballero-Sadi (Facultad de Ciencias, Universidad de la República Oriental de Uruguay *dcaballero13@gmail.com*), Pablo Rocca, Mario Clara & Federico Achaval

El tero *Vanellus chilensis* se distribuye en toda Sudamérica y parte de Centroamérica. Principalmente habita praderas pero se lo puede observar en áreas costeras y áreas verdes de ciudades. Es un ave común en muchas partes de su distribución, sin embargo, poco se ha estudiado de su biología. En este estudio se presenta la dieta del tero durante un ciclo anual. El área de estudio fue el Aeropuerto Internacional de Carrasco, Canelones, Uruguay. La dieta se analizó a partir de contenidos estomacales (n = 28) colectados en el área de operaciones del aeropuerto durante actividades de control del peligro aviario. A su vez se activaron trampas de caída para conocer la abundancia de artrópodos activos de superficie. Se identificaron 671 presas siendo los principales grupos predados: las hormigas 50,4%, isópodos 21,0%, coleópteros adultos 18,2% y semillas 7,5%. Los coleópteros adultos presentaron el mayor Índice de Importancia Relativa (IIR) en la dieta IIR = 5584,5 seguidos por las hormigas IIR = 5426,7 e isópodos IIR = 3174,3. La composición de grupos predados en base a su abundancia varió estacionalmente (G-test = 306.99; df = 27, P<< 0.01). Las hormigas fueron el grupo más predado en casi todas las estaciones (Inv = 40,3%, Ver = 76,3% y Oto = 63,6%), excepto en primavera que lo fueron los isópodos (57,6%). Hormigas e isópodos juntos presentaron una abundancia en el área de estudio del 82,7% de los individuos ofertados, los arañas el 8,1% y los coleópteros adultos un 6%. Los dos grupos más abundantes en el área fueron los más predados, si bien los coleópteros adultos presentaron el mayor IIR. Estudios ecológicos en los aeropuertos pueden ayudar a reducir el peligro aviario y dar alternativas a los métodos letales de control de la avifauna.

Evaluación regional del estado de conservación y uso del hábitat aves migratorias neárticas de pastizal en las pampas del cono Sur Sudamericano

Regional evaluation of conservation state and habitat use of Nearctic migrant grassland birds in the Southern Cone Pampas

Adrián Di Giacomo (Aves Argentinas, Buenos Aires, Argentina *digiacomo@avesargentinas.org.ar*), Eugenio Coconier, Joaquín Aldabe, Pedro Develey, Cristina Morales & Aníbal Parera

La extensa región de los pastizales templados de las Pampas viene sufriendo importantes transformaciones a lo largo de 100 millones de hectáreas. Entre las aves silvestres que han sufrido el impacto de la modificación de estos hábitats se encuentran los denominados "chorlos de pastizal". Para obtener una imagen de la situación de estas especies en la región, los socios de BirdLife International (Aves Argentinas, Aves Uruguay, SAVE Brasil y Guyra Paraguay) realizaron un esfuerzo de monitoreo simultáneo en áreas de pastizal en la temporada de verano austral 2006–2007. Los datos se compararon con los relevamientos de Wetlands International realizados en 1993 con un esfuerzo similar, aunque más acotado geográficamente. La metodología consistió en formar grupos de al menos dos observadores, que visitaron áreas predeterminadas, y recorrieron transectas desde vehículos en movimiento y puntos fijos cada 10 km, realizando caracterizaciones del hábitat y contando el número de ejemplares de las especies blanco (Bartramia longicauda, Calidris melanotos, Pluvialis dominica y Tryngites subruficollis). El esfuerzo de muestreo fue distribuido con 1 sitio en Paraguay, 1 sitio en Brasil, 2 sitios en Uruguay y 9 sitios en la Argentina, con un total de 13 grupos y 40 personas. Los sitios fueron relevados en forma simultánea en 3 oportunidades durante la temporada (noviembre – enero – marzo). En términos generales, podemos reconocer una modificación significativa de los ambientes de pastizales naturales recorridos, ya que extensas regiones han sido convertidas a cultivos, forestaciones o afectadas por obras de infraestructura. Sin embargo, y en la primera campaña, se han verificado la presencia de todas las especies (1 sitio con 4 especies, 1 con tres, 8 con 2 y 1 con al menos una). El proyecto fue financiado por NMBCA-USFWS.

Hematological parameters of the Red Knot (*Calidris canutus rufa*) at two sites in Patagonia, Argentina

Verónica L. D'Amico (Centro Nacional Patagónico, Conicet, Pto. Madryn, Chubut, Argentina *damico@cenpat.edu.ar*), Marcelo N. Bertellotti, Allan J. Baker & Alejandra Varisco

Hematological and plasma biochemistry measures have been proposed as a method to assess body condition accurately. The objective of this work is to report plasma biochemical parameters in the population of Red Knots sampled at Patagonian sites. The influence of body weight was also analyzed.

Red Knots are long distance migrant shorebirds that breed in the Canadian arctic tundra and spend the non-breeding season in coastal areas in South America. In the last few years, the Patagonian population of Red Knots had suffered a drastic decline, from about 51,000 individuals in 2000 to 18,000 in 2005.

Birds were sampled in Nov 2005 at the wintering site of Rio Grande, Tierra del Fuego, Argentina (67.50°W, 54.00°S) and in Mar 2006 at San Antonio Oeste, Río Negro, Argentina (64.55°W, 40.45°S) where birds make the first major stopover. Birds were captured with a cannon-net and sampled immediately. Blood samples were collected from the brachial vein using capillary tubes (ML0067 40mm SafeCrit® Sodium Heparin) and kept in a cooler until analysis. Capillaries were centrifuged for 120 s at 16,000 rpm (CritSpin Hematocrit Centrifuge model M961). After the centrifugation, cellular and plasma components were separated and hematocrit was measured. Biochemical analyses were performed in a Laboratory of Clinical Analyses using colorimetric and enzymatic methods.

Averages of hematocrits did not show differences between sites (Kruskal–Wallis test, $P > 0.05$). However, total proteins, albumin, globulin, cholesterol, triglycerids and glucose showed significant differences between sites (Kruskal–Wallis test, $P < 0.05$). Albumin and cholesterol were positively correlated with hematocrit (Spearman, $P < 0.05$). Although each biochemical parameter has an associated physiological function, in general they reflect the nutritional condition of birds. Thus differences we detected are related to the activities of birds in each site; for example in San Antonio the level of triglycerids is higher than in Río Grande, because the most important activity of birds in San Antonio is to feed and accumulate reserves for onward migration. Based on the hematology and body weights, Red Knots were apparently in good condition. Hematological and plasma biochemical data were similar to those reported for other sandpipers, but we urge continued biochemical monitoring of the population mainly because of the continuing decline in numbers. As far as we know, these results are the first reports of blood parameters for free-living Red Knots in the Patagonian flyway, and they can serve as a benchmark to evaluate nutritional and health condition of birds in future.

Estacionalidad de la saves playeras en las albuferas del Refugio de Fauna Silvestre Cuare, edo. Falcón, Venezuela

Shorebird seasonality at Cuare Wildlife Refuge Lagoons, Falcon State, Venezuela

Sandra B. Giner F. (Instituto de Zoología Tropical, Facultad de Ciencias, Universidad Central de Venezuela. *sginer@ciens.ucv.ve*) & Jorge L. Pérez-Emán

En el Refugio de Fauna Silvestre Cuare (RFSC) se han registrado 30 especies de aves playeras. El uso de las albuferas por las aves playeras depende del régimen de inundación y sequía estacional, que limita la superficie de hábitat con recursos alimentarios disponibles para estas aves. En este trabajo se estudió la variación anual de la composición, riqueza y abundancia de la comunidad de aves playeras que utilizan las albuferas del refugio. Se realizaron de 9 a 13 censos de las poblaciones de aves playeras entre Junio-2005 y Diciembre-2006, a lo largo de la orilla en cuatro localidades: L1: 1,3 km; L2: 3,3 km; L3: 1,5 km; L4: 700 m. Se registraron 21 especies en las albuferas del RFSC, lo cual representa el 70% de las especies señaladas para este refugio. La mayor riqueza se registró en el 2005 con 16 especies y las mayores abundancias en agosto de 2005 (2184) y en abril de 2006 (3195). Se encontraron diferencias en el patrón de llegada durante la migración de otoño (Agosto–Diciembre) entre el año 2005 con 3644 individuos, más del doble de los registrados en el 2006 con 1573 individuos, para el mismo período. Se registró una alta variabilidad en la composición de la comunidad de aves playeras: en agosto y octubre de 2005 y en abril, mayo y agosto de 2006, predominaron las especies del género *Calidris*. En marzo, octubre, noviembre y diciembre de 2006 predominaron las especies del género *Tringa*. La localidad 2 presentó la mayor riqueza de especies de aves playeras casi todos los meses y en todas las localidades se observa un patrón bimodal (máximos en agosto y abril). Los grupos que predominaron por su abundancia en la localidad 2 y 3 fueron las especies de los géneros *Calidris* y *Tringa*. Estos resultados corroboran registros previos, Chris Parrish (comunicación personal) señala a la localidad 2 como un sitio importante para censar aves playeras migratorias en el RFSC. La constancia en el uso de estas albuferas en el RFSC como sitio de parada durante las migraciones de otoño y de primavera indica su importancia para las aves playeras migratorias al sur del Mar Caribe. La fluctuación en la abundancia de las aves playeras migratorias de un año a otro dentro del período estacional indica la necesidad de realizar monitoreos a largo plazo para entender cuales factores influyen sobre la dinámica temporal de estas especies en las albuferas del RFSC.

Caracterización de parámetros bióticos y abióticos de un sitio de parade de aves playeras en al Refugio de Fauna Silvestre Cuare, Venezuella

Characterization of biotic and abiotic parameters of a stopover shorebird site at Cuare Wildlife Refuge, Venezuela

Sandra B. Giner F. (Instituto de Zoología Tropical, Facultad de Ciencias, Universidad Central de Venezuela. *sginer@ciens.ucv.ve*) & Jorge L. Pérez-Emán

Las aves playeras migratorias utilizan las albuferas del Refugio de Fauna Silvestre Cuare (RFSC) como sitios de parada durante sus migraciones. Estas albuferas presentan una marcada dinámica temporal de inundación entre Julio y Enero y sequía entre Febrero y Abril. En este trabajo se estudió la variabilidad espacio temporal de los parámetros bióticos y abióticos y su correlación con la abundancia de aves playeras. Se caracterizaron las variables abióticas: profundidad y salinidad de la lámina de agua y materia orgánica en los sedimentos, y las variables bióticas: abundancia de presas potenciales en el bentos. El estudio se realizó en las albuferas del refugio en 4 localidades, durante cuatro muestreos en Octubre y Diciembre de 2005 y Febrero y Marzo de 2006. La salinidad presentó diferencias significativas entre los muestreo (Prueba de K-W, $p < 0.01$) con los valores más altos en Octubre. Entre las localidades el contenido de la materia orgánica presentó diferencias significativas (Prueba de K-W, $p < 0,05$). Se identificaron 26 morfoespecies de invertebrados, pero para el análisis sólo se consideraron los grupos más abundantes y frecuentes: Polychaeta, Gastrópoda, Díptera, Hemiptera, Coleoptera, Amphipoda y Ostracoda. Los grupos con mayor densidad promedio en orden decreciente fueron: Dípteros>Gastrópodos>Poliquetos >Ostrácodos, sin embargo, estas densidades presentaron coeficientes de variación altos. No se encontró ninguna asociación con las variables abióticas. Se encontraron diferencias significativas entre los meses y las localidades para los grupos Gastrópoda, Ostrácoda y Anfipoda (Prueba K-W, $p < 0,05$). La máxima abundancia de aves playeras se presentó en Octubre, disminuyó en Diciembre y nuevamente incrementó a partir de Febrero y Marzo, este patrón coincide con la migración de otoño, o de primavera. No se encontró una correlación significativa entre la abundancia de las aves y la densidad de los invertebrados, sin embargo, la mayor abundancia de estas aves coincide con las densidades más altas de los invertebrados, en particular de dípteros. La alta variabilidad espacio temporal de los parámetros abióticos y bióticos en las albuferas del RFSC no permitió establecer una asociación entre las aves playeras y estas variables. Por lo que se requiere de un estudio más intensivo y detallado de los factores bióticos y

abióticos en los meses y la localidad de mayor abundancia de aves playeras a fin de entender los patrones de uso del hábitat de estas aves en esta localidad.

Diet of the Two Banded Plover (*Charadrius falklandicus*) in Peninsula Valdés, Patagonia, Argentina

Luciana R. Musmeci (Centro Nacional Patagónico – CONICET – Puerto Madryn – Patagonia Argentina *lumusmeci@cenpat.edu.ar*), L.O. Bala & M.A. Hernandez

The Two Banded Plover (*Charadrius falklandicus*) has a neotropical migration, breeding on the Atlantic coast of Argentina and Islas Malvinas and migrating to Brazil. Peninsula Valdés (northeast Patagonia, Argentina) is used as a feeding stopover. Between Feb and Mar 2003, 49 droppings were collected and preserved individually. The objective was to reconstruct the diet of the Two Banded Plover at Colombo Beach (New Gulf, Península Valdés) and make comparison with previous studies at Fracasso Beach (San José Gulf, Península Valdés). The diet was built up based on the identification of key structures present in droppings. Eight prey types were identified, the most important being the polychaete *Travisia olens*, clam *Darina solenoides* and ants. There were 1.92 clams per dropping; their mean size was 11.62 mm (SD = 4.82, N = 50) and mean biomass 10.79 mg AFDM (SD = 10.76, N = 50). Selection of clam sizes was evaluated by Savage index (6–10 and 12–14 mm; $p < 0{,}001$). 96% of droppings contained polychaetes, 82% clams and 69% ants. Less important prey included *Tellina petitiana*, Mitilidae, crustaceans, *Laeonereis acuta* and vegetable seeds. The study was supplemented by sampling benthic invertebrates in order to measure the trophic offer. At Fracasso Beach, the most important prey was *D. solenoides*, followed by *T. olens* and *Glycera americana*. Larger quantities of clams (4.6 per dropping), of smaller mean size (2.11 mm) and smaller biomass (0.42 mg) were found at Fracasso Beach, with the 1–4 mm clam size class selected. The representative components of the diet in both beaches were opposite.

Distribución y estatus actual de la aves acuaticas de la Isla de Margarita

Distribution and current status of aquatic birds at Margarita Island

Laura Oviol (Centro de Ecología, Instituto Venezolano de Investigaciones Científicas, Venezuela *lauraoviol@yahoo.es*), Virginia Sanz & J.L. Pérez-Emán

En la isla de Margarita el conocimiento sobre la riqueza, distribución y abundancia de las especies de aves acuáticas es pobre, a pesar de ser un lugar que visitan o donde habitan el 40% del total de aves acuáticas registradas para el país, tanto residentes como migratorias. Además las aves acuáticas son sensibles a un gran número de impactos antropogénicos, por lo que nos planteamos a realizar un estudio con el objetivo de conocer la distribución espacial actual y las fluctuaciones estacionales en la abundancia de las aves acuáticas en esta isla caribeña. Se realizaron censos entre los mese de abril y octubre de 2006 en tres tipos de hábitats: manglares, playas y lagunas/salinas. Se muestrearon un total de 21 localidades distribuidas en toda la isla, mediante el uso de transectas (a pie) y conteos por punto. En aquellas localidades que no fueron de fácil acceso, como los manglares, se realizaron recorridos en bote. Se registraron un total de 56 especies de aves acuáticas, 39% residentes, 39% migratorias y 22% de carácter residente y migratorio. La mayor riqueza de aves se obtuvo en las lagunas/salinas con 48 especies observadas, seguida de la de los manglares con 31 y por último las playas con 28 especies. También se registró un incremento en el número de especies durante los meses de septiembre–octubre. No todas las especies reportadas para la isla fueron observadas como por ejemplo *Eudocimus ruber*, *Tigrisoma lineatum*, *Porzana carolina*, pero se obtuvieron avistamientos de cuatro especies nuevas para la isla: *Calidris fuscicollis*, *Gallinula chloropus*, *Fulica caribaea* y *Podilymbus podiceps*. La generación de información sobre la utilización de los humedales por las aves puede ser un elemento de peso para el establecimiento de estrategias de manejo territorial, motivo importante ya que la isla se ha convertido en uno de los destinos turísticos preferido a nivel nacional e internacional.