# Hudsonian Godwit *Limosa haemastica* migration in southern Argentina

*Brian A. Harrington, Chris Picone, Susana Lara Resende & Frans Leeuwenberg*

Harrington, B.A., Picone, C., Lara Resende, S. & Leeuwenberg, F. 1993. Hudsonian Godwit *Limosa haemastica* migration in southern Argentina. *Wader Study Group Bull.* 67: 41- 44.

*Harrington, B.A., & Picone, C., Manomet Bird Observatory, Manomet, MA 02345, U.S.A.*

*Lara Resende, S. & Leeuwenberg, F., MSW, Q. 18, Conj. 4, c/01, Brasilia, DF71.700, Brazil*

## INTRODUCTION AND BACKGROUND

Among all animals, the Hudsonian Godwit *Limosa haemastica* is one of the champion migrants. In spite of this recognition, or perhaps because of it, there is little understanding of how this northern–nesting bird completes its migrations between arctic breeding areas of Canada and Alaska, and its winter habitats in the southernmost continental lands of the Western Hemisphere. The route(s) used by *Limosa haemastica* during southwards migration remain one of the more mysterious long–distance bird migrations (Hagar 1966). This note adds to information on occurrence of Hudsonian Godwits near the southern terminus of its migration.

Hagar (1966) assembled a convincing wealth of circumstantial evidence to show that the main departure of adult Hudsonian Godwits from their principal breeding grounds in the Hudson's Bay Lowlands of Manitoba is during late August. He showed, and Morrison (1984) later reaffirmed, that the major route then tracked southeastward from the Southwest James Bay coast (on the southern end of Hudson's Bay), crossed the Atlantic coastline of eastern Canada near the mouth of the Gulf of St. Lawrence, and then passed over the Atlantic to unknown arrival destinations in South America. The journey between James Bay and South America apparently is flown without stops by most individuals.

Even though considerable new information has been published since Hagar's work (e.g. Bolster & Robinson (1990) in Peru, Casler & Lira (1979) and McNeil (1970) in Venezuela, Spaans (1978) in Suriname, Hayes & Fox (1991) in Paraguay, and Antas (1983) in Brazil), the arrival location(s) of southward migrating Hudsonian Godwits in South America remain unknown. The next

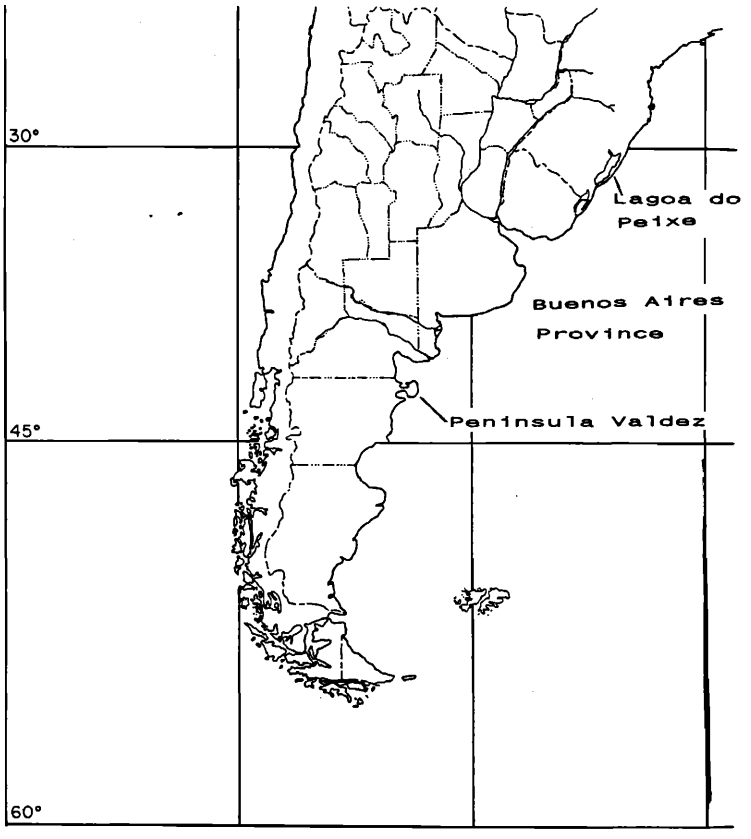


Figure 1. Location of study sites in South America.

major zone of known occurrence of Hudsonian Godwits south of Canada is in southern South America. However, this study of the timing of their arrival in Argentina shows that the journey between northern and southern South America takes place over a time span characteristic of either a slow journey through South America and/or extended use of stopover areas somewhere in the interior of South America. Other Nearctic migrants are believed to have a relatively slow south-

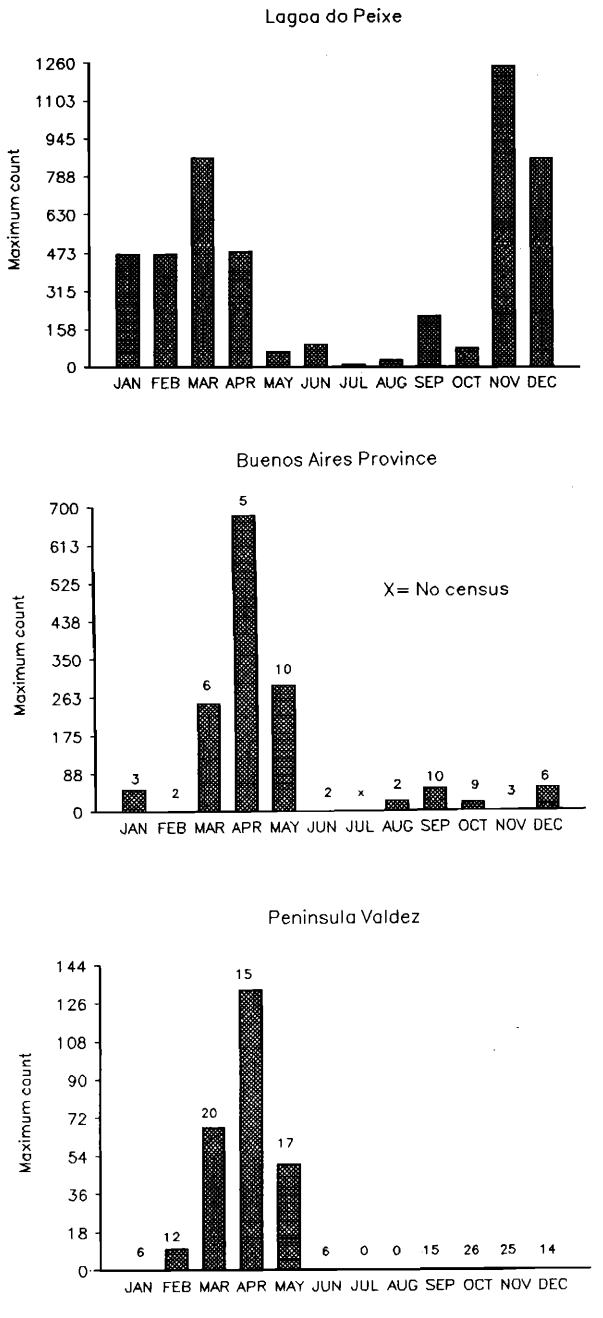


Figure 2. Maximum monthly counts of *Limosa haemastica* in three regions of South America. Numbers above the bars for Argentina show numbers of censusues available from each month. See text.

ward migration between northern and southern South America (e.g. Harrington *et al.* 1991; Antas 1983).

The route(s) Hudsonian Godwits use for travel between northern and southern South America are unknown, although Antas (1983) speculated that the southward route may pass through western Brazil. In exploring Antas's ideas, Hayes & Fox (1991) and Hayes *et al.* (1990) found that Hudsonian Godwits regularly occurred at Asuncion, Paraguay during southward but not during northward migration.

Although Myers & Myers (1979) routinely found Hudsonian Godwits in small flocks in Buenos Aires Province, Argentina during the boreal winter, Morrison & Ross (1989) showed that the major wintering zone is in southern Argentina and Chile, especially including Tierra Fuego, and to a lesser extent on the southern mainland coast of Chile.

This report summarizes data on Hudsonian Godwit occurrence in southern South America collected through the International Shorebird Surveys (ISS). Our goal is to improve information about the travels of this remarkable migrant; while recognizing that our information falls short of proof, it suggests that Hudsonian Godwits use different north and south migration routes in southern latitudes. We hope this summary will stimulate further study.

## METHODS AND RESULTS

ISS cooperators were asked to count and record all shorebirds they encountered during censuses made during each third (between the 1st–10th, 11th–20th, 21st–31st) of key shorebird migration months. Few co-operators in South America were able to achieve that level of coverage, so in this evaluation we selected groups of sites, which between them, had reasonably comprehensive coverage. These were a cluster of sites at Peninsula Valdez in Chubut Province, Argentina, a group of sites on the Atlantic coast of Buenos Aires Province, and a single location (Lagoa do Peixe) in the southernmost state (Rio Grande do Sul) of Brazil which was censused in a separate project by Lara Resende & Leeuwenberg (1987) (Figure 1).

Gaps of census coverage existed at virtually all of the ISS sites. This, with the rapid nature of shorebird migration, made parametric statistical evaluation of the data inappropriate, so our evaluation is based largely on maximum counts in the three regions described above.

Our summary graphs (Figure 2) show highest single counts of Hudsonian Godwits made during each month in each of the three regions. The data indicate lower seasonal use of coastal sites by migrant godwits at increasing austral latitudes during southward migration. This difference is most striking through comparison of the patterns between Lagoa do Peixe and Peninsula Valdez. We could not test the statistical significance of this difference because we did not have information on the number of censuses made at Lagoa do Peixe. However, using a Chi-square test, we evaluated whether the much weaker seasonal difference between Peninsula Valdez and Buenos Aires Province was significant; specifically, we compared the incidence of

censuses on which five or more godwits were counted during the southward versus the northward migration periods. The results were statistically different (Chi-square = 13.5, P< 0.01). The number of censuses used for this evaluation are shown above the graph bars in Figure 2.

## DISCUSSION

The census results show that southbound Hudsonian Godwits were uncommon or absent at the Argentine coastal sites we evaluated. These sites are places where godwits were common during north migration (austral autumn).

Two possibilities might explain the varied seasonal habitat use. One possibility is that the marine invertebrate prey used by godwits are relatively scarce or unattractive (as compared to nonmarine invertebrate prey) during the austral spring (September – November). This situation might be compared to godwits' favored use of nonmarine habitats on the U.S. Gulf coastal plain during northward migration in the boreal spring. However, during a four-day search of Buenos Aires farmlands and nonmarine wetlands during November 1979, Harrington & Morrison (unpublished data) found only four Hudsonian Godwits. Moreover, they found godwits to be abundant in marine habitats south of Peninsula Valdez during December and January.

A second idea is that Hudsonian Godwits are using different routes and/or a different strategy for northward and southward migrations, and that this is reflected in the three regions studied.

Hayes & Fox (1991) showed that Hudsonian Godwit were occurring regularly at a site in Paraguay during southward but not northward migration seasons. Similarly, the species was common at Lagoa do Piexe during the southward migration. In addition, it also was common during the boreal winter and early phases of northward migration, but not with a pattern characteristic of a transient migration as was the case at the Argentine sites. Peak numbers at Lagoa do Peixe did not occur until November and December. During August, September and October the pattern was very similar to that seen in Buenos Aires Province, i.e. a buildup of small numbers from August to September, followed by a decline in October. We have no data on the ages of birds counted during these months; age information might enable better interpretation of these patterns. Possibly the August-October pattern of rise and fall at Lagoa do Peixe and in Buenos Aires Province is caused by subadult birds which had not migrated to northern breeding grounds (see Belton 1984). Another possibility is that the August-October pattern is due to increased numbers of adults, and that the November-December pattern at Lagoa do Peixe is caused mostly by the later arrival of juvenile birds. However, the relatively low August-September numbers compared with much higher November-December numbers are difficult to reconcile with this idea.

Whatever the cause of the pattern differences between sites during the southward migration, it is clear that the northward and southward patterns are distinctly different at the Argentina coastal sites. More information is needed to explain why this is the case. A comparative study of marine and non-marine habitat use in Buenos Aires Province might provide pivotal information, especially if data on ages of migrants is collected. For now, the existing data indicate to us that the differing seasonal patterns are caused by different seasonal migration strategies. The northward migration abundance patterns, especially at sites in Argentina, are similar to those of shorebirds collecting at migration staging sites to fatten prior to long-distance, non stop migration flights (e.g. Harrington *et al.* 1991). The decline of numbers in Argentina and southern Brazil from April to May, the absence of sightings on northward migration in Paraguay (Hayes & Fox 1991), Venezuela (Thomas 1987; McNeil 1970), and Surinam (Spaans 1978), and an absence of records in eastern Brazil during this time (Severino de A. Júnior in litt.) are all consistent with the existence of a rapid northward migration to North America as suggested by Harrington *et al.* (1986). Finally, the buildup of numbers in nonmarine wetlands of the Central United States, which begins during April and which peaks during mid-May (ISS unpublished), is consistent with a rapid migration following the departure patterns we show for Argentina and southern Brazil.

## ACKNOWLEDGMENTS

Our evaluation would not have been possible without data supplied to us by the many co-operators of the International Shorebird Surveys. Data entry work and error-checking work was done without remuneration by Carol Wilder. Field work of Lara Resende and Leeuwenberg was supported by the World Wildlife Fund U.S. Finally, our evaluation of ISS data was encouraged by, and partly supported by, the Neotropical Wetland Program. We acknowledge and thank all of these individuals and organizations for their support.

## REFERENCES

Antas, P. de T.Z. 1983. Migration of Nearctic shorebirds (Charadriidae and Scolopacidae) in Brasil-flyways and their different seasonal use. *Wader Study Group Bull.* 39: 52-56.