
1997 SHOREBIRD PROJECTS IN ALASKA

The first annual report of the Alaska Shorebird Working Group

March 1998

PAST AND ONGOING STUDIES OF PACIFIC GOLDEN-PLOVERS, AMERICAN GOLDEN-PLOVERS, AND BLACK-BELLIED PLOVERS, IN WESTERN AND NORTHERN ALASKA.

Between 1988 and 1997 we have studied three sympatric species of plover (Pacific Golden-Plover, American Golden-Plover and Black-bellied Plover) on the Seward Peninsula. During this period we also conducted a brief study at Barrow in 1996. The focus of our work has been to examine various aspects of the breeding biology of these species. Birds were individually color-banded with combinations of blue, white and red plastic leg bands. Site-faithfulness and mate retention were our primary interests but over the course of our Investigations other aspects of the breeding biology were discovered.

Our 1993 and 1997 papers on Pacific and American Golden-Plovers highlight many of our findings. Our data collection on Black-bellied Plover is still in progress and we anticipate publishing these results in the near future. The purpose of our 1996 visit to Barrow was to check the logistical challenges of extending our Seward studies to this more northerly location. We were able to not only locate American Golden-Plover nests but also noted some previously unobserved features of their breeding biology.

In 1997, we commenced a new phase of our work by color-banding newly hatched chicks of all three species at our Seward Peninsula study site 30-40 miles outside of Nome. Our goal was to look at the question of natal philopatry. Over the next three seasons we will return to this area to search for and band additional chicks. During the 1997 field season we obtained data on weight gain in Black-bellied Plover chicks as well as insights on parental care. We are naturally anxious to receive any information on visual sightings of color-banded plover. please note the particular color combination and which leg carries the bands. Any date should be transmitted to either or both of the research teams noted below.

Published References:

- Pacific Golden-Plover - Wilson Bull. 105:60-67. 1993.
American Golden- Plover - Wilson Bull- 109:348-351. 1997.
Philip L. Bruner and Andrea E. Bruner (Biology Dept., BYU-H, Laie,

HI, 96762; Oscar W. Johnson and Patricia Johnson, Biology Dept.,
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ANALYSIS OF WESTERN SANDPIPER MALE DISPLAY BEHAVIOR IN RELATION TO
BREEDING STATUS, PHENOLOGY, AND SUCCESS.

Male aerial display rate (i.e., vocalization rate) was correlated to male mating history with males from "experienced" pairs (i.e., male and female paired in previous year) vocalizing less than males from "inexperienced" pairs (i.e., male and female not paired in previous years). Vocalization rate was not affected by a male's prior breeding experience in an area (i.e., birds that used the same territory in previous years vocalized at similar rates as males establishing new territories). This suggests that male display is directed towards the social mate and that measures of display rate are unlikely to reflect male quality in a given year. Experienced pairs began nesting significantly earlier than members of inexperienced pairs although no difference in nesting success (i.e., number of eggs hatched) was detected. On-going paternity analyses are investigating whether extra-pair paternity occurs, and if so, whether young from experienced pairs are more likely to be sired by the social father than young from inexperienced pairs. Field data was collected near Nome, Alaska, during 1996.

CAPTURE AND BANDING OF BLACK OYSTERCATCHERS AND SEMIPALMATED PLOVERS
ON MIDDLETON ISLAND, ALASKA.

The oystercatcher project consisted of testing different techniques for capturing birds, and the semipalmated plover project is part of a long-term study designed to measure mate and site-fidelity.

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SEASONAL SHOREBIRD USE OF COASTAL COOK INLET.

In 1997 we completed the first year of a two year effort to assess seasonal shorebird use of intertidal and adjacent areas of Cook Inlet. We focused on habitats along the north and west sides of Cook Inlet from Pt. Mackenzie to Tuxedni Bay. We used a combination of aerial surveys and ground-based census plots to identify important areas,

time periods, and species.

Preliminary results indicate that: 1) the northeast portion of Trading Bay and the areas around the mouths of the Beluga and Theodore rivers are principal wintering areas for about 20,000 Rock Sandpipers (*Calidris p. ptilocnemis*), representing most of the population of the race that breeds on several Bering Sea islands, 2) southern Redoubt Bay hosted most of the 300,000 shorebirds recorded on unvegetated intertidal flats during spring migration, 3) the majority of these were Western Sandpipers (*C. mauri*) but small to moderate numbers of several Arctic nesting shorebird species used Cook Inlet during spring in response to unusually late conditions on their breeding grounds, 4) vegetated intertidal habitats were used by 17 species during spring migration, the most common of these were Short-billed Dowitchers (*Limnodromus griseus*), Western Sandpipers, Least Sandpipers (*C. minutilla*), and Red-necked Phalaropes (*Phalaropus lobatus*), 5) local nesting species foraged on intertidal areas during incubation, making daily flights of up to 13.0 km between known nesting and foraging areas, 6) shortly after hatch many adult Lesser Yellowlegs walked broods to coastal saltmarshes over distances of 0.5-4.0 km, and 7) the bivalve *Macoma balthica* appears to be the staple food of intertidal foraging shorebirds, especially of Rock Sandpipers during winter.

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BREEDING ECOLOGY OF THE SURFBIRD

This study represented the first detailed investigation of the breeding ecology of Surfbirds. Research was conducted from 7 May to 19 July in 1997 on a 97 sq. km study area adjacent to Turquoise Lake in Lake Clark National Park. Surfbirds performed breeding displays by early May and, based on mid-late June hatch dates, initiated nests by mid May-early June. Failed birds departed the study area prior to the third week of June while fledglings and successful breeders departed by early July. To better understand local movements of Surfbirds, a total of 23 adults were banded and 6 of these were outfitted with radio transmitters. Marked birds indicated that birds on incubation breaks used the rocky shore of Turquoise Lake for feeding and roosting and that adults moved their broods up slope from nesting sites. Radio-tagged birds were also useful in locating nests and identifying individual departure dates from the breeding grounds. Extensive searches of the study area yielded 5 nests, 10 broods, and 2 pairs of failed breeders for a minimum breeding density estimate of 0.175 pairs per 1 sq. km. Among the many potential predators present, ground squirrels appeared to

be the most important predators of Surfbird eggs. This study will continue in 1998.

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BREEDING ECOLOGY OF SHOREBIRDS IN SOUTHCENTRAL ALASKA.

This 3 year study investigated aspects of the breeding ecology of Lesser and Greater yellowlegs (*Tringa flavipes* and *T. melanoleuca*, respectively), Hudsonian Godwits (*Limosa haemastica*), and Short-billed Dowitchers (*Limnodromus griseus*) at 2 study areas adjacent to Upper Cook Inlet (i.e., Susitna Flats State Game Refuge and the Anchorage Bowl). Most information was gathered through detailed observations of individually color-marked birds. From mid April to early July in each year, biologists regularly visited nesting and foraging areas at each site and searched for marked birds, mapped their locations, assessed their breeding status, and recorded habitat associations.

Preliminary results indicated: 1) high return rates for adults of all species, 2) most individuals returned to breed within 10 km of their previous nesting sites, 3) Lesser Yellowlegs first returned to breed as yearlings and two-year-olds, 4) median hatch dates in 1997 were 12 June (range = 1 June-5 July) for Lesser Yellowlegs; 12 June (range = 7-21 June) for Hudsonian Godwits, and 6 June (range = 5-11 June) for Short-billed Dowitchers, 5) male Lesser Yellowlegs attended broods for more days than did females, 6) most broods of both species of yellowlegs traveled an average of 4.5 km before chicks fledged, 7) sources of mortality for shorebird chicks in the Anchorage Bowl include vehicles and storm sewers, and 8) the present rate of loss and alteration of natural breeding and foraging habitats in the Anchorage Bowl may be adversely impacting local breeders. This study will continue in 1998.

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SPRING MIGRATION OF SHOREBIRDS ON THE YAKUTAT FORELANDS, ALASKA

During spring 1996 and 1997, we conducted ground surveys at high tide to determine species composition, numbers, and timing of spring shorebird migration on the Yakutat Forelands, Alaska. Western Sandpipers (*Calidris mauri*) and Dunlins (*C. alpina*) were the most

abundant shorebirds we observed in the Seal Creek-Ahrnklin River estuary, and we also observed large aggregations of Marbled Godwits (*Limosa fedoa beringiae*). Using information on turnover rates of radio-tagged Western Sandpipers, we estimated that about 101,000 small calidridine sandpipers used the Seal Creek-Ahrnklin River estuary as a spring migration stopover annually in 1996 and 1997.

From previous aerial survey data on shorebird distribution, we estimated that the entire Yakutat Forelands supports a spring population of more than 350,000 migrant shorebirds. Therefore, the forelands is an important stopover site to migratory shorebirds and should be included in the network of international stopover sites needed to conserve shorebirds migrating along the Pacific coast.

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