

Breeding range extensions for the Pacific Golden-Plover and Black-bellied Plover on the Alaska Peninsula

SUSAN E. SAVAGE¹ & OSCAR W. JOHNSON²

¹U.S. Fish and Wildlife Service, Alaska Peninsula/Becharof National Wildlife Refuge, PO Box 277, King Salmon, Alaska 99613, USA. susan_savage@fws.gov

²Department of Ecology, Montana State University, Bozeman, Montana 59717, USA.

Savage, S.E. & Johnson, O.W. 2005. Breeding range extensions for the Pacific Golden-Plover and Black-bellied Plover on the Alaska Peninsula. *Wader Study Group Bull.* 108: 63–65.

Keywords: Pacific Golden-Plover, Black-bellied Plover, Grey Plover, *Pluvialis fulva*, *Pluvialis squatarola*, Alaska breeding range extensions

To determine whether Pacific Golden-Plovers *Pluvialis fulva* and Black-bellied Plovers *P. squatarola* were nesting on the Alaska Peninsula, we conducted field surveys at several sites in 2004. We found both taxa breeding on the peninsula, with *fulva* in greater abundance. Our findings indicate that *fulva* nest from at least King Salmon–Naknek southward to Port Heiden, and *squatarola* from at least Kukaklek Lake southward to Port Heiden. Breeding range extensions (i.e., from previously known nesting grounds nearest the peninsula to the most distant peninsular nest sites) exceed 300 km in both species. We suspect that further ornithological exploration will reveal these plovers breeding more widely on the peninsula than we describe here, and that peninsular breeding grounds will prove to be contiguous with non-peninsular parts of each species' nesting range.

INTRODUCTION

Knowledge concerning the breeding status and distribution of birds on the Alaska Peninsula is fragmentary for many species. Key regional and North American sources did not include the peninsula as part of the breeding range for either the Pacific Golden-Plover *Pluvialis fulva* or the Black-bellied Plover *Pluvialis squatarola* (Gabrielson & Lincoln 1959, Johnson & Connors 1996, Kessel & Gibson 1978, Paulson 1995). Contrary to these authorities, evidence in recent years suggested that both species were nesting in this region. Although range expansion over the past few decades is a possibility, it is more likely that the presence of these plovers as breeding birds on the peninsula had simply gone undetected. Reports of breeding-associated behaviors and vocalizations in both species at various peninsular locations (Gill *et al.* 2004, S. Savage & C. Wightman unpubl. data), the occurrence of immature *fulva* near the town of King Salmon (S. Savage, unpubl. records), and frequent detection during aerial surveys (between King Salmon and Port Heiden, Fig. 1) of radio-tagged *fulva* that migrated from wintering grounds in Hawaii (Johnson *et al.* 2004) all suggested breeding plovers. To finally resolve the question, we conducted nest searches in spring 2004.

STUDY AREAS AND METHODS

The locations where observations were made are shown in Fig. 1. Based on knowledge of *fulva* and *squatarola* nesting habitats elsewhere in Alaska (Johnson & Connors 1996, Paulson 1995), we identified various areas of tundra that appeared favourable for these plovers along the 24 km east–west road (situated at approximately 58°44' N) between the towns of King Salmon and Naknek. Then, with the aid of volunteers and Alaska Peninsula/Becharof National Wildlife

Refuge staff, we systematically searched these sites on foot from 3–7 June 2004 for nesting birds. From 8–10 June 2004, we made similar searches within a radius of about 5 km from the town of Port Heiden. The latter is located 225 km south of King Salmon at approximately 56°57'N, 158°38'W. Initial contact with nesting birds was mostly by sound. Disturbed *fulva* and *squatarola* left the nest (usually stealthily and unseen) in advance of searchers, moved some distance away and commenced alarm calling. When the plover was located visually, we retreated to a suitable vantage point and “watched” the bird back to its nest, a process that took from a few minutes to an hour or more. GPS coordinates of nests and broods were recorded, and 7 *fulva* nests (2 at King Salmon–Naknek, and 5 near Port Heiden) were monitored by local volunteers and refuge staff for hatching success.

In addition to the searches described above, we include here additional observations of breeding *fulva* and *squatarola* recorded by the first author and refuge technicians at various sites on the Alaska Peninsula in 2004. These observations were made during breeding bird and small mammal inventories conducted both before and after the King Salmon–Naknek and Port Heiden nest searches.

RESULTS

Pacific Golden-Plovers

Our findings (see Fig. 1 for locations) listed chronologically were:

- 1) a nest containing 4 eggs along the Meshik River at 56°46.864'N, 157°57.058'W within the Aniakchak National Preserve, 18 May;
- 2) in the region just mentioned, a pair of birds giving distraction displays at 56°42.770'N, 158°05.205'W, 20 May;



- 3) a nest containing 4 eggs (hereafter nest no. 2) at 58°43.749'N, 157°02.367'W in coastal tundra (the area searched covered about 3 km²) just to the north of Naknek, 3 June, no other plovers were seen or heard at that site;
- 4) flight displays and aerial chases involving at least 5 males and 3 pairs in an area of approximately 4 km² situated about midway between King Salmon and Naknek and extending northward from the road, 4–5 June;
- 5) a nest with 4 eggs (hereafter nest no. 3) at 58°44.083'N, 156°48.897'W on the site just mentioned, 7 June;
- 6) eight nests (one with 1 egg, one with 3 eggs, six with 4 eggs) found in the vicinity of Port Heiden, 8–10 June, the southernmost nest was at 56°52.442'N and the northernmost at 56° 59.215'N;
- 7) a nest containing 4 eggs at 58°18.767'N, 156°37.410'W, and a pair with a brood at 58°18.448'N, 156°37.454'W about 28 km east of Egegik near the King Salmon River, 9–12 June.

Nests 2 and 3 were in low heath-lichen and grass-sedge-lichen vegetation, respectively. Six of the nests at Port Heiden were on dry stony substrates with sparse plant cover, two were in low heath-lichen vegetation. Microhabitats at the other nest sites mentioned above were not recorded. The five clutches monitored near Port Heiden all hatched between 10–17 June. Of the two nests in the King Salmon–Naknek region, the eggs in nest no. 3 hatched around 23 June; the eggs in nest no. 2 failed to hatch by 12 July, well beyond the incubation period of about 25 days. The male at nest no. 2 was still in attendance through at least 6 July, but no birds were seen when the nest was last checked on 12 July. There was one egg remaining on that date and upon examination it proved to be infertile. Of the other three eggs, one was accidentally broken while trapping and banding the female at the nest (this egg also was infertile), one was collected for a USFWS contaminants study (we have no information as to fertility), and one disappeared apparently taken by a predator.

Black-bellied Plovers

Listed chronologically (locations in Fig. 1), we found:

- 1) a pair copulating just north of Egegik at 58°13.607'N, 157°27.647'W along the coast, 11 May;
- 2) a pair alarm calling 20 km west of Becharof Lake at 57°55.895'N, 157°19.080'W, 30 May;
- 3) a nest containing 4 eggs at 56°59.146'N, 158°39.467'W near Port Heiden, 9 June;
- 4) a pair with downy young on the northeastern shore of Becharof Lake at 57°55.547'N, 156°04.833'W, 14 July. The nest near Port Heiden was in low heath-lichen vegetation.

DISCUSSION

Pacific Golden-Plovers nest over an extensive portion of western Alaska and in the upper Nushagak River drainage (Johnson *et al.* 2004). The latter seemingly disjunct breeding ground was unknown until 1994 (see Bennett 1996). The findings detailed here are the first definitive nesting records for *fulva* on the Alaska Peninsula, and indicate that the species is breeding from at least the King Salmon–Naknek area to Port Heiden. This extends the known range of *fulva* to a latitude approximately 350 km south of the Nushagak River region (Fig. 1). Presumably, Pacific Golden-Plovers also are breeding in suitable habitats northward between King Salmon–Naknek and the Nushagak River nesting grounds. However, evidence is lacking and the matter awaits ornithological exploration. The species' breeding range clearly extends westward from the King Salmon–Naknek region as nests have been reported near Manokotak and on the Nushagak Peninsula, also probable nesting (based on behaviour) was recorded near Dillingham (see Johnson *et al.* 2001a). Bennett (1996) postulated a similar westward extension from the upper Nushagak River drainage. With further study, it is likely that what appear now to be separate breeding grounds will become contiguous across present gaps, and probably also merge with the extensive range farther west (Fig. 1).

Notably, nesting “American Golden Plovers *Charadrius dominicus dominicus*” (now *P. dominica*) were reported many years ago in the upper Kvichak River region by Hurley (1932). This site would be about 50 km north of the nest we found near Naknek. Correct identification of *fulva* vs. *dominica* is often suspect, especially at a time long before the distinction

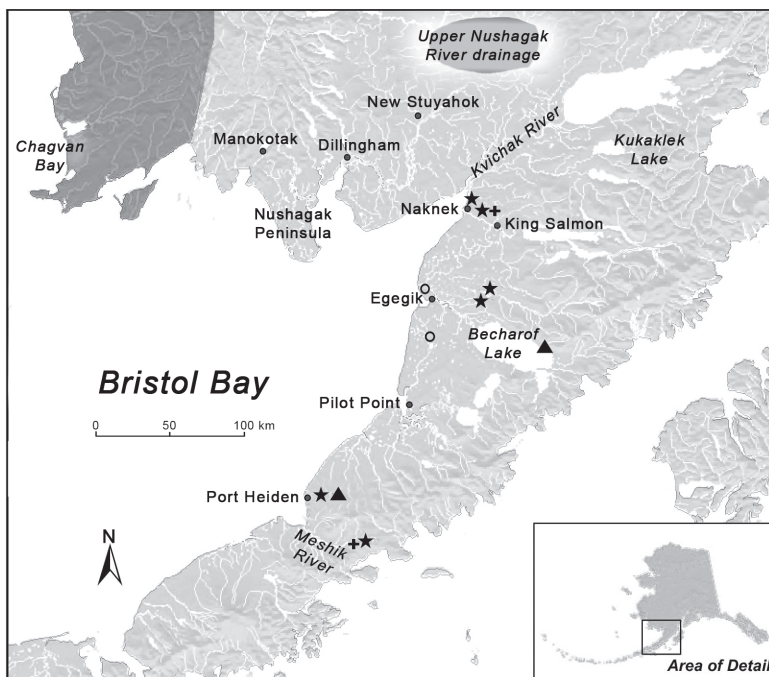


Fig. 1. Map showing the eastern end of the Alaska Peninsula and adjacent regions. Dark shading represents previously known southern boundaries of the *P. fulva* nesting range (for a map showing the overall breeding range of this bird in Alaska prior to our surveys on the Alaska Peninsula, see Johnson *et al.* 2004). *P. squatarola* nests in western Alaska with the previously known range extending to the Nushagak Peninsula (MacDonald 2001, Paulson 1995). Symbols: for *fulva* – star (one or more nests, or a brood), cross (breeding behaviours and calls); for *squatarola* – solid triangle (nest or brood), open circle (breeding behaviours and calls).



between the two species was clarified (Connors *et al.* 1993, Johnson & Connors 1996, Johnson & Johnson 2004). Thus, we will never know with certainty which of the two forms Hurley observed. In 1994, nesting by a pair of American Golden-Plovers was documented on film (the latter on file at Alaska Peninsula/Becharof NWR) near the site midway between King Salmon and Naknek where we found *fulva* nest no. 3 (see Results). No American Golden-Plovers were observed anywhere during the course of our field work in 2004.

Most *fulva* nest sites at Port Heiden were stony and sparsely vegetated. This was in contrast to the nesting habitat of *fulva* on the Seward Peninsula (near the northern end of the species' range in Alaska) where the birds breed sympatrically with *dominica*. In this region of sympatry, *fulva* typically nest in relatively dense vegetation on lower moist sites whereas *dominica* select higher well-drained rocky slopes (Johnson *et al.* 2001b). On other breeding grounds where the species are not sympatric, both plovers are less selective and nest sites may be the reverse of those mentioned above (i.e. *fulva* nesting on dry sites and *dominica* on moist sites, see Johnson & Connors 1996). Based on hatching dates of Pacific Golden-Plovers in the Port Heiden area (mid-June), and assuming approximately 30 days for egg-laying and incubation (Johnson & Connors 1996), nesting started there around the second week of May. This is 2–3 weeks earlier than the nesting cycle farther north on the Seward Peninsula (Johnson *et al.* 2001b).

According to Paulson (1995), the Alaska breeding range of Black-bellied Plovers reaches its southern limit at Chagvan Bay; more recently, MacDonald (2001) reported nesting birds farther east on the Nushagak Peninsula (Fig. 1). Our findings reveal nesting in a region relatively distant from the Nushagak Peninsula. By land (i.e., traversing potential nesting grounds along the northern rim of Bristol Bay, Fig. 1), the distances from the Nushagak Peninsula to Becharof Lake where we recorded downy young and Port Heiden where we found a nest are roughly 250 km and 350 km, respectively. Although it seems likely this plover is nesting in the extensive region between the Nushagak Peninsula and the areas we sampled, definitive proof is lacking. During breeding bird surveys near Dillingham and New Stuyahok (Fig. 1), Andres *et al.* (1999) recorded *squatarola* as "rare" and although nesting was considered "possible", birds were only "heard or seen in suitable nesting habitat" and "no further evidence of breeding was noted."

The findings of two other groups working on the Alaska Peninsula in 2004 further illuminate the status of Pacific Golden-Plovers and Black-bellied Plovers in the region. Gill *et al.* (2004) reported alarm calling and nesting-related behaviours among numerous birds of each species (no intensive nest searches were made) from 10–14 May near Port Heiden, Pilot Point, and Egegik (Fig. 1). Bennett (in litt.) found a Black-bellied Plover nest on 4 June northeast of King Salmon "near the outlet of Kukaklek Lake", and she observed 5–6 additional pairs elsewhere along the lake that probably were nesting. Bennett's observations were in an area about 200 km east of the Nushagak Peninsula (Fig. 1).

Although we have sampled only a few areas in this massive region, it is reasonable to conclude that the Alaska Peninsula provides important breeding grounds for Pacific Golden-Plovers and Black-bellied Plovers. Additional surveys are needed to measure densities and estimate populations. Frequent detections of radio-tagged Pacific Golden-

Plovers (birds tagged in Hawaii, see Johnson *et al.* 2004) during aerial surveys between King Salmon–Naknek and Port Heiden suggest that the peninsula is a major spring destination for *fulva* travelling the mid-Pacific Flyway.

ACKNOWLEDGMENTS

The project was funded by the Alaska Peninsula/Becharof National Wildlife Refuge. We are indebted to the following individuals who searched for nests or assisted in other ways: Erik Andersen, Robert Blush, Paul Brusseau, Chelsea Carlson, Dave Cox, Jessica Eyster, Gretchen Jehle, Mark Johnson, Robb Kaler, Orville Lind, Sarah Schuster, and Kristin Sesser. Robert Gill and Laurel Bennett kindly provided us with their unpublished records of Pacific Golden-Plovers and Black-bellied Plovers on the Alaska Peninsula during the 2004 breeding season. Mark and Mary Emery filmed the American Golden-Plovers nesting between King Salmon and Naknek. We thank reviewer Brad Andres for helpful suggestions that improved the manuscript.

REFERENCES

- Andres, B.A., D.L. Brann, & B.T.B. Browne. 1999. Inventory of breeding birds on local training areas of the Alaska Army National Guard. Unpublished report, U.S. Fish and Wildlife Service, Anchorage, AK.
- Bennett, A.J. 1996. Pacific and American Golden-Plovers breeding in southwestern Alaska. *Northwestern Naturalist* 77: 49–51.
- Connors, P.G., B.J. McCaffery & J.L. Maron. 1993. Speciation in golden-plovers, *Pluvialis dominica* and *P. fulva*: Evidence from the breeding grounds. *Auk* 110: 9–20.
- Gabrielson, I.N. & F.C. Lincoln. 1959. *The birds of Alaska*. Stackpole, Harrisburg, PA.
- Gill, R.E., L. Tibbitts, M. Dementyev & R. Kaler. 2004. Status of the Marbled Godwit (*Limosa fedoa*) on BLM lands on the Alaska Peninsula, May 2004 (with observations of large plovers and other avifauna). Unpublished report, U.S. Geological Survey, Anchorage, AK.
- Hurley, J.B. 1932. Birds observed in the Bristol Bay region, Alaska (Part IV). *Murrelet* 13: 16–21.
- Johnson, O.W. & P.G. Connors. 1996. American Golden-Plover (*Pluvialis dominica*) and Pacific Golden-Plover (*Pluvialis fulva*). In *The birds of North America*, nos. 201 and 202 (A. Poole & F. Gill, Eds). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.
- Johnson, O.W. & P.M. Johnson. 2004. Morphometric features of Pacific and American Golden-Plovers with comments on field identification. *Wader Study Group Bull.* 103: 42–49.
- Johnson, O.W., C.D. Adler, L.A. Ayres, M.A. Bishop, J.E. Doster, P.M. Johnson, R.J. Kienholz & S.E. Savage. 2004. Radio-tagged Pacific Golden-Plovers: Further insight concerning the Hawaii-Alaska migratory link. *Wilson Bull.* 116: 158–162.
- Johnson, O.W., A.J. Bennett, L. Alsworth III, L.A. Bennett, P.M. Johnson, J.R. Morgart & R.J. Kienholz. 2001a. Radio-tagged Pacific Golden-Plovers: the Hawaii–Alaska link, spring destinations, and breeding season survival. *J. Field Ornithology* 72: 537–546.
- Johnson, O.W., P.L. Bruner, A.E. Bruner, P.M. Johnson, R.J. Kienholz & P.A. Brusseau. 2001b. Features of breeding biology in Pacific and American Golden-Plovers nesting on the Seward Peninsula, Alaska. *Wader Study Group Bull.* 95: 59–65.
- Kessel, B. & D.D. Gibson. 1978. Status and distribution of Alaska birds. *Studies in Avian Biology*, No. 1.
- MacDonald, R. 2001. Bird monitoring on the Togiak National Wildlife Refuge and the Dillingham area, Alaska, 2000. Unpublished report, U.S. Fish and Wildlife Service, Dillingham, AK.
- Paulson, D.R. 1995. Black-bellied Plover (*Pluvialis squatarola*). In *The birds of North America*, no. 186 (A. Poole & F. Gill, Eds). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.

