

BREEDING RECORDS OF THE SURFBIRD, WANDERING TATTLER, AMERICAN GOLDEN-PLOVER, AND UPLAND SANDPIPER IN THE SOUTHWEST YUKON TERRITORY

SABINE NOUVET, 888 Rand Ave, Ottawa, Ontario K1V 6X4, Canada

SCOTT WILSON, Centre for Applied Conservation Research, Forest Sciences Centre, 2424 Main Mall, University of British Columbia, Vancouver, British Columbia V6T 1Z4, Canada; wilsonwa@interchange.ubc.ca

KATHY MARTIN, Centre for Applied Conservation Research, Forest Sciences Centre, 2424 Main Mall, University of British Columbia, Vancouver, British Columbia V6T 1Z4, Canada, and Canadian Wildlife Service, 421 Robertson Road, Delta, British Columbia, V4K 3N2, Canada

ABSTRACT: Knowledge of the breeding behavior and habitat selection of arctic-alpine shorebirds is limited because of these species' remote habitats, low population densities, and cryptic behavior. We report nests and other observations of definitive breeding of the Surfbird (*Aphriza virgata*), Wandering Tattler (*Tringa incana*), American Golden-Plover (*Pluvialis dominica*), and Upland Sandpiper (*Bartramia longicauda*) in the Ruby Range of the southwest Yukon between 2002 and 2007. In most years, there were at least two breeding pairs of the Surfbird, one of the Wandering Tattler, three of the American Golden-Plover, and one of the Upland Sandpiper at our alpine study site covering 9 km². These are the first confirmed breeding records of the Surfbird in the southern Yukon, and they mark the second and third Surfbird and third and fourth Wandering Tattler nests documented in Canada. Despite the lack of previous records for all species, particularly the Surfbird, their consistent recurrence at the site suggests they breed regularly in the region.

Some shorebirds breeding in the Yukon use remote alpine habitats, which, combined with their low population densities, has resulted in very few previous breeding records. Thus we have a limited understanding of the distribution, abundance, and habitat requirements of those species (e.g., Morrison et al. 2000). Observations of breeding by the Surfbird (*Aphriza virgata*) and Wandering Tattler (*Tringa incana*) are of particular interest because only one Surfbird nest and two Wandering Tattler nests have been reported for Canada previously (Campbell et al. 1990, Sinclair et al. 2003, Eckert and Mactavish 2004). Because of uncertainty in population size and the risks arctic and alpine animals face from climate change (Hassol 2004), there is a need to increase our knowledge of the distribution and breeding requirements of these species. Here we report on breeding observations and nesting habitat of four shorebirds, the Surfbird, Wandering Tattler, American Golden-Plover (*Pluvialis dominica*), and Upland Sandpiper (*Bartramia longicauda*) from alpine habitats of the southwestern Yukon Territory.

STUDY AREA

We worked from 2002 to 2007 in a 9-km² alpine valley in the Ruby Range east of Kluane Lake, Yukon (61° 21' N, 138° 28' W, Figure 1). The valley follows a small rocky stream, Pika Creek, which retains flow

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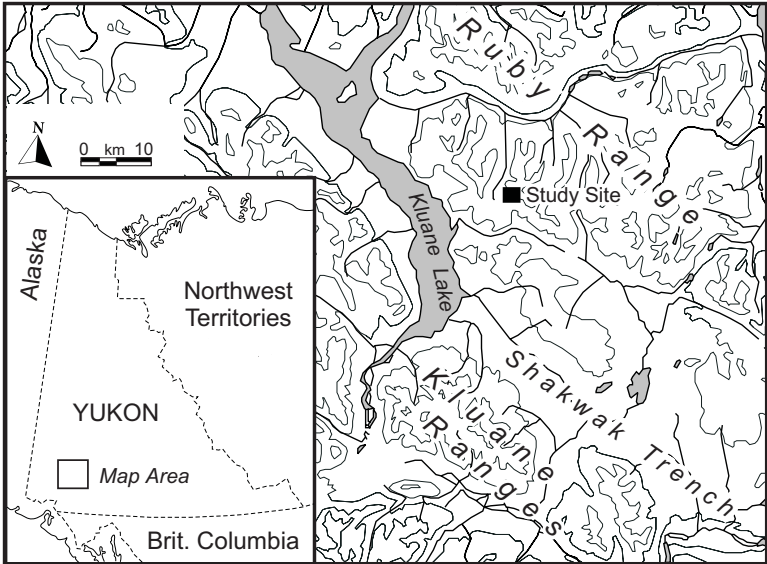


Figure 1. Location of the study site in the Ruby Range of southwestern Yukon Territory.

Map by Ryan Danby

throughout the summer. Lower alpine habitats (elevations 1500–1750 m) consist of lush meadows of graminoids (primarily *Carex* spp. and *Festuca* spp.), interspersed with woody shrubs (*Salix pulchra*, *S. glauca*, and *Betula glandulosa*), dwarf shrubs (e.g., *Dryas octopetala*, *Salix reticulata*), forbs, and rock outcrops. Higher alpine habitats (1750–2000 m) are drier with rock, lichens (e.g., *Flavocetraria* spp., *Cladina* spp.), and dwarf shrubs (e.g., *Dryas octopetala*, *Salix polaris*, *S. arctica*) predominating. Patches of moss and heather (*Cassiope tetragona*) are distributed throughout the study area.

RESULTS AND DISCUSSION

Surfbird

As a breeding species the Surfbird is distributed sparsely in northwestern North America, with confirmed breeding records limited to Alaska and the western half of the Yukon Territory (Dixon 1927, Kessel and Gibson 1978, Senner and McCaffery 1997). In Canada, these include one nest and four observations of adults with young (Frisch 1978, Sinclair et al. 2003, Eckert pers. comm.), making the Surfbird one of the most elusive breeding birds on the continent. In central and northern Yukon, Frisch (1978) suggested that the Surfbird occurs regularly in the Ogilvie and Richardson mountains. There are no confirmed breeding records for the southern Yukon, although displaying birds have been observed in the Dawson and Ruby ranges (Frisch

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1983). Overall, the Surfbird is considered a rare breeder throughout much of the territory (Sinclair et al. 2003).

Record 1: On 22 June 2005 we found a Surfbird nest with four eggs in the upper end of the valley of Pika Creek. The nest was located at elevation 1797 m on a 10° west-facing slope amid scattered rocks and tundra vegetation (Table 1, Figure 2). It was approximately 100 m below a rocky ridgeline where the pair was observed foraging and in flight-song displays throughout June and July. The nest was a shallow scrape 20 × 12.5 cm (interior dimensions) and lined with lichens (*Flavocetraria* spp. and *Dactylina arctica*). Both the incubating bird and the exposed eggs were well camouflaged (Figure 3). When we checked the nest, the bird defended its nest as described by Dixon (1927): it left the nest only when approached within 2 m

Table 1 Habitat^a Surrounding Surfbird Nest and Brood Site near Pika Creek, Yukon Territory

Habitat	Nest (2005)		Brood (2006)	
	%	Species	%	Species
Rock/bare	24		13	
Mosses ^b	3		1	
Dwarf shrubs	27	<i>Dryas octopetala</i> 23%, <i>Salix reticulata</i> 3%, <i>S. polaris</i> 1%	47	<i>Dryas octopetala</i> 39%, <i>Salix arctica</i> 6%, <i>S. reticulata</i> 2%
Grasses/sedges	15	<i>Festuca altaica</i> 2%, <i>Carex</i> spp. 13%	18	<i>Festuca altaica</i> 12%, <i>Carex</i> spp. 6%
Lichens	18	<i>Flavocetraria</i> spp. 12%, <i>Stereocaulon</i> spp. 3%, <i>Dactyllina arctica</i> , <i>Cladina rangiferina</i> , <i>Thamnolia vermicularis</i> , all 1%	17	<i>Flavocetraria</i> spp. 13%, <i>Thamnolia vermicularis</i> 4%
Forbs	8	<i>Silene acaulis</i> 3.5%, <i>Antennaria monocephala</i> , <i>Artemisia arctica</i> , <i>Castilleja hyperborea</i> , <i>Claytonia lasiocarpa</i> , <i>Lloydia serotina</i> , <i>Oxyria digyna</i> , <i>Parrya nudicaulis</i> , <i>Pedicularis lanata</i> , <i>Saxifraga davurica</i> , <i>S. hieracifolia</i> all <1%	4	<i>Oxytropis nigrescens</i> 2.5%, <i>Papaver macounii</i> 1%, <i>Cardamine purpurea</i> , <i>Oxyria digyna</i> , <i>Pedicularis lanata</i> , <i>Potentilla hyparctica</i> , <i>Saxifraga bronchialis</i> , <i>Silene acaulis</i> all <1%
Heather	5	<i>Cassiope tetragona</i>	0	

^aDescribed by percentage cover of vegetation within a radius of 5 m.

^bNot identified to genus or species.

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Figure 2. Habitat of the Surfbird nest found in 2005 in the Ruby Range of the southwest Yukon Territory.

Photo by Scott Wilson

and then remained near the nest while trying to lead the observer away with calls, broken-wing displays, and mock charges. On 27 June, when the nest was checked again, the adult quickly jumped off when approached within 5 m and remained near the nest but was less aggressive than on the first visit. The nest contained four freshly broken and empty eggs, whose shells were unusually thin and soft in comparison to other shorebird eggs. It was unclear whether the eggs had broken or if predation had occurred.

Record 2: On 3 July 2006 we observed an adult with a downy chick 1 or 2 days old at 1901 m elevation on the ridgeline, 430 m east and 280 m north of the 2005 nest site. The adult protected the chick aggressively with frequent calls and mock charges at the observer. On 7 July, we encountered an aggressive adult 50 m to the northeast of the 3 July site. Because we did not observe any other breeding pairs at this location, we suspect this was one of the individuals of the same pair, suggesting it remained in the area for the first week of the chick-rearing period. These records, as well as repeated observations of display flights and breeding calls of Surfbirds from at least two other sites in this valley from 2004 to 2006, suggest that two or three pairs breed there consistently. To estimate percent cover and identify principal plant species associated with Surfbird nest and brood habitat in the valley, we quantified the vegetation within a 5-m radius around the 2005 nest site and the 2006 brood site (Table 1).

Records 3 and 4: In 2007, we noted two additional families of Surfbirds at locations just outside the main study area along Pika Creek. On 8 July,



Figure 3. Surf-bird incubating on 29 June 2005 in the Ruby Range of the southwest Yukon Territory.

Photo by Scott Wilson

a nervous and aggressive adult was observed with a single chick on the top of a ridgeline at 1846 m elevation located 3 km southwest of the 2005 and 2006 locations. The chick was approximately two weeks old, and the adult behaved defensively, trying to lure the observer away from the chick. On 16 July, we found an adult Surf-bird on a nest with its wings spread to cover the entire nest cup. A single eggshell of a hatched chick was lying just in front of the nest, and we suspect the adult was brooding at least one, but likely more, recently hatched chicks. Although we approached closely (within 2 m), the adult did not leave the nest, and to avoiding exposing the chicks, we did not flush it. The site was approximately 6 km to the northeast of Pika Creek valley, and the nest itself was situated just below the top of a gently sloping rocky ridge (1790 m) that was sparsely covered with vegetation dominated by lichens and dwarf willows (*Salix* spp.). We did not survey the vegetation at either site in detail in 2007.

Wandering Tattler

There are nine breeding records of the Wandering Tattler in the Yukon, including those of nests found in the Firth River and Craig Creek drainages in Ivvavik National Park, northern Yukon (Sinclair et al. 2003, Eckert and Mactavish 2004). In southwestern Yukon, there are three records of young chicks in the St. Elias Mountains west of the Ruby Range (Sinclair et al. 2003). The Wandering Tattler also breeds regularly in alpine habitats throughout Alaska and the northwest corner of British Columbia (Campbell et al. 1990, Gill et al. 2002). A pair of Wandering Tattlers occupied the same 600-m stretch of Pika Creek in 2002 and from 2004 to 2007. The pair was rarely observed more than 20 m from the creek and was most frequently

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Table 2 Location, Dates, and Fates of Shorebird Nests in or near Pika Creek Valley, Yukon Territory

Location	Elevation (m)	Observer	Date found	Fate/estimated hatching date
Surfbird				
61.2086° N, 138.2677° W	1797	S. Nouvet	22 Jun 2005	Failed
61.2127° N, 138.1438° W	1790	D. & C. Thiel	16 Jul 2007	16 Jul 2007
Wandering Tattler				
61.2141° N, 138.2824° W	1600	P. Caputa	10 Jun 2002	Early July
61.2241° N, 138.2909° W	1495	D. & C. Thiel, K. Martin	10 Jul 2007	10 Jul 2007
American Golden-Plover				
61.2153° N, 138.2744° W	1680	P. Caputa	09 Jun 2002	23 Jun 2002
61.2166° N, 138.2870° W	1700	P. Caputa	20 Jun 2002	Failed
61.2101° N, 138.2749° W	1696	J. N. M. Smith	21 Jun 2002	26 Jun 2002
61.2136° N, 138.2891° W	1700	P. Caputa	22 Jun 2002	Failed
61.2120° N, 138.2730° W	1680	S. Nouvet	21 Jun 2005	17 Jul 2005
61.2109° N, 138.2830° W	1692	S. Nouvet	02 Jun 2006	Abandoned
61.2156° N, 138.2887° W	1668	B. Wilson	09 Jul 2006	02 Jul 2006
Upland Sandpiper				
61.2211° N, 138.2919° W	1736	M. Wong	15 Jun 2006	Mid July
61.2138° N, 138.2687° W	1736	M. Wong	15 Jun 2006	Mid July

encountered along a stretch at 1580–1620 m elevation. On 10 June 2002, we found a nest with four eggs along Pika Creek at approximately 1600 m elevation. Common plant and lichen species around the nest included *Dryas octopetala*, *Salix reticulata*, *Cassiope tetragona*, and *Carex* spp. We revisited the site on 23 July, finding one chick with the adults in the same area as the nest. From the size of the chick, we estimated it hatched during the first week of July (P. Caputa pers. comm.).

On 8 July 2004, we observed an adult and fledgling about 7–10 days old on a sparsely vegetated gravel bar in the same area as the 2002 territory. A pair held a territory in the same area in 2005 and 2006, but we did not locate nests or chicks in those years. On 10 July 2007, we found a defensive breeding pair with a freshly hatched chick within 10 m of Pika Creek

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at an elevation of 1495 m and approximately 1 km downstream from the other territory. The chick was 2 m from a nest containing two cold eggs. Wandering Tattlers typically lay a clutch of four eggs (Gill et al. 2002), so it is possible that another recently hatched chick was in the vicinity. The nest was situated amid lichens (*Dactylina arctica* and *Flavocetraria* spp.) and *Cassiope tetragona*.

American Golden-Plover

The American Golden-Plover breeds regularly in the Yukon Territory. There are 57 breeding records, of which 52 are from arctic tundra of northern Yukon, three from the central Yukon, and two from alpine areas of the southern Yukon (Sinclair et al. 2003). Elsewhere, the species is a common breeder across much of the Canadian arctic as well as alpine habitats of Alaska and northern British Columbia (Johnson and Connors 1996). We estimate that two to three pairs of American Golden-Plovers bred in the valley of Pika Creek each year and found a total of seven nests: four in 2002, one in 2005, and two in 2006. All nests contained four eggs, and four of the six clutches monitored to completion hatched. Estimated dates of hatching were 23 June and 26 June in 2002, 17 July in 2005, and 2 July in 2006. Because of the late hatching date, we believe the successful nest in 2005 was a second attempt after the first attempt failed. Of the two failed nests, one was probably depredated, while the other was abandoned. Plover nests were in lower alpine meadows between 1600 and 1700 m elevation. These areas were dominated by short, tussocky vegetation that often included *Carex* spp., *Dryas octopetala*, *Salix pulchra*, *S. reticulata*, *S. arctica*, *Cassiope tetragona*, and *Flavocetraria* spp. Common forbs included *Dodecatheon frigidum*, *Artemisia arctica*, *Petasites frigidus*, *Pedicularis lanata*, *Silene acaulis*, *Valeriana sitchensis*, and *Claytonia sarmentosa*.

Upland Sandpiper

The Upland Sandpiper breeds primarily in grassland habitats of southern Canada and the northern United States, but smaller populations also breed in areas of northwestern North America (Houston and Bowen 2001). In the Yukon Territory, Upland Sandpipers are found in grassland at low elevations, typically along floodplains, and in meadows in the subalpine and lower alpine zones (Sinclair et al. 2003). There are 14 breeding records from the Yukon Territory including nine from the southern region. We found one Upland Sandpiper nest with four eggs in the Pika Creek valley on 1 June 2004; on the next check, we found two chicks with an estimated hatching date of 22 June. The chicks were difficult to locate, and possibly more were present. A second nest with four eggs was found on 15 July 2006. The nest was empty on 21 July, but an aggressive adult was nearby, and it seems likely the young had hatched and left the nest. Both nests were in low alpine meadows similar in structure and species composition to sites used by American Golden-Plovers. Upland Sandpipers appear to be most common in upper subalpine habitats (elevation 1400–1500 m), and we observed several breeding pairs in these areas.

CONCLUSIONS

Studies of the effects of climate change suggest that warmer temperatures may lead to an altitudinal advance of woody shrubs into alpine areas (Walther et al. 2005) and a turnover within tundra communities, in which graminoids increase in abundance at the expense of more specialized vegetation like *Dryas* spp. and lichens (e.g. Klanderud and Totland 2005, Walker et al. 2006). These changes pose a threat to arctic and alpine shorebirds, such as the Surfbird and Wandering Tattler, which live at low population densities and rely exclusively on open alpine habitats. Although our report of breeding by four alpine shorebirds is limited, suitable alpine habitat in the area is vast, suggesting that breeding populations may be larger. An inventory of the region to estimate the total population sizes and densities of breeding shorebirds would be useful. Demographic studies of the Surfbird and Wandering Tattler, although logistically difficult, would also be extremely valuable for estimating population trends and dynamics by identifying influential factors. Population studies combined with further knowledge on habitat selection for each species would aid predictions on the potential impacts of climate change on an important bird community within alpine ecosystems.

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