

# TWO DISJUNCT BREEDING LOCATIONS FOR ARCTIC TERN IN BRITISH COLUMBIA

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## **Abstract**

Arctic Tern (*Sterna paradisaea*) is a circumpolar breeding species in Arctic regions throughout the northern hemisphere and migrates at sea in pelagic waters. In British Columbia, the species breeds only in northwestern regions of the province. Here we report two widely separated occurrences of solitary-nesting Arctic Terns near Fireside and at Eagle Lake in the north-central and Chilcotin regions of the province, respectively.

## **Introduction**

The Arctic Tern (*Sterna paradisaea*) has a circumpolar breeding range across Arctic regions of the northern hemisphere (Cramp 1985). In North America, the species is widely distributed during the breeding season throughout tundra regions along the continental coast from Alaska to central Labrador, as well as the Chukchi and Bering seas, the western Aleutian Islands, and south along the coast to Stewart, British Columbia (Hatch 2002). In British Columbia, Arctic Tern breeds only in the northwest portion of the province from the vicinity of the Tatshenshini River east to Atlin Lake and south to Spatsizi Plateau and Stewart (Campbell et al. 1990).

South of its regular breeding range there are several occurrences of disjunct breeding as solitary pairs or small colonies in the western contiguous United States. These include Wisconsin (Kumlien and Hollister 1903, Robbins 1991), Montana (Dinsmore and Jorgensen 2001), and Washington (Manuwal et al. 1979, Bird 1994, 1995, Wahl et al. 2005).

During the nonbreeding season, Arctic Tern is highly pelagic and is rarely seen from shore in British Columbia although migrants have been recorded irregularly along the coast and in the interior of the province (Campbell et al. 1990). Summer occurrences outside the known breeding range and within the breeding period (e.g., late May through late July) in British Columbia are extremely rare.

This paper documents two new and widely separated breeding locations of solitary-nesting pairs of Arctic Terns in British Columbia.

## **Fireside/Liard River**

This remote, unnamed wetland is located about 16 km northwest of Fireside in extreme north-central British Columbia east of the Liard River. It is situated in a predominantly White (*Picea glauca*) and Black Spruce (*P. mariana*) forest interspersed with trembling aspen (*Populus tremuloides*) and Balsam Poplar (*Populus balsamifera*). The shallow wetland consists of a series of wide channels and open ponds mostly created by American Beaver (*Castor canadensis*) activity. Several of the beaver lodges are massive structures. Grass, sphagnum, and dirt hummocks are plentiful, and fallen tree trunks and branches litter the area (Figure 1). The wetland occurs at 592 m elevation.

Terns have been reported infrequently from this wetland since the late 1970s but the species' identification was never ascertained. Consequently the records were not included in Campbell et al. (1990). Entries in field diaries, or notes from incidental observations, simply record "a medium-sized, black-capped tern (s) or *Sterna* species."

One to three unidentified terns have been reported from the vicinity of the wetland between mid-May



**Figure 1.** Nesting habitat for a pair of Arctic Terns found outside their known breeding range in northwestern British Columbia. 16 km north of Fireside, BC. 18 June 2007 (R. Wayne Campbell).

and late July in 1978, 1980, 1985, 1992, 1999, 2005, 2006, 2007, 2008, and 2009. On 18 June 2007, the senior author (RWC) hiked into the wetland to search for nesting waterbirds. When about 500 m from the edge of a pond two terns flew towards him and began calling. The terns flew around the entire wetland for the next few minutes while RWC settled in the adjacent forest about 40 m from its centre to watch for nesting behaviour. One adult tern kept flying about while the other hovered over a sphagnum hummock and soon settled down, adjusting to an incubating/brooding position. The site was watched for another 15 minutes or so during which time a passing Common Raven (*Corvus corax*) caused momentary anxiety to the tern causing it to shift position.

The hummock, situated on the edge of a pond, was checked and a nest with two eggs was discovered nestled into the soft substrate (Figure 2). The nest depression was lined with a few dead leaves and pieces of grass. The eggs were tested in water, and floated high, suggesting the clutch was complete and that incubation was well started. It also helped explain why the incubating adult was reluctant to leave the nest until it was examined. The adult was confirmed as an Arctic Tern (Figure 3).

A solitary pair of Arctic Terns may have nested regularly at the Fireside/Liard River site since at least the late 1970s. The species could be confused with the similar-looking Common Tern (*Sterna hirundo*) but this species has not been recorded in



**Figure 2.** Arctic Tern nest and eggs located in an unnamed wetland located 16 km north of Fireside, BC. 18 June 2007 (R. Wayne Campbell). BC Photo 3674b.

northwestern British Columbia (Campbell et al. 1990) or in the adjacent Yukon Territory (Sinclair et al. 2003). In addition, Arctic Tern is a common breeder in south-central Yukon Territory just across the provincial border with British Columbia.

The nearest confirmed breeding locations to the Fireside/Liard River site in British Columbia is about 240 km southwest at Spatsizi Plateau (57°15'N, 128°10'W) and 370 km due west at Atlin Lake (Campbell et al. 1990).

It is quite likely that small numbers of Arctic Terns may breed in the unexplored and numerous wetlands in other locations across north-central British Columbia as they have been recorded here during the breeding period (see Blood et al. 1981).



**Figure 3.** Incubating adult Arctic Tern about 16 km north of Fireside, BC. 18 June 2007 (R. Wayne Campbell). BC Photo 3674a.

### **Eagle Lake**

Eagle Lake is located 217 km west of Williams Lake in the Chilcotin region of central British Columbia and is situated in rolling hills which are heavily forested with lodgepole pine (*Pinus contorta*). It covers an area of 1,187 ha, has a shoal area of 212 ha, and gravel and rocky beaches with patches of dense shrubs dominating the shoreline. The lake has a mean depth of 17.9 m, a maximum depth of 48 m, and occurs at 1,059 m elevation. Although the lake has been stocked with Rainbow Trout (*Oncorhynchus mykiss*) angler usage is currently low. Kokanee (*Oncorhynchus nerka*), once plentiful, has now disappeared from the lake. Suckers (*Catostomus* sp.) are still plentiful. A few cabins, used seasonally, are dotted around the lake.

In 1978, Jim Sims built a cabin on the lakeshore and visits the family's retreat each year during the spring and summer. The following observations of Arctic Terns are from these 32 years.

The first Arctic Tern was observed at Eagle Lake on 27 July 2006 when a blurry photo was taken of an adult in what appeared to be a nest-defending dive bomb. Although direct evidence was not obtained nesting was suspected. The following year, during the Victoria Day weekend (*i.e.*, 19-21 May) a pair of Arctic Terns flew by heading into the bay where they were suspected of breeding. Later in the summer, after the nesting period, neighbours told Jim that an Arctic Tern had nested on one of the islands (Figure 4) and young had been observed. Although the birds were photographed the image was not definitive.

In 2008, a pair of terns was first observed on the Victoria Day weekend (*i.e.*, 24-26 May). Later in the summer, on 15 July, while walking along the lakeshore about 400 m from "Tern Island", Jim observed one or two terns flying over and constantly calling and dive-bombing in a territorial defense behaviour. Some poor pictures were obtained. A week later, when the site was revisited, the terns had departed so breeding was still not confirmed.

In 2009, during the Victoria Day weekend (*i.e.*, 16-18 May) the pair of Arctic Terns had returned to the island where nesting was suspected. Good identifiable photographs were obtained. On 2 June, the island was revisited and it appeared from the



**Figure 4.** The island on which a pair of Arctic Terns was found nesting in Eagle Lake, BC, is characterized as a sand and gravel island covered with many rocks and boulders and scattered shrubs. The island was not exposed until about 10 to 15 years ago and this explains the lack of spruce trees. Falling water levels have increased the size of the island. 15 July 2008 (Jim Sims).

behaviour of the pair that they were breeding but the nest could not be located.

On 18 June Jim, accompanied by Phil Ranson and Sandy Proulx, visited "Tern Island" to confirm breeding. An adult tern sat on top of the largest rock on the island (Figure 5) and remained there until we started to get out of the canoe. When it took flight its mate also flew off the ground nearby, indicating the nest site. This area was searched thoroughly (Figure 6) and a nest containing two eggs and a single chick out of the nest was located (Figure 7). As soon as the canoe was moved away from the general area of the nest site an adult returned to the rock and its mate fluttered over the nest site, then dropped straight down onto the nest.

Phil Ranson visited Eagle Lake again on 4 July. He did not go onto the nesting island but observed that the Arctic Terns had quite a task in clearing away the Caspian Terns. The Caspian Terns had come up the lake from the east end where there are a few small islands. The Arctic Terns were vigorously defending their nesting island on the weekend, at one point chasing off 14 Caspian Terns, who were far more interested in plunging headlong into the crystal blue waters after the schools of fry. The terns were still present in the vicinity of the nest site on 17 July



**Figure 5.** Adult Arctic Tern perched atop large boulder near nest site at Eagle Lake, BC. 18 June 2009 (Sandy Proulx). BC Photo 3677a.



**Figure 6.** Sandy Proulx searching a boulder-strewn island for evidence of Arctic Terns nesting at Eagle Lake, BC. 18 June 2009 (Phil Ranson).



**Figure 7.** Arctic Tern nest containing two eggs and recently hatched chick out of the nest. Eagle Lake, BC. 18 June 2009 (Jim Sims). BC Photo 3677b.

but we did not visit the island. By 1 August the terns had apparently left Eagle Lake.

Nesting habitat on Eagle Lake (Figures 6 and 8) has not always been available for Arctic Terns. Prior to 1978 lake water levels had been relatively stable for an estimated 200 years and the lake may have had an outflow creek. Water levels in the 1980s started to drop as evidenced by private boat docks and beaver lodges out of the water. As the water level continued to drop, well decayed tree root balls buried in the sandy bottom became more visible. This might suggest that water levels had been low before. Since 1978, the lake water level has dropped by 5 m. Along with decreasing water levels, willows and alders have now invaded parts of the drying lake. The tern nesting island is characterized by a combination of open alkali sandy and rocky ground, an ideal nest substrate for terns (see Campbell et al. 1990).

The Eagle Lake breeding location is closer to a small nesting colony of Arctic Terns at Everett, Washington (approx. 450 km) than to the closest site in British Columbia at Spatsizi Plateau (approx. 630 km).



**Figure 8.** While dropping water levels at Eagle Lake, BC in recent years is of concern to local residents, new habitat is being created for other potential nesting species such as Caspian Tern. 4 July 2009 (Phil Ranson). BC Photo 3681.



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### *About the Authors*

Wayne is a co-founder and Director of the Biodiversity Centre for Wildlife Studies and has recently co-authored a field guide The Birds of Canada intended as an introduction to the nation's bird life.

Jim is vice-president of the Williams Lake Field Naturalists and is the publisher of the club's newsletter The Muskrat Express.

Phil has been a casual birder since his childhood in England. He attended a birding course given by Jim Grant in Vernon in the early 1980s and has been a committed birder ever since. He recently retired as a provincial forest protection officer and spends much of his "free" time documenting bird life in the Cariboo and atlas during the summer.

Sandy, a semi-retired maintenance worker, has been interested in birds most of his life. In the early 1990s he became involved with the bluebird nest box program in British Columbia and has monitored as many as 500 boxes a year. He also participates in the annual Christmas bird counts and enjoys regular birding outings in the Cariboo region of the province.