

Note

New Northern Records for Townsend's Solitaire (*Myadestes townsendi*) in Nunavut and the Northwest Territories

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On 10 May 2015, a Townsend's Solitaire (*Myadestes townsendi*) was observed near the hamlet of Kugluktuk in the Kitikmeot region of Nunavut. This represents the first record for the territory and the first observation above the Canadian tree line. We discuss new data from the Northwest Territories of singing males recorded by autonomous recording units, which may represent breeding evidence at the northeastern limit of the species' range. We summarize other observations of this species across northwestern Canada and describe the ecology of the lower Coppermine River.

Key Words: Townsend's Solitaire; *Myadestes townsendi*; species distribution; Nunavut; Kugluktuk; Kitikmeot; Yellowknife; Coppermine River; Northwest Territories; breeding

Introduction

Found predominantly throughout the western portion of North America, the Townsend's Solitaire (*Myadestes townsendi*) has a wide distribution, ranging from the Sierra Madre mountains of Mexico to the Brooks Range in Alaska and the Richardson Mountains in the Yukon (Godfrey 1986; Bowen 1997). There are two recognized subspecies, *M. t. townsendi*, which breeds in the United States and Canada, and *M. t. calophonus*, the southern resident breeding population, found in the mountains of the Sierra Madre Occidental from Chihuahua to Zacatecas in Mexico (Moore 1937; Howell and Webb 1995).

The breeding range of *M. t. townsendi* covers most of western North America, from New Mexico to Alaska, east to Colorado, Wyoming, and Montana, with a small breeding population in the Cypress Hills between Alberta and Saskatchewan (Semenchuk 1992; Bowen 1997). Although Campbell *et al.* (1997) have suggested a gap in the breeding range (latitudes 53°N to 59°N) in northwestern British Columbia, results from recent breeding bird surveys indicate that this range may not be discontinuous after all (Davidson and Lamont 2014).

The species typically overwinters at lower altitudes throughout much of its range, excluding the northern Canadian and Alaskan breeders, which migrate south to overwinter; the length of these migrations and stopover locations of these northern breeders remain unknown. It has been speculated that they venture only as far south as suitable numbers of juniper (*Juniperus* sp.) and other fruiting berry species can be found (Bent 1949; Lederer 1977; Bock 1982; Podar and Lederer 1982; Campbell *et al.* 1997).

Townsend's Solitaire is normally associated with montane environments and coniferous forests, particularly those composed of pine (*Pinus* sp.), fir (*Abies* sp.), hemlock (*Tsuga* sp.), and spruce (*Picea* sp.), but also use other forest types between 350 m and 3500 m elevation (Bowen 1997; Collar 2015). Although little has been described regarding the northern ecology of this species, in the Yukon, it uses patches of conifers and taller vegetation along creeks or wet draws above the timber line (Sinclair *et al.* 2003). Along the Dempster Highway, it occupies cliffs, talus slopes, and drier habitats with southern exposure, likely where snow free patches emerge in early spring (Frisch 1994). Although not usually believed to be associated with areas above the tree line or occupying rocky alpine environments (Bowen 1997), such as those seen in the Canadian tundra, montane environments above the timber line with tundra vegetation are used in northwestern British Columbia (M. M. L., personal observation) and elsewhere across its range on occasion (Bowles and Decker 1927).

Results

On 10 May 2015, an adult Townsend's Solitaire was observed near the community of Kugluktuk, Nunavut, on a rock outcrop near the mouth of the Coppermine River (67.81°N, 115.09°W) approximately 1 km from the coast of the Arctic Ocean (Figure 1). Multiple photographs (Figure 2) and subsequent sightings of this bird were made over three days after the initial observation. During several hours of monitoring, foraging and perching were the activities observed most often. Feeding occurred mainly among heather and low-lying shrubs, such as Black Crowberry (*Empetrum nigrum* L.), Dwarf

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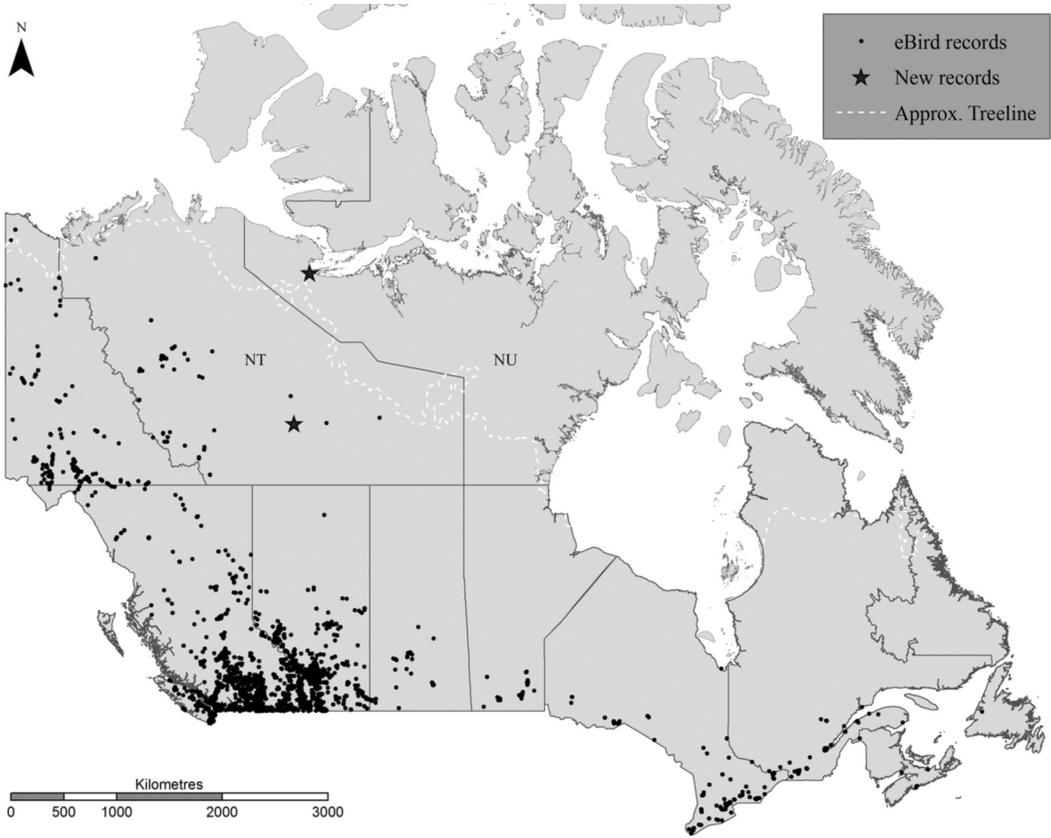


FIGURE 1. All Canadian records of Townsend's Solitaire (*Myadestes townsendi*) from 1953 to 2015 in eBird (2015), with two recent records from Nunavut and Northwest Territories.



FIGURE 2. Townsend's Solitaire (*Myadestes townsendi*) photographed in Kugluktuk, Nunavut, on 10 May 2015. Photo: M. Lamont.

Birch (*Betula glandulosa* Michaux), Alpine Bearberry (*Arctostaphylos alpina* (L.) Niedenzu), Arctic Willow (*Salix arctica* Pallas), and Arctic White Heather (*Cassiope tetragona* (L.) D. Don). No singing or other territorial behaviour was observed.

To the best of our knowledge, this sighting represents the first documented observation of a Townsend's Solitaire above the Canadian tree line and the first for Nunavut. Of additional interest was the presence of a Northern Wheatear (*Oenanthe oenanthe*) at the same location as the Townsend's Solitaire in Kugluktuk, but it was observed for only one day. This is one of the few records for this species in the western Kitikmeot.

Discussion

A review of all observations for Townsend's Solitaire reported to eBird (2015; Figure 1) from across Canada between 1953 and 2015 revealed 11 221 sightings, most from British Columbia, Alberta, and Yukon. A total of 76 sightings occurred in the Northwest Territories over this same period, the closest of which was approximately 500 km from Kugluktuk in Deline: a single bird in 2004. According to this dataset, only three other observations had been made at a higher latitude than that of Kugluktuk in the previous 63 years; all three were within the boreal region of North America.

Given the significant amounts of snow cover still present on the ground in early May, the Townsend's Solitaire observed in Kugluktuk was likely feeding on berries from the previous year. A few species of Arachnids and Hymenoptera are also present on exposed tundra in early May, but in very sparse numbers (Cutler 1982; Dondale *et al.* 1997; M. M. L., personal observation). Townsend's Solitaire is monotypic; hence, the sex of this bird was undetermined. Insufficient close observations were made to attempt to delineate a molt pattern; the greater primary coverts did appear to have buffy edges, suggestive of a second-year bird (Bowen 1997).

Both sexes are known to sing and defend territories on both breeding and wintering grounds and during migration (Hanford 1917; George 1987). During the breeding season, males will sing louder and more often than females (Bowen 1997). Singing rates peak twice in the year, once from April to May and again from September to November (Sullivan 1976). We played songs of conspecifics on three occasions over 2 hr in an attempt to elicit a response call or to determine whether the bird showed any territorial behaviour; however, these attempts resulted in little behavioural response, and no signs of agitation were perceived. Stochastic and sudden changes in weather events are known to cause the arrival or sudden dispersal of migrating boreal birds (see Newton 2006; Gordo 2007; Strong *et al.* 2015). A review of the weather patterns at Kugluktuk airport for the three weeks before the 10 May sighting revealed an average daily temperature of -10.3°C with no signif-

icant weather events recorded (Environment Canada 2016).

In Nunavut, Kugluktuk is one of the closest communities to the treeline. Pockets of trees can be found as close as 40 km south of Kugluktuk where sheltered valleys allow small stands of White Spruce (*Picea glauca* (Moench) Voss) to grow, the species whose frequency defines the treeline. More homogeneous stands of spruce are found further south, approximately 80–120 km south of Kugluktuk. Willow (*Salix* spp.), particularly *Salix alexensis* (Andersson) Coville var. *alexensis* is also found in sheltered valleys and ravines (J. M. Saarela, personal communication). The river valley forms a corridor from the tree line, with a bird community similar to that of the northern boreal region. Other species found within boreal ecosystems, such as Moose (*Alces americanus*), American Marten (*Martes americana*), and Common Muskrat (*Ondatra zibethicus*), are also found in the Coppermine River Valley, north to the Arctic coastline along with many species of boreal vascular plants (Kelsall 1972; Cody *et al.* 2003; J. M. Saarela, personal communication).

Twenty-six vascular plants are at their northern range limit for Nunavut within the Kugluk/Bloody Falls Territorial Park, 13 km outside Kugluktuk (J. M. Saarela, personal communication). In addition, the lower Coppermine River Valley has 70% of the known vascular plant diversity found in Nunavut, at the family level, and many boreal species only previously known from the James Bay region. The known northern extent of Common Juniper (*Juniperus communis* L.) in Nunavut is only a few kilometres from the location where we observed Townsend's Solitaire (J. M. Saarela, personal communication). The distribution of juniper continues south along the length of the Coppermine River, eventually reaching the tree line. The presence of juniper and other boreal plant species not found elsewhere on mainland Nunavut lends some credence to the possibility that the Coppermine River Valley supports small numbers of Townsend's Solitaire and other boreal bird species in the Kitikmeot.

According to eBird data, three other observations of Townsend's Solitaire have been made near Yellowknife: two in August outside the known breeding season (Bowen 1997) and the third in mid-June, but including no notes on breeding activity. Townsend's Solitaire has also been detected in the Northwest Territories recently, as part of a joint Environment Canada and University of Alberta Bioacoustics' Unit songbird monitoring program. The program, initiated in 2015, surveys songbirds using audio recorders with the long-term goal of monitoring songbird use of northern forests recovering from forest fire.

Two males were recorded singing over three days of sampling from 23 to 26 June 2015 between 0330 and 0430 on Song Meter SM3 automated recording units (Wildlife Acoustics, Maynard, Massachusetts, USA).

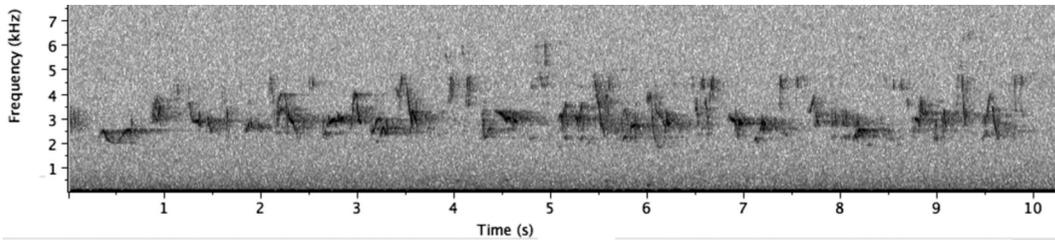


FIGURE 3. Spectrogram of Townsend's Solitaire (*Myadestes townsendi*) primary vocalizations recorded on 23 June 2015 between Behchok̄ and Fort Providence, Northwest Territories.

Recordings were made about 100 km west of Yellowknife, between Behchok̄ and Fort Providence, Northwest Territories (65.51°N, 116.45°W, Figure 1). During June 2015, 364 locations between Behchok̄ and Fort Providence were surveyed. For each sampling location, two 3-minute dawn recordings, made within a four day period, were interpreted manually for songbird primary vocalizations by trained observers using acoustic software. Spectrograms were produced from recordings and compared to known spectrographs to verify species identification (Figure 3). Habitat was composed primarily of Jack Pine (*Pinus banksiana* Lambert) and Trembling Aspen (*Populus tremuloides* Michaux) within an area burned in 2014, resulting in a mix of low to high tree mortality. Recording sites were at least 300 m from a nearby highway; one recording location was adjacent to an abandoned gravel pit.

The discovery of more than one male exhibiting territorial behaviour during the breeding season between Behchok̄ and Fort Providence suggests that the true breeding range for this species within the Northwest Territories may not be well defined. Additionally, preliminary results from the 2016 field season suggest that at least one singing male returned to the same location as detected in 2015. These captured audio recordings are of interest, as they may be some of the most northeasterly evidence of breeding across the species known range.

Although survey data are lacking for the northern portion of the Townsend's Solitaire's range, a noticeable decline has been observed since the 1970s (Environment Canada 2014). With the advent of mobile acoustic recording devices, obtaining basic information on avian presence and abundance in these northern regions may now be possible (Acevedo and Villanueva-Rivera 2006; Celis-Murillo *et al.* 2009; Venier *et al.* 2012). Poleward range extensions of boreal birds is expected to occur with climate change, which will have a pronounced impact on these species (Auer and King 2014; Virkkala and Lehtikoinen 2014). Delineating species distributions and documenting northern limits and potential range expansions are vital in trying to understand how climate change may affect northern boreal and arctic ecosystems and the species that inhabit them (see Virkkala *et al.* 2008, 2010; Virkkala and Lehtikoinen 2014). The western Kitikmeot, particularly on the mainland, is

poorly known ornithologically, with most studies occurring in the Qikiqtaaluk and the Kivalliq regions (Hussell *et al.* 2012; Lecomte and Giroux 2015). A current gap in our understanding of many avian species at their northern extremities across Canada, particularly in Nunavut, exists. Efforts to encompass these northern and poorly surveyed areas in long-term monitoring projects are highly desirable from a conservation standpoint.

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