



Dene K'éh Kusān 2025 ARU Survey Results

Prepared by National Audubon Society - Canada Program
Data presented in this report were collected by the Dane Nan
Yé Dāh Land Guardians through ARU bird monitoring surveys



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Impressions of a Boreal Forest. Photo: Kerbla Edzerdla.

Background

In 2025, the Dane Nan Yē'Dāh Land Guardians program conducted Automated Recording Unit (ARU) bird surveys within Dene K'éh Kusān, a proposed Indigenous Protected and Conserved Area within the broader Kaska Dena Traditional Territory. Dene K'éh Kusān spans approximately 9.6 million acres (38,850 km²) and includes a diversity of interconnected habitats, including wetlands, lakes, rivers, forests, plateaus, and alpine environments. The purpose of this work was to document bird occurrence across the area and to generate data that support ongoing efforts to establish Dene K'éh Kusān as a protected landscape. These surveys provide information on species presence and seasonal use during breeding and migration periods.

Cover photo: Mountain Bluebird by Trevor Roche/APA.



Ring-necked Ducks. Photo: Kyle Smith / APA.

Autonomous Recording Units

Autonomous recording units (ARUs) allow for ongoing remote collection of audio data from the surrounding landscape, including bird songs and calls. ARUs record audio of the surrounding landscape at preprogrammed times and store the recordings until they can be retrieved at a later date. That data can then be analyzed to determine the presence of birds in the area and serve as an archive of the overall bioacoustics landscape.



Data Collection and Analysis

In spring 2025, Dane Nan Yē Dāh Land Guardians deployed 12 ARUs within Dene K'éh Kusān to record bird songs throughout the breeding and migration periods. Scoop Lake Outfitters assisted by deploying two of the ARUs at Scoop Lake. Birdsong recording data (stored on an SD card) was collected later that fall and sent to National Audubon Society staff for analysis.

BirdNET (Kahl et al. 2021) was used to analyze audio recordings collected during the 2025 breeding and migration season. BirdNET is an analysis software that uses machine learning to automatically detect and classify bird species based on their song and potential to be found in northern British Columbia (based on latitude, longitude, and time of year). BirdNET automatically generates



Northern Pygmy-Owl. Photo: Soo Goh-Baus/APA.

species detection events, each with a predictive score in the 0-1 range; the closer the score is to 1, the more likely the species classification is correct. BirdNET classifications for each audio file were saved in a TXT table and manually inspected using Raven Pro 1.6.36. Manual verifications were completed for each species with predictive scores ≥ 0.60 in the BirdNETdetection logs by an analyst (yes-no decision).



Western Tanager. Photo: Rhys Logan/APA.



Figure 1. Study area map of ARU bird surveys conducted in Dene K’éh Kusān during the breeding and migration season, 2025.

Study Area

Dene K’éh Kusān is a proposed Indigenous Protected and Conserved Area located within the Kaska Dena Traditional Territory in northern British Columbia, Canada. The study area spans approximately 40,000 km² within the Boreal Cordillera ecozone and encompasses a large, intact landscape characterized by a diversity of habitat types, including boreal forest, wetlands, lakes, rivers, plateaus, and alpine environments. The region spans multiple ecoregions and watersheds within the Mackenzie River Basin and is defined by strong elevational and environmental gradients. These features contribute to a heterogeneous landscape that supports a wide range of bird species across breeding and migration periods.

Figure 2. Zoomed in maps of 2025 ARU surveys sites: DNY5 at Wheeler Lake Outlet (top) and DNY 10 at Beaver Trail (bottom).

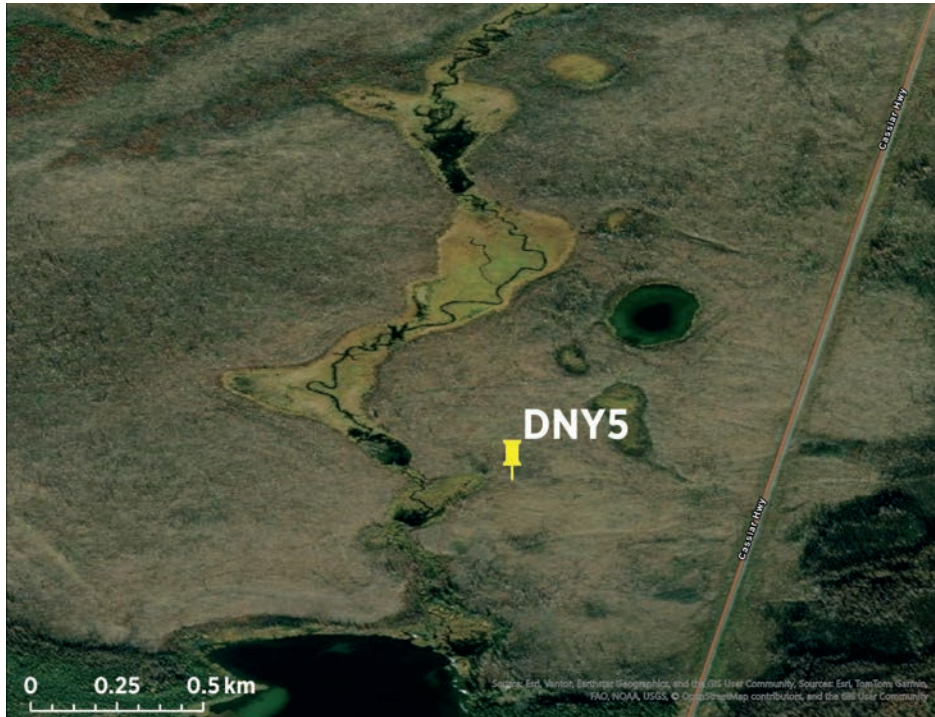


Figure 2. Zoomed in maps of 2025 ARU surveys sites: DNY11 at Barney Lake (top) and DNY 12 at McKenna Lake (bottom).



Figure 2. Zoomed in maps of 2025 ARU surveys sites: DNY14 at Sucker Lake (top) and DNY 15 at Crooked Lake (bottom).

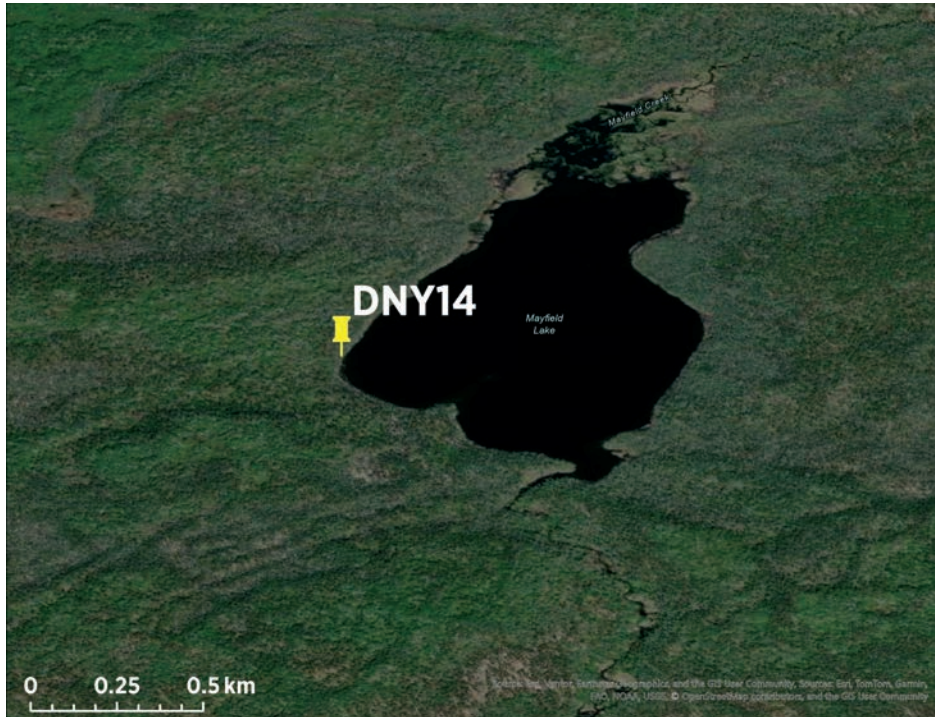


Figure 2. Zoomed in maps of 2025 ARU surveys sites: DNY16 at Dolly Lake (top) and DNY 17 at Fireside (bottom).



Figure 2. Zoomed in maps of 2025 ARU surveys sites: DNY22 at Ball Ridge Rd.



AVIAN DIVERSITY RESULTS

A total of 139 species, representing 35 taxonomic families, were detected in Dene K'éh Kusān by ARU surveys during the 2025 breeding and migration periods (Appendix 1). This included 100 landbird species, 18 waterfowl species, 11 waterbird species, and 10 shorebird species (Fig. 3). There was a total of 4,099 total hours of recording time between April and Oct, with peak recording time in July ($n = 1,107$ hrs). One unit (DNY4 - Wheeler Lake) malfunctioned and collected very limited data for a short period in late August; therefore, those data are not included in this report.

Nine species at risk were detected during the 2025 surveys (Table 1). Several species, including Bank Swallow, Common Nighthawk, and Lesser Yellowlegs, were detected at more than half the sites surveyed. An additional 10 species that are priority species for assessment for listing were also detected, including three species that are ranked high priority for assessment, including American Tree Swallow, Greater Yellowlegs, and Solitary Sandpiper (Table 2). All three high priority species were detected at more than half of the survey sites.

Figure 3. Total number of species detected by bird group.



Figure 4. Total recording hours by survey month in, 2025.

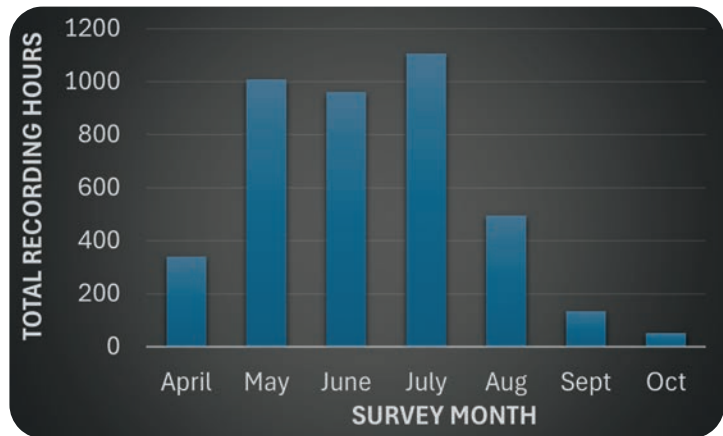


Table 1. Most commonly detected bird species in ARU surveys conducted in Dene K'éh Kusān during the 2025 breeding and migration period. The table includes species detected at 90% of the sites surveyed.

Alder Flycatcher	American Robin	Belted Kingfisher	Bohemian Waxwing
Canada Goose	Common Loon	Common Nighthawk	Common Raven
Common Redpoll	Green-winged Teal	Hermit Thrush	Lesser Yellowlegs
Lincoln's Sparrow	Mallard	Northern Flicker	Red-breasted Nuthatch
Solitary Sandpiper	Swainson's Thrush	Trumpeter Swan	White-winged Crossbill
Wilson's Snipe	Yellow-rumped Warbler	-	-



Barn Swallows. Photo: Christopher Paulin / APA.

Table 2. Birds detected that are currently on the official federal list of species at risk (SARA) or have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and have been recommended for federal listing.

Species	SARA	COSEWIC	Number of sites detected
Bank Swallow	Threatened	Threatened	7
Barn Swallow	Threatened	Special Concern	5
Barrow’s Goldeneye	Special Concern	Special Concern	2
Common Nighthawk	Special Concern	Special Concern	10
Horned Grebe	Special Concern	Special Concern	3
Lesser Yellowlegs	—	Threatened	10
Olive-sided Flycatcher	Special Concern	Special Concern	5
Rusty Blackbird	Special Concern	Special Concern	6
Short-eared Owl	Special Concern	Threatened	1

Bird Species at Risk



Upland Sandpiper. Photo: Sean Evans /APA.

Table 3. Birds detected that are on the COSEWIC candidate list. Candidate lists include species requiring assessment for their risk of extinction or extirpation nationally. Species are ranked into three priority groups reflecting the urgency for assessment, with group 1 including species of the highest priority.

Species	Priority Group	Number of sites detected
American Tree Sparrow	1	7
Greater Yellowlegs	1	9
Solitary Sandpiper	1	10
Mountain Bluebird	2	2
Blackpoll Warbler	3	7
Cedar Waxwing	3	3
Pacific Wren	3	2
Short-billed Gull	3	3
Upland Sandpiper	3	3
White-crowned Sparrow	3	7

Waterfowl

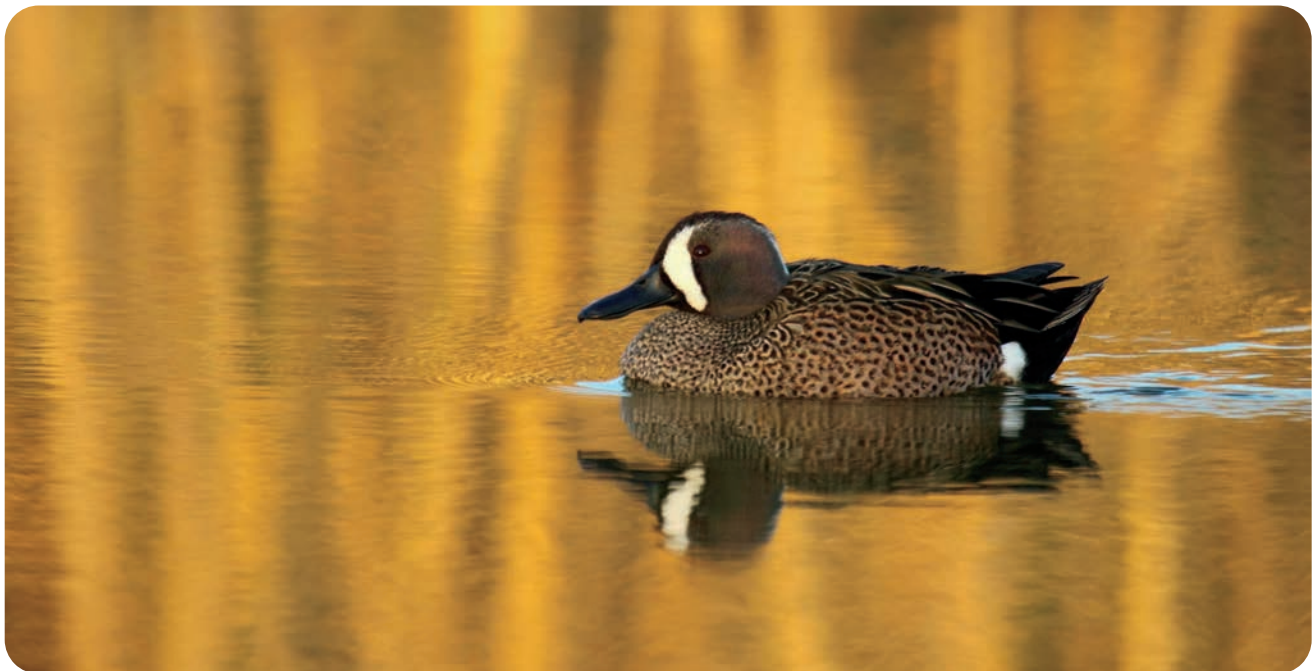
Eighteen waterfowl species were detected with ARUs across the 11 survey sites (Table 4). The most commonly detected waterfowl species included American Wigeon, Canada Goose, Green-winged Teal, Mallard, and Trumpeter Swan. Survey sites 17 (Fireside) and 15 (Crooked Lake) had the greatest waterfowl species diversity, with 14 and 13 species detected respectively.

*Table 4. Waterfowl species detected with ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species does not breed in the area and was detected during the migration period. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.*

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
American Wigeon	1	1	1	0	1	0	1	1	1	1	1	9
Barrow's Goldeneye	0	0	1	0	0	0	0	0	0	0	1	2
Blue-winged Teal	0	0	0	0	0	0	0	0	0	1	0	1
Cackling Goose*	1	0	0	0	1	0	1	0	0	0	0	3
Canada Goose	1	1	1	0	1	1	1	1	1	1	1	10
Common Goldeneye	1	1	1	0	1	1	1	1	0	1	1	9
Common Merganser	0	0	1	0	0	0	0	1	0	0	0	2
Greater White-fronted Goose*	1	0	1	0	0	1	1	0	0	1	0	5
Green-winged Teal	1	1	1	1	1	1	1	1	1	1	1	11
Long-tailed Duck*	1	0	0	0	0	0	0	1	0	0	1	3
Mallard	1	1	1	1	1	1	1	1	1	1	1	11
Northern Pintail	0	0	0	0	0	0	0	1	0	1	1	3

Table 4. Waterfowl species detected with ARU surveys during the summer and fall of 2025. A "1" indicates the species was detected at the site and "0" indicated it was not detected. *Asterisks indicate the species does not breed in the area and was detected during the migration period. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Northern Shoveler**	1	0	0	0	1	0	0	1	0	1	0	4
Red-breasted Merganser**	0	0	0	0	0	0	0	0	0	1	0	1
Ring-necked Duck	0	1	1	0	0	0	0	1	1	1	1	6
Snow Goose*	0	0	0	0	0	0	1	1	0	1	0	3
Trumpeter Swan	1	1	0	1	1	1	1	1	1	1	1	10
Tundra Swan*	0	1	0	0	1	0	1	1	1	1	0	6
Total Waterfowl Species Detected	10	8	9	3	9	6	10	13	7	14	10	



Blue-winged Teal. Photo by Marcin Kojtka/APA

Waterbirds

Eleven waterbird species were detected across the 11 survey sites during the 2025 season (Table 5). Common Loon (11 sites) and Sandhill Crane (7 sites) were the most commonly detected species. Sites 12 (McKenna Lake), 14 (Sucker Lake), and 15 (Crooked Lake) had the greatest waterbird diversity, each with 7 species detections.



Arctic Tern. Photo by Walker Golder.

Table 5. Waterbird species detected with ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
American Coot*	0	0	0	0	0	0	0	1	0	0	0	1
Arctic Tern**	0	0	0	0	0	0	1	0	0	0	0	1
Common Loon	1	1	1	1	1	1	1	1	1	0	1	11
Herring Gull	0	0	1	1	1	0	0	0	0	0	0	3
Horned Grebe	0	0	0	0	1	0	0	1	0	0	1	3
Pacific Loon	0	0	0	0	1	0	0	1	0	0	0	2
Red-necked Grebe	0	0	0	1	1	0	1	1	0	1	0	5
Red-throated Loon*	1	0	0	0	1	0	1	1	0	0	0	4
Sandhill Crane*	1	1	0	0	1	1	1	0	1	0	1	7
Short-billed Gull	0	0	0	1	0	0	1	1	0	0	0	3
Sora	0	0	0	0	0	0	1	0	1	1	1	4
Total Species	3	2	2	4	7	2	7	7	3	2	4	-

Landbirds

One hundred landbird species representing 26 taxonomic families were detected during the 2025 ARU surveys (Table 6 and Appendix A). The most commonly detected species included: Alder Flycatcher, Bohemian Waxwing, Hermit Thrush, Redpoll, and White-winged Crossbill. Sites 12 (McKenna Lake) and 3 (Scoop Lake) had the greatest diversity of landbird detections, with 60 and 56 species, respectively.



American Redstart. Photo by Simon d'Entremont/APA

*Table 6. Landbird species detected with ARU surveys during the summer and fall of 2025. A "1" indicates the species was detected at the site and "0" indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.*

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Alder Flycatcher	1	1	1	1	1	1	1	1	1	1	1	11
American Crow	1	1	0	0	0	1	0	0	0	1	0	4
American Dipper	0	1	0	0	0	0	0	0	0	0	0	1
American Kestrel	1	1	1	1	1	0	0	0	1	0	1	7
American Northern Goshawk	1	1	0	0	0	0	0	0	1	0	0	3
American Pipit	1	1	0	0	1	0	1	0	1	1	1	7
American Redstart	1	0	0	0	0	0	0	1	0	0	0	2
American Robin	1	1	1	0	1	1	1	1	1	1	1	10
American Three-toed Woodpecker	0	1	0	0	0	0	1	0	0	0	0	2
American Tree Sparrow	1	1	1	0	1	0	1	1	1	0	0	7
Bald Eagle	1	1	0	1	1	1	1	1	0	0	1	8

Table 6. Landbird species detected with ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region..

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Bank Swallow	1	1	1	0	0	1	0	1	0	1	1	7
Barn Swallow	1	0	1	0	0	1	1	0	0	1	0	5
Barred Owl	1	0	1	0	0	0	0	0	0	0	0	2
Bay-breasted Warbler**	0	0	0	0	0	0	0	1	0	0	0	1
Belted Kingfisher	1	1	1	0	1	1	1	1	1	1	1	10
Black-and-white Warbler	1	0	0	0	0	0	0	0	0	0	0	1
Black-backed Woodpecker	0	1	1	0	0	1	1	0	1	1	1	7
Black-capped Chickadee	1	0	1	0	1	1	1	0	0	0	1	6
Blackpoll Warbler	0	1	1	0	1	0	0	1	1	1	1	7
Blue-headed Vireo**	0	0	0	0	0	0	0	1	0	0	0	1
Bohemian Waxwing	1	1	1	1	1	1	1	1	1	1	1	11
Boreal Chickadee	0	1	1	0	1	1	1	1	0	1	1	8
Boreal Owl	0	0	0	0	1	0	1	0	0	1	0	3
Canada Jay	1	0	0	1	1	0	1	0	0	1	1	6
Cedar Waxwing	1	0	0	0	1	0	0	0	0	1	0	3
Chipping Sparrow	1	1	0	0	1	0	1	1	1	1	1	8
Clay-colored Sparrow**	0	0	0	0	0	0	0	0	1	0	0	1
Cliff Swallow	1	0	0	0	0	1	0	0	0	0	0	2
Common Grackle	1	0	0	0	0	0	1	0	0	0	0	2
Common Nighthawk	1	0	1	1	1	1	1	1	1	1	1	10

Table 6. Landbird species detected with ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Common Raven	1	1	1	0	1	1	1	1	1	1	1	10
Common Redpoll	1	1	1	1	1	1	1	1	1	1	1	11
Common Yellowthroat	1	0	0	1	0	1	0	0	0	1	0	4
Dark-eyed Junco	0	1	1	1	1	0	1	1	1	1	1	9
Fox Sparrow	0	0	1	0	1	0	1	0	1	0	0	4
Golden-crowned Kinglet	1	0	1	1	1	0	1	0	1	1	1	8
Golden-crowned Sparrow	0	1	0	0	0	0	0	0	0	0	0	1
Gray-cheeked Thrush	0	0	0	0	1	0	1	0	0	0	0	2
Great Horned Owl	1	1	1	0	1	1	1	0	0	1	0	7
Hairy Woodpecker	1	1	1	0	1	0	1	0	0	1	0	6
Hammond's Flycatcher	0	1	1	1	1	1	0	0	0	0	1	6
Hermit Thrush	1	1	1	1	1	1	1	1	1	1	1	11
Lapland Longspur*	0	1	0	0	1	0	1	0	1	1	0	5
Least Flycatcher	1	0	1	1	1	0	0	1	0	0	0	5
Lincoln's Sparrow	1	1	1	1	1	0	1	1	1	1	1	10
MacGillivray's Warbler	0	0	0	0	0	0	0	0	0	0	1	1
Magnolia Warbler**	1	0	1	0	0	0	0	1	0	1	1	5
Merlin	1	1	1	0	1	1	0	1	1	0	0	7
Mountain Bluebird	1	0	0	0	0	0	0	0	1	0	0	2
Mountain Chickadee	1	0	0	1	1	1	1	0	1	1	0	7

Table 6. Landbird species detected with ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Northern Flicker	1	1	1	0	1	1	1	1	1	1	1	10
Northern Harrier	0	1	0	0	0	0	0	0	0	1	0	2
Northern Hawk Owl	0	1	0	0	0	0	0	1	1	0	0	3
Northern Pygmy-Owl	0	0	0	0	0	1	1	0	0	0	0	2
Northern Saw-whet Owl	0	0	0	0	0	0	0	1	0	0	0	1
Northern Waterthrush	1	1	1	1	1	1	0	1	0	1	1	9
Olive-sided Flycatcher	0	1	1	0	1	0	1	0	1	0	0	5
Orange-crowned Warbler	0	0	0	0	1	0	0	0	0	0	0	1
Osprey	0	1	0	1	1	0	1	1	0	0	0	5
Ovenbird	1	0	0	0	0	0	1	0	0	0	0	2
Pacific Wren	0	0	0	0	1	0	1	0	0	0	0	2
Pileated Woodpecker	0	0	1	0	1	0	1	0	1	1	0	5
Pine Grosbeak	0	0	0	0	1	0	1	0	0	1	1	4
Pine Siskin	0	0	1	0	1	1	1	1	1	0	1	7
Purple Finch	1	0	1	0	1	0	1	1	0	0	0	5
Red-breasted Nuthatch	1	0	1	1	1	1	1	1	1	1	1	10
Red-tailed Hawk	0	0	0	0	0	0	0	0	0	1	0	1
Red-winged Blackbird	0	0	0	0	0	0	0	0	0	1	0	1
Ruby-crowned Kinglet	0	1	1	0	1	1	1	1	1	1	1	9

Table 6. Landbird species detected with ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Rusty Blackbird	0	1	1	0	0	0	0	1	1	1	1	6
Savannah Sparrow	0	1	0	1	1	0	0	0	1	0	0	4
Say's Phoebe	1	0	0	0	0	0	0	0	0	0	0	1
Sharp-shinned Hawk	1	0	0	0	0	0	1	0	0	0	0	2
Short-eared Owl	0	1	0	0	0	0	0	0	0	0	0	1
Smith's Longspur*	1	0	0	0	0	0	0	0	0	0	0	1
Snow Bunting*	0	1	0	0	1	0	0	0	0	1	0	3
Song Sparrow	0	0	0	0	1	0	0	0	0	0	0	1
Spruce Grouse	0	0	0	0	1	0	1	0	0	0	0	2
Swainson's Thrush	1	0	1	1	1	1	1	1	1	1	1	10
Swamp Sparrow	0	0	1	1	1	1	1	0	0	1	1	7
Tennessee Warbler	1	0	1	0	1	0	0	1	0	1	1	6
Townsend's Solitaire	0	0	0	0	1	0	1	0	0	0	0	2
Townsend's Warbler	0	0	0	0	0	0	0	1	0	0	0	1
Tree Swallow	1	1	0	0	0	1	0	1	1	1	0	6
Varied Thrush	0	1	1	0	1	1	1	1	1	1	1	9
Vesper Sparrow**	1	0	0	0	0	0	0	0	0	0	0	1
Violet-green Swallow	1	0	0	0	0	1	0	0	0	1	0	3
Warbling Vireo	1	0	1	0	0	0	0	1	1	1	1	6
Western Flycatcher	0	0	0	1	0	0	0	1	0	0	0	2

Table 6. Landbird species detected with ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region..

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Western Tanager	1	0	1	0	1	1	1	0	1	0	1	7
Western Wood-Pewee	0	0	0	1	1	1	0	1	0	1	0	5
White-crowned Sparrow	1	1	1	0	1	0	1	0	1	0	1	7
White-throated Sparrow	0	0	1	1	1	1	1	0	1	0	0	6
White-winged Crossbill	1	1	1	1	1	1	1	1	1	1	1	11
Wilson's Warbler	1	1	1	0	0	0	0	1	0	1	0	5
Winter Wren	0	0	1	0	0	0	0	0	0	0	0	1
Yellow-bellied Flycatcher	1	0	1	1	1	1	1	1	1	0	1	9
Yellow-bellied Sapsucker	1	0	1	0	1	0	1	0	0	0	1	5
Yellow-rumped Warbler	1	1	1	1	1	1	1	1	0	1	1	10
Total Species	56	45	50	27	60	38	54	44	42	50	42	-



Greater Yellowlegs. Photo by David Wornham/ APA

Shorebirds

Ten shorebird species were detected across the 11 survey sites in 2025 (Table 7). The most commonly detected species included Lesser Yellowlegs, Solitary Sandpiper, and Wilson’s Snipe (each detected at 10 sites), as well as Greater Yellowlegs (detected at 9 sites). Lesser Yellowlegs populations are considered threatened in Canada and Solitary Sandpiper and Greater Yellowlegs are high priority species for assessment.

*Table 7. Shorebird species detected ARU surveys during the summer and fall of 2025. A “1” indicates the species was detected at the site and “0” indicated it was not detected. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.*

Common Name	ARU Survey Site											Total Sites
	3	5	10	11	12	13	14	15	16	17	22	
Greater Yellowlegs	1	1	1	1	0	1	1	1	0	1	1	9
Killdeer	1	0	0	0	0	1	0	0	0	0	0	2
Least Sandpiper*	0	0	0	0	0	0	0	0	0	1	0	1
Lesser Yellowlegs	1	1	1	1	1	1	0	1	1	1	1	10
Long-billed Dowitcher*	0	0	0	1	0	0	0	0	0	0	0	1
Semipalmated Plover**	0	0	0	1	0	0	0	1	0	0	0	2
Solitary Sandpiper	1	1	1	0	1	1	1	1	1	1	1	10
Spotted Sandpiper	1	0	1	0	1	1	1	1	0	0	0	6
Upland Sandpiper**	0	0	0	0	1	0	1	0	1	0	0	3
Wilson's Snipe	1	1	1	1	1	0	1	1	1	1	1	10
Total Species	6	4	5	5	5	5	5	6	4	5	4	-



Trumpeter and Tundra Swans. Photo: David Rein /APA.

Conclusions

Acoustic monitoring surveys for birds in Dene K'éh Kusān during the 2025 season resulted in the detection of 139 species representing 34 taxonomic families. In total, 100 landbird species, 18 waterfowl species, 11 waterbird species, and 10 shorebird species were detected. A total of nine federally listed species were detected, with several occurring at more than half of survey sites, indicating broad distribution across the study area. Detection of landbirds spanned 26 taxonomic families, underscoring the high diversity of the assemblage; highlights included 14 warbler species, 13 sparrow species, 7 owl species, 7 thrush species, and 6 woodpecker species. A total of 18 waterfowl species were detected, capturing nearly half of all waterfowl species known to breed in Canada, and underscoring the importance of the area for waterfowl diversity.

Over three years (2023 - 2025) of monitoring, 158 species were detected, representing nearly 60% of all bird species known to regularly breed in Canada, highlighting the area's importance for both breeding birds and migratory use. Continued monitoring of this area will provide a greater understanding of the diversity of birds using the area. Furthermore, annual monitoring of birdsongs can be compared over time to help understand changes taking place within the region.

Appendix A. Complete species list of birds detected with ARU surveys in Dene K'eh Kusān during the breeding and migration periods of 2025. *Asterisks indicate the species is likely a migrant and is not known to breed in the region. **Double asterisks indicate the species is a potential breeder with limited breeding records in the region.

Common Name	Scientific Name	Taxonomic Family	Family Description
Alder Flycatcher	<i>Empidonax alnorum</i>	Tyrannidae	Flycatchers
American Coot*	<i>Fulica americana</i>	Rallidae	Rails
American Crow	<i>Corvus brachyrhynchos</i>	Corvidae	Crows, ravens and jays
American Dipper	<i>Cinclus mexicanus</i>	Cinclidae	Dippers
American Herring Gull	<i>Larus argentatus</i>	Laridae	Gulls and terns
American Kestrel	<i>Falco sparverius</i>	Falconidae	Falcons and caracaras
American Pipit	<i>Anthus rubescens</i>	Motacillidae	Pipits and wagtails
American Redstart	<i>Setophaga ruticilla</i>	Parulidae	Warblers
American Robin	<i>Turdus migratorius</i>	Turdidae	Thrushes
American Three-toed Woodpecker	<i>Picoides dorsalis</i>	Picidae	Woodpeckers
American Tree Sparrow	<i>Spizella arborea</i>	Passerellidae	Sparrows
Arctic Tern**	<i>Sterna paradisaea</i>	Laridae	Gulls and terns
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Accipitridae	Hawks and eagles
Bank Swallow	<i>Riparia riparia</i>	Hirundinidae	Swallows and martins
Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae	Swallows and martins
Barred Owl	<i>Strix varia</i>	Strigidae	Owls
Barrow's Goldeneye	<i>Bucephala islandica</i>	Anatidae	Ducks, geese, and swans
Bay-breasted Warbler	<i>Setophaga castanea</i>	Parulidae	Warblers
Belted Kingfisher	<i>Megaceryle alcyon</i>	Alcedinidae	Kingfishers
Black-and-white Warbler	<i>Mniotilta varia</i>	Parulidae	Warblers

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Common Name	Scientific Name	Taxonomic Family	Family Description
Black-backed Woodpecker	<i>Picoides arcticus</i>	Picidae	Woodpeckers
Black-capped Chickadee	<i>Poecile atricapillus</i>	Paridae	Chickadees and titmice
Blackpoll Warbler	<i>Setophaga striata</i>	Parulidae	Warblers
Blue-headed Vireo	<i>Vireo solitarius</i>	Vireonidae	Vireos
Blue-winged Teal	<i>Anas discors</i>	Anatidae	Ducks, geese, and swans
Bohemian Waxwing	<i>Bombycilla garrulus</i>	Bombycillidae	Waxwings
Boreal Chickadee	<i>Poecile hudsonicus</i>	Paridae	Chickadees and titmice
Boreal Owl	<i>Aegolius funereus</i>	Strigidae	Owls
Cackling Goose*	<i>Branta hutchinsii</i>	Anatidae	Ducks, geese, and swans
Canada Goose	<i>Branta canadensis</i>	Anatidae	Ducks, geese, and swans
Canada Jay	<i>Perisoreus canadensis</i>	Corvidae	Crows, ravens and jays
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Bombycillidae	Waxwings
Chipping Sparrow	<i>Spizella passerina</i>	Passerellidae	Sparrows
Clay-colored Sparrow**	<i>Spizella pallida</i>	Passerellidae	Sparrows
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Hirundinidae	Swallows and martins
Common Goldeneye	<i>Bucephala clangula</i>	Anatidae	Ducks, geese, and swans
Common Grackle	<i>Quiscalus quiscula</i>	Icteridae	Blackbirds
Common Loon	<i>Gavia immer</i>	Gaviidae	Loons
Common Merganser	<i>Mergus merganser</i>	Anatidae	Ducks, geese, and swans

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Common Name	Scientific Name	Taxonomic Family	Family Description
Common Nighthawk	<i>Chordeiles minor</i>	Caprimulgidae	Nightjars and allies
Common Raven	<i>Corvus corax</i>	Corvidae	Crows, ravens and jays
Common Yellowthroat	<i>Geothlypis trichas</i>	Parulidae	Warblers
Dark-eyed Junco	<i>Junco hyemalis</i>	Passerellidae	Sparrows
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Regulidae	Kinglets
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	Passerellidae	Sparrows
Gray-cheeked Thrush	<i>Catharus minimus</i>	Turdidae	Thrushes
Great Horned Owl	<i>Bubo virginianus</i>	Strigidae	Owls
Greater White-fronted Goose*	<i>Anser albifrons</i>	Anatidae	Ducks, geese, and swans
Greater Yellowlegs	<i>Tringa melanoleuca</i>	Scolopacidae	Sandpipers
Green-winged Teal	<i>Anas crecca</i>	Anatidae	Ducks, geese, and swans
Hairy Woodpecker	<i>Picoides villosus</i>	Picidae	Woodpeckers
Hammond's Flycatcher	<i>Empidonax hammondii</i>	Tyrannidae	Flycatchers
Hermit Thrush	<i>Catharus guttatus</i>	Turdidae	Thrushes
Horned Grebe	<i>Podiceps auritus</i>	Podicipedidae	Grebes
Killdeer	<i>Charadrius vociferus</i>	Scolopacidae	Sandpipers
Lapland Longspur*	<i>Calcarius lapponicus</i>	Calcariidae	Longspurs & snow buntings
Least Flycatcher	<i>Empidonax minimus</i>	Tyrannidae	Flycatchers
Least Sandpiper*	<i>Calidris minutilla</i>	Scolopacidae	Sandpipers
Lesser Yellowlegs	<i>Tringa flavipes</i>	Scolopacidae	Sandpipers

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Common Name	Scientific Name	Taxonomic Family	Family Description
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	Passerellidae	Sparrows
Long-billed Dowitcher*	<i>Limnodromus scolopaceus</i>	Scolopacidae	Sandpipers
Long-eared Owl	<i>Asio otus</i>	Strigidae	Owls
Long-tailed Duck*	<i>Clangula hyemalis</i>	Anatidae	Ducks, geese, and swans
MacGillivray's Warbler	<i>Geothlypis tolmiei</i>	Parulidae	Warblers
Magnolia Warbler**	<i>Setophaga magnolia</i>	Parulidae	Warblers
Mallard	<i>Anas platyrhynchos</i>	Anatidae	Ducks, geese, and swans
Merlin	<i>Falco columbarius</i>	Falconidae	Falcons and caracaras
Mountain Bluebird	<i>Sialia currucoides</i>	Turdidae	Thrushes
Mountain Chickadee	<i>Poecile gambeli</i>	Paridae	Chickadees and titmice
Northern Flicker	<i>Colaptes auratus</i>	Picidae	Woodpeckers
Northern Goshawk	<i>Accipiter gentilis</i>	Accipitridae	Hawks and eagles
Northern Harrier	<i>Circus cyaneus</i>	Accipitridae	Hawks and eagles
Northern Hawk Owl	<i>Surnia ulula</i>	Strigidae	Owls
Northern Pintail	<i>Anas acuta</i>	Anatidae	Ducks, geese, and swans
Northern Pygmy-Owl	<i>Glaucidium gnoma</i>	Strigidae	Owls
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	Strigidae	Owls
Northern Shoveler	<i>Anas clypeata</i>	Anatidae	Ducks, geese, and swans
Northern Waterthrush	<i>Parkesia noveboracensis</i>	Parulidae	Warblers
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Tyrannidae	Flycatchers

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Common Name	Scientific Name	Taxonomic Family	Family Description
Orange-crowned Warbler	<i>Oreothlypis celata</i>	Parulidae	Warblers
Osprey	<i>Pandion haliaetus</i>	Pandionidae	Osprey
Ovenbird	<i>Seiurus aurocapilla</i>	Parulidae	Warblers
Pacific Loon	<i>Gavia pacifica</i>	Gaviidae	Loons
Pacific Wren	<i>Troglodytes pacificus</i>	Troglodytidae	Wrens
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Picidae	Woodpeckers
Pine Grosbeak	<i>Pinicola enucleator</i>	Fringillidae	Finches
Pine Siskin	<i>Spinus pinus</i>	Fringillidae	Finches
Purple Finch	<i>Haemorhous purpureus</i>	Fringillidae	Finches
Red-breasted Merganser	<i>Mergus serrator</i>	Anatidae	Ducks, geese, and swans
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Sittidae	Nuthatches
Red-necked Grebe	<i>Podiceps grisegena</i>	Podicipidae	Grebes
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Accipitridae	Hawks & eagles
Red-throated Loon*	<i>Gavia stellata</i>	Gaviidae	Loons
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Icteridae	Blackbirds
Ring-necked Duck	<i>Aythya collaris</i>	Anatidae	Ducks, geese, and swans
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Regulidae	Kinglets
Rusty Blackbird	<i>Euphagus carolinus</i>	Icteridae	Blackbirds
Sandhill Crane*	<i>Grus canadensis</i>	Gruidae	Cranes
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Passerellidae	Sparrows

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Common Name	Scientific Name	Taxonomic Family	Family Description
Say's Phoebe	<i>Sayornis saya</i>	Tyrannidae	Flycatchers
Semipalmated Plover**	<i>Charadrius semipalmatus</i>	Charadriidae	Plovers
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Accipitridae	Hawks & eagles
Short-billed Gull	<i>Larus brachyrhynchus</i>	Laridae	Gulls & terns
Short-eared Owl	<i>Asio flammeus</i>	Strigidae	Owls
Smith's Longspur	<i>Calcarius pictus</i>	Calcariidae	Longspurs & snow Buntings
Snow Bunting*	<i>Plectrophenax nivalis</i>	Calcariidae	Longspurs & snow Buntings
Snow Goose*	<i>Chen caerulescens</i>	Anatidae	Ducks, geese, and swans
Solitary Sandpiper	<i>Tringa solitaria</i>	Scolopacidae	Sandpipers
Song Sparrow	<i>Melospiza melodia</i>	Passerellidae	Sparrows
Sora	<i>Porzana carolina</i>	Rallidae	Rails
Spotted Sandpiper	<i>Actitis macularius</i>	Scolopacidae	Sandpipers
Spruce Grouse	<i>Falciennis canadensis</i>	Phasianidae	Pheasants & grouse
Swainson's Thrush	<i>Catharus ustulatus</i>	Turdidae	Thrushes
Swamp Sparrow	<i>Melospiza georgiana</i>	Passerellidae	Sparrows
Tennessee Warbler	<i>Oreothlypis peregrina</i>	Parulidae	Warblers
Townsend's Solitaire	<i>Myadestes townsendi</i>	Turdidae	Thrushes
Townsend's Warbler	<i>Setophaga townsendi</i>	Parulidae	Warblers
Tree Swallow	<i>Tachycineta bicolor</i>	Hirundinidae	Swallows and martins
Trumpeter Swan	<i>Cygnus buccinator</i>	Anatidae	Ducks, geese, and swans

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Common Name	Scientific Name	Taxonomic Family	Family Description
Tundra Swan*	<i>Cygnus columbianus</i>	Anatidae	Ducks, geese, and swans
Upland Sandpiper**	<i>Bartramia longicauda</i>	Scolopacidae	Sandpipers
Varied Thrush	<i>Ixoreus naevius</i>	Turdidae	Thrushes
Vesper Sparrow**	<i>Poocetes gramineus</i>	Passerellidae	Sparrows
Violet-green Swallow	<i>Tachycineta thalassina</i>	Hirundinidae	Swallows and martins
Warbling Vireo	<i>Vireo gilvus</i>	Vireonidae	Vireos
Western Flycatcher	<i>Empidonax difficilis</i>	Tyrannidae	Flycatchers
Western Tanager	<i>Piranga ludoviciana</i>	Cardinalidae	Cardinals, grosbeaks & buntings
Western Wood-Pewee	<i>Contopus sordidulus</i>	Tyrannidae	Flycatchers
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	Passerellidae	Sparrows
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Passerellidae	Sparrows
White-winged Crossbill	<i>Loxia leucoptera</i>	Fringillidae	Finches
Wilson's Snipe	<i>Gallinago delicata</i>	Scolopacidae	Sandpipers
Wilson's Warbler	<i>Cardellina pusilla</i>	Parulidae	Warblers
Winter Wren	<i>Troglodytes hiemalis</i>	Troglodytidae	Wrens
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	Tyrannidae	Flycatchers
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Picidae	Woodpeckers
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Parulidae	Warblers