

Appendix J – Birds

Table 1. Bird species that are known or expected to occur in the project area and are included on the U.S. Fish and Wildlife Service Birds of Conservation Concern, Bureau of Land Management Special Status Species, or Alaska Department of Fish and Game Species of Greatest Conservation Need lists.

Common Name	Latin Name	Agency List ¹	Notes
<i>Waterbirds</i>			
Emperor Goose	<i>Chen canagica</i>	SGCN	Outside range but seen in area
Greater White-fronted Goose	<i>Anser albifrons frontalis</i>	SGCN	
Brant ²	<i>Branta bernicla nigricans</i>	SGCN	
Trumpeter Swan	<i>Cygnus buccinator</i>	BCC, SGCN	Outside range but seen in area
Northern Pintail	<i>Anas acuta</i>	SGCN	
Canvasback	<i>Aythya valisineria</i>	SGCN	
Steller's Eider ²	<i>Polysticta stelleri</i>	BCC, SSS, SGCN	
Spectacled Eider ²	<i>Somateria fischeri</i>	BCC, SSS, SGCN	
King Eider ²	<i>Somateria spectabilis</i>	SGCN	
Common Eider	<i>Somateria mollissima v-nigrum</i>	SGCN	
Harlequin Duck	<i>Histrionicus histrionicus</i>	SGCN	
Surf Scoter	<i>Melanitta perspicillata</i>	SGCN	
White-winged Scoter ²	<i>Melanitta fusca</i>	SGCN	
Black Scoter	<i>Melanitta americana</i>	SGCN	
Long-tailed Duck	<i>Clangula hyemalis</i>	SGCN	
Horned Grebe	<i>Podiceps auritus</i>	SGCN	
Red-necked Grebe	<i>Podiceps grisegena</i>	SGCN	
Red-throated Loon	<i>Gavia stellata</i>	SSS, SGCN	
Arctic Loon	<i>Gavia arctica</i>	SGCN	
Yellow-billed Loon	<i>Gavia adamsii</i>	BCC, SSS, SGCN	
Sandhill Crane ²	<i>Antigone canadensis</i>	SGCN	
<i>Shorebirds</i>			
Black-bellied Plover ²	<i>Pluvialis squatarola</i>	SGCN	
American Golden-Plover	<i>Pluvialis dominica</i>	BCC, SGCN	
Upland Sandpiper	<i>Bartramia longicauda</i>	SGCN	Outside range but seen in area
Bristle-thighed Curlew	<i>Numenius tahitiensis</i>	BCC, SSS, SGCN	
Whimbrel	<i>Numenius phaeopus rufiventris</i>	BCC, SSS, SGCN	
Bar-tailed Godwit	<i>Limosa lapponica</i>	BCC, SSS, SGCN	

Common Name	Latin Name	Agency List ¹	Notes
Hudsonian Godwit	<i>Limosa haemastica</i>	BCC, SSS, SGCN	
Ruddy Turnstone	<i>Arenaria interpres</i>	SGCN	
Black Turnstone	<i>Arenaria melanocephala</i>	BCC SGCN	
Red Knot	<i>Calidris canutus roselaari</i>	BCC, SSS, SGCN	
Surfbird	<i>Calidris virgata</i>	SGCN	
Sharp-tailed Sandpiper ²	<i>Calidris acuminata</i>	SGCN	
Stilt Sandpiper ²	<i>Calidris himantopus</i>	SGCN	Outside range but seen in area
Sanderling ²	<i>Calidris alba</i>	SGCN	Outside range but seen in area
Dunlin	<i>Calidris alpina arctica</i>	BCC, SSS, SGCN	
Least Sandpiper	<i>Calidris minutilla</i>	SGCN	
Buff-breasted Sandpiper ²	<i>Calidris subruficollis</i>	BCC, SSS, SGCN	Outside range but seen in area
Pectoral Sandpiper	<i>Calidris melanotos</i>	BCC SGCN	
Semipalmated Sandpiper	<i>Calidris pusilla</i>	SGCN	
Western Sandpiper	<i>Calidris mauri</i>	BCC, SGCN	
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	SGCN	
Spotted Sandpiper	<i>Actitis macularia</i>	SGCN	
Wandering Tattler	<i>Tringa incana</i>	BCC, SGCN	
Lesser Yellowlegs	<i>Tringa flavipes</i>	BCC, SGCN	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	SGCN	Outside range but seen in area
Red-necked Phalarope	<i>Phalaropus lobatus</i>	SGCN	
Red Phalarope	<i>Phalaropus fulicarius</i>	SGCN	
Seabirds			
Common Murre	<i>Uria aalge</i>	SGCN	
Thick-billed Murre	<i>Uria lomvia</i>	BCC, SGCN	
Black Guillemot ³	<i>Cepphus grylle</i>	SGCN	
Kittlitz's Murrelet	<i>Brachyramphus brevirostris</i>	BCC, SSS, SGCN	
Horned Puffin	<i>Fratercula corniculata</i>	SGCN	
Tufted Puffin	<i>Fratercula cirrhata</i>	BCC, SGCN	
Northern Fulmar	<i>Fulmarus glacialis</i>	SGCN	
Short-tailed Shearwater ²	<i>Puffinus tenuirostris</i>	SGCN	
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	SGCN	
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	SGCN	
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	SGCN	
Black-legged Kittiwake	<i>Rissa tridactyla</i>	SGCN	
Ivory Gull ^{2,3}	<i>Pagophila eburnea</i>	BCC SGCN	Outside range but seen in area

Common Name	Latin Name	Agency List ¹	Notes
Sabine's Gull	<i>Xema sabini</i>	SGCN	
Ross's Gull ^{2,3}	<i>Rhodostethia rosea</i>	BCC, SGCN	
Herring Gull	<i>Larus argentatus</i>	SGCN	Project area at northern edge of range
Glaucous-winged Gull	<i>Larus glaucescens</i>	SGCN	Project area at northern edge of range
Glaucous Gull	<i>Larus hyperboreus</i>	SGCN	
Aleutian Tern	<i>Onychoprion aleuticus</i>	BCC, SSS, SGCN	
Pelagic Cormorant	<i>Urile pelagicus</i>	SGCN	Outside range but seen in area
<i>Raptors</i>			
Golden Eagle	<i>Aquila chrysaetos</i>	SGCN	
Northern Harrier	<i>Circus hudsonius</i>	BCC	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	SGCN	
Rough-legged Hawk	<i>Buteo lagopus</i>	SGCN	
American Kestrel	<i>Falco sparverius</i>	SGCN	Outside range but seen in area
Gyr Falcon ³	<i>Falco rusticolus</i>	SGCN	
Snowy Owl ³	<i>Bubo scandiacus</i>	BCC, SGCN	
Great Gray Owl ³	<i>Strix nebulosa</i>	SGCN	
Short-eared Owl	<i>Asio flammeus</i>	BCC, SGCN	
Boreal Owl ³	<i>Aegolius funereus</i>	SGCN	Outside range but seen in area
<i>Landbirds</i>			
Spruce Grouse ³	<i>Canachites canadensis</i>	SGCN	
Willow Ptarmigan ³	<i>Lagopus lagopus</i>	SGCN	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	BCC, SSS, SGCN	Outside range but seen in area
Alder Flycatcher	<i>Empidonax alnorum</i>	SGCN	
Northern Shrike	<i>Lanius borealis</i>	SGCN	
Common Raven ³	<i>Corvus corax</i>	SGCN	
Boreal Chickadee ³	<i>Poecile hudsonicus</i>	SGCN	
Gray-headed Chickadee ³	<i>Poecile cinctus lathamii</i>	BCC, SSS, SGCN	
Horned Lark	<i>Eremophila alpestris</i>	SGCN	
Bank Swallow	<i>Riparia riparia</i>	SGCN	
Tree Swallow	<i>Tachycineta bicolor</i>	SGCN	
Arctic Warbler	<i>Phylloscopus borealis</i>	SGCN	
Ruby-crowned Kinglet	<i>Corthylio calendula</i>	SGCN	
Bohemian Waxwing	<i>Bombycilla garrulus</i>	SGCN	
Gray-cheeked Thrush	<i>Catharus minimus</i>	SGCN	
Hermit Thrush	<i>Catharus guttatus</i>	SGCN	Outside range but seen in area
Varied Thrush	<i>Ixoreus naevius</i>	SGCN	

Common Name	Latin Name	Agency List ¹	Notes
Bluethroat	<i>Luscinia svecica</i>	SGCN	
Northern Wheatear	<i>Oenanthe oenanthe</i>	SGCN	
American Pipit	<i>Anthus rubescens</i>	SGCN	
Pine Grosbeak ³	<i>Pinicola enucleator</i>	SGCN	
Lapland Longspur	<i>Calcarius lapponicus</i>	SGCN	
Snow Bunting ³	<i>Plectrophenax nivalis</i>	SGCN	
McKay's Bunting ³	<i>Plectrophenax hyperboreus</i>	BCC, SSS, SGCN	
Fox Sparrow	<i>Passerella iliaca</i>	SGCN	
American Tree Sparrow	<i>Spizelloides arborea</i>	SGCN	
Dark-eyed Junco	<i>Junco hyemalis</i>	SGCN	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	SGCN	
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	SGCN	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	SGCN	
Rusty Blackbird	<i>Euphagus carolinus</i>	BCC, SSS, SGCN	
Orange-crowned Warbler	<i>Leiothlypis celata</i>	SGCN	
Blackpoll Warbler	<i>Setophaga striata</i>	SGCN	
Yellow-rumped Warbler	<i>Setophaga coronata</i>	SGCN	
Wilson's Warbler	<i>Cardellina pusilla</i>	SGCN	

¹ BCC = United States Fish and Wildlife Service Birds of Conservation Concern (USFWS 2021); SSS = Bureau of Land Management Special Status Species (BLM 2019); SGCN = Alaska Department of Fish and Game Species of Greatest Conservation Need (ADFG 2025).

² Primarily expected to be present in the project area only during spring or fall migration.

³ Present during winter.

Table 2. Acres and percentage of landcover classes classified as high or moderate value in the draft State Wildlife Action Plan (ADF&G 2025) for selected bird species within 1 km of the fiber optic cable routes for Alternatives 1 and 2.

Common Name	Alternative 1		Alternative 2	
	Acres	%	Acres	%
<i>Waterbirds</i>				
Emperor Goose	81,945	18	79,900	19
Greater White-fronted Goose	225,771	50	221,416	52
Northern Pintail	72,593	16	70,513	17
Spectacled Eider	53,189	12	51,147	12
King Eider	202,179	45	197,827	47
Surf Scoter	41,617	9	38,861	9
White-winged Scoter	38,587	9	36,206	9
Black Scoter	89,135	20	86,375	20
Long-tailed Duck	236,515	53	232,125	55
Red-necked Grebe	111,657	25	102,378	24
Red-throated Loon	68,308	15	66,256	16
Yellow-billed Loon	34,432	8	32,384	8
Sandhill Crane	290,359	65	277,619	66

Common Name	Alternative 1		Alternative 2	
Shorebirds				
Black-bellied Plover	47,974	11	47,961	11
American Golden-Plover	183,424	41	181,048	43
Bristle-thighed Curlew	187,077	42	184,717	44
Whimbrel	241,162	54	231,144	55
Bar-tailed Godwit	256,725	57	247,503	59
Hudsonian Godwit	47,248	11	40,122	10
Ruddy Turnstone	172,313	38	169,986	40
Black Turnstone	47,944	11	47,931	11
Red Knot	5,241	1	5,214	1
Surfbird	10,097	2	10,040	2
Sharp-tailed Sandpiper	47,213	11	47,209	11
Sanderling	23	0	23	0
Dunlin	47,974	11	47,961	11
Least Sandpiper	91,498	20	83,160	20
Pectoral Sandpiper	247,372	55	238,196	56
Semipalmated Sandpiper	207,931	46	205,574	49
Western Sandpiper	202,310	45	199,994	47
Long-billed Dowitcher	208,067	46	198,911	47
Wandering Tattler	49,056	11	46,803	11
Lesser Yellowlegs	50,224	11	42,724	10
Greater Yellowlegs	50,277	11	42,776	10
Red-necked Phalarope	130,442	29	121,162	29
Red Phalarope	81,951	18	79,899	19
Seabirds				
Common Murre	34,641	8	32,603	8
Thick-billed Murre	34,641	8	32,603	8
Kittlitz's Murrelet	38,367	9	36,311	9
Horned Puffin	34,641	8	32,603	8
Tufted Puffin	34,641	8	32,603	8
Pomarine Jaeger	39,191	9	37,159	9
Parasitic Jaeger	241,136	54	236,732	56
Long-tailed Jaeger	287,045	64	275,782	65
Black-legged Kittiwake	34,641	8	32,603	8
Sabine's Gull	81,923	18	79,878	19
Glaucous-winged Gull	40,804	9	38,753	9
Glaucous Gull	134,834	30	125,102	30
Aleutian Tern	134,050	30	124,321	29
Pelagic Cormorant	34,641	8	32,603	8
Raptors				
Golden Eagle	363	<1	330	<1
Northern Harrier	92,777	21	81,964	19
Bald Eagle	41,242	9	38,994	9
Rough-legged Hawk	9,316	2	9,230	2
Gyrfalcon	363	<1	330	<1
Snowy Owl	17,388	4	17,363	4
Short-eared Owl	168,003	37	164,520	39
Landbirds				
Willow Ptarmigan	321,278	72	309,361	73

Common Name	Alternative 1		Alternative 2	
Alder Flycatcher	133,218	30	121,790	29
Northern Shrike	111,850	25	99,265	23
Boreal Chickadee	25,376	6	21,845	5
Gray-Headed Chickadee	22,859	5	19,604	5
Horned Lark	5,408	1	5,347	1
Bank Swallow	40,653	9	37,797	9
Tree Swallow	9,311	2	8,165	2
Arctic Warbler	107,822	24	95,708	23
Gray-cheeked Thrush	142,681	32	129,790	31
Varied Thrush	31,137	7	26,879	6
Bluethroat	116,256	26	107,056	25
Northern Wheatear	4,484	1	4,427	1
American Pipit	5,210	1	5,150	1
Pine Grosbeak	22,632	5	19,422	5
Lapland Longspur	173,259	39	170,920	40
Snow Bunting	6,242	1	6,171	2
McKay's Bunting	188,918	42	186,588	44
Fox Sparrow	189,310	42	169,363	40
American Tree Sparrow	272,923	61	257,717	61
White-crowned Sparrow	190,366	42	170,601	40
Golden-crowned Sparrow	139,045	31	126,730	30
Savannah Sparrow	254,578	57	241,569	57
Rusty Blackbird	132,199	29	113,404	27
Blackpoll Warbler	143,849	32	130,754	31
Yellow-rumped Warbler	33,068	7	28,500	7
Wilson's Warbler	183,888	41	164,661	39

Table 3. Acres of landcover classes classified as high or moderate value in the draft State Wildlife Action Plan (ADF&G 2025) for selected bird and mammal species within 60 feet (9 meters), 3,280 feet (1 kilometer), and 13,123 feet (4 kilometers) of the fiber optic cable routes for Alternatives 1 and 2.

Landcover Class ¹	60-foot Buffer		3,280-foot Buffer		13,123-foot Buffer		Species Count	
	Alternative		Alternative		Alternative		Alternative	
	1	2	1	2	1	2	1	2
Alaska Arctic Coastal Sedge-Dwarf-Shrubland	4	4	376	376	901	901	26	5
Alaska Arctic Mesic Alder Shrubland	48	48	5,978	5,973	18,533	18,494	13	9
Alaska Arctic Permafrost Plateau Dwarf-Shrub Lichen Tundra	0	0	53	53	248	248	17	3
Alaska Arctic Tidal Flat	0	0	48	48	230	230	16	0
Developed-Low Intensity	9	9	677	666	890	890	7	2
Developed-Medium Intensity	<1	<1	135	135	153	153	7	1
Developed-Roads	49	46	992	983	1,471	1,471	0	1
N.A. Arctic Bedrock and Talus	0.8	0.8	197	197	884	883	17	5
N.A. Arctic Dryas Tundra	32	31	3,726	3,708	16,068	16,031	17	6
N.A. Arctic Dwarf-Shrub Lichen Tundra	60	59	5,227	5,191	17,031	16,933	13	7
N.A. Arctic Dwarf-shrub-Wet Sedge-Sphagnum Peatland	319	319	28,734	28,731	86,702	86,687	25	4
N.A. Arctic Freshwater Marsh	1	1	355	346	1,672	1,647	30	4
N.A. Arctic Lichen Tundra	10	9	923	920	3,123	3,104	9	2
N.A. Arctic Mesic Herbaceous Meadow	33	33	4,999	4,999	16,628	16,628	12	12
N.A. Arctic Mesic-Wet Low Willow Shrubland	124	123	14,250	14,066	52,110	51,541	14	11
N.A. Arctic Scrub Birch-Ericaceous Shrubland	291	290	28,900	28,904	97,646	97,642	12	12
N.A. Arctic Sparse Tundra	1	1	394	389	1,820	1,792	18	3
N.A. Arctic Wet Sedge Tundra and Polygonal Ground	136	136	13,267	13,266	43,534	43,528	31	5
N.A. Arctic-Subarctic Coastal Dune and Beach	0	0	23	23	202	202	13	2
N.A. Arctic-Subarctic Shrub-Tussock Tundra	1,330	1,302	129,634	127,362	444,330	434,638	21	12
N.A. Arctic-Subarctic Tidal Salt and Brackish Marsh	15	15	5,142	5,142	18,108	18,108	31	3
N.A. Arctic-Subarctic Tussock Tundra	224	222	19,704	19,673	55,874	55,815	19	9
Open Water	47	44	34,049	32,017	148,918	142,088	32	2
Quarries-Strip Mines-Gravel Pits-Well and Wind Pads	<1	<1	37	37	73	73	1	0
Recently Burned-Herb and Grass Cover	0	0	21	21	2,141	2,141	0	6
Recently Logged-Herb and Grass Cover	0	0	3	3	26	26	0	5
Recently Logged-Shrub Cover	0	0	0	0	3	3	3	8
W.N.A. Boreal Alpine Mesic Herbaceous Meadow	0	0	<1	<1	4	4	5	5

Landcover Class ¹	60-foot Buffer		3,280-foot Buffer		13,123-foot Buffer		Species Count	
	Alternative		Alternative		Alternative		Alternative	
	1	2	1	2	1	2	1	2
W.N.A. Boreal Black Spruce Bog and Dwarf-Tree Peatland	15	12	1,705	1,439	6,460	5,762	17	6
W.N.A. Boreal Cliff, Scree, and Rock	0	0	166	133	2,180	2,135	8	2
W.N.A. Boreal Freshwater Emergent Marsh	<1	<1	28	21	101	73	20	4
W.N.A. Boreal Mesic Alder Shrubland	56	47	5,475	4,802	24,933	22,642	17	10
W.N.A. Boreal Mesic Birch-Aspen Forest	10	8	1,932	1,621	9,271	8,155	8	5
W.N.A. Boreal Mesic Bluejoint-Forb Meadow	19	17	4,155	3,822	14,904	13,725	8	4
W.N.A. Boreal Mesic Scrub Birch-Willow Shrubland	645	561	61,653	53,310	235,810	204,608	15	11
W.N.A. Boreal Mesic White Spruce-Hardwood Forest	14	12	3,539	3,019	28,125	26,717	15	9
W.N.A. Boreal Mesic-Wet Black Spruce Forest and Woodland	9	7	1,162	959	5,621	5,374	9	8
W.N.A. Boreal Mixed Spruce-Hardwood Forest & Woodland	8	6	1,669	1,243	9,886	9,020	15	9
W.N.A. Boreal Shrub Swamp	18	16	3,029	2,654	10,042	8,940	24	8
W.N.A. Boreal Shrub-Sedge Bog and Acidic Fen	513	433	45,462	38,609	145,264	122,875	18	9
W.N.A. Boreal Spruce-Lichen Woodland	11	10	2,323	2,117	10,964	10,720	11	7
W.N.A. Boreal Treeline White Spruce-Hardwood Woodland	90	80	12,228	10,641	61,657	55,823	15	7
W.N.A. Boreal Wet Black Spruce-Tussock Woodland	0	0	6	4	69	66	9	7
W.N.A. Boreal Wet Meadow	54	45	6,567	5,743	22,949	20,694	12	7
Unclassified (marine waters)	82	82	-	-	-	-	-	-
TOTAL	4,277	4,032	448,942	423,367	1,617,561	1,529,231		

¹ N.A. (North American); W.N.A. (Western North American)

² Number of species that this landcover class is moderate or high value habitat for (maximum of 84 bird species and 18 mammal species with habitat rankings; ADF&G 2025).

Bird Guilds

Descriptions and habitat associations of waterbird, seabird, raptor, landbird, and shorebird guilds that likely occur in the project area. Species include those listed as a U.S. Fish and Wildlife Service Bird of Conservation Concern, Bureau of Land Management Special Status Species, or an Alaska Department of Fish and Game Species of Greatest Conservation Need.

Waterbirds

A total of 21 waterbird species, including ducks, loons, grebes, and cranes, occur in the project area. Waterbirds occur primarily in aquatic and wetland associated habitats, with the highest species diversity occurring in freshwater marshes and open water. During the breeding season, most waterbirds utilize freshwater habitats including marshes, wet sedge tundra, and peatlands that provide nesting sites and brood-rearing areas with diverse microhabitats and abundant invertebrate prey. Marine environments are used during migration, by nonbreeding individuals, and for foraging by some species such as loons, long-tailed duck, scoters and eiders (Kessel 1989; Morgan et al. 2016; Rizzolo et al. 2020; Uher-Koch et al. 2020). Nearshore waters at the mouths of rivers are especially important during spring to migrant waterfowl when most other habitats are covered by ice or snow (Kessel 1989). Four species (Steller's, spectacled, and king eiders, and white-winged scoter) are primarily migrants or rare summer visitors near the project area, and none of the waterbird species remain in the area during winter.

Seabirds

A total of 20 seabird species, including alcids, gulls, jaegers, and terns, occur in the project area. While seabirds are primarily associated with marine environments, they also utilize terrestrial areas for nesting, staging, and breeding. The highest terrestrial habitat use occurs in tundra ecosystems, particularly shrub-tussock tundra and dwarf-shrub lichen tundra, which are primarily used by long-tailed and parasitic jaegers for breeding (Kessel 1989). Wetland complexes, including peatlands, boreal bogs, and acidic fen systems, support multiple species including Aleutian tern and glaucous gull (North 2020). Coastal terrestrial habitats such as sedge-dwarf shrublands, dunes, and beaches provide nesting sites for some gull species but represent a small portion of the landscape. The nearest seabird colonies are located outside the project area. Historically, up to 180 Aleutian terns have nested on Qikiqtaichaik Island on the Noatak Delta (Drew et al. 2005). Additionally, Puffin and Chamisso islands in Kotzebue Sound, and Sullivan Bluffs near Deering (Kessel 1990; Drew et al. 2005; Morgan et al. 2016), support cliff-nesting species such as murres, puffins, glaucous gulls, kittiwakes, and cormorants. While terrestrial habitats serve as breeding and staging areas, marine waters provide primary foraging opportunities year-round, with species such as pelagic cormorants, black-legged kittiwakes, common murres, and horned puffins feeding on fish and benthic invertebrates in nearshore environments during summer, and glaucous and Ross' gulls and black guillemots utilizing the sea ice edge during migration and winter months (Kessel 1989; Divoky 1988; Morgan et al. 2016). One species, short-tailed shearwater, does not breed in the area and is expected to be present primarily during migration (Kessel 1989; Carboneras et al. 2020). Three seabird species (black guillemot, ivory gull, and Ross' Gull) may be present near the sea ice edge during winter.

Raptors

A total of 10 raptor species, including hawks, eagles, and owls, use the Project area. Most species are uncommon to rare, which likely reflects habitat limitations in the project area and naturally low densities of raptors across landscapes. Species diversity is highest in rocky terrain types (bedrock and talus, cliff and scree, and tundra on well-drained slopes), which comprise less than 1 percent of the Project area, and are used by breeding golden eagle, rough-legged hawk, and gyrfalcon (Bente 2011; Herzog 2019; Bechard et al. 2020). Bald eagles occur uncommonly or as summer visitants and are primarily associated with major rivers that provide both fish resources and potential nesting trees (Kessel 1989). Raptors also utilize tundra and meadow habitats for foraging, including wet sedge tundra, herbaceous meadows, and tidal marshes that provide abundant prey resources. Four species (snowy owl, great gray owl, boreal owl, and gyrfalcon) may be present during winter.

Landbirds

A total of 35 landbird species, including grouse and passerines, inhabit the project area. The highest landbird diversity occurs in forested and tall shrubland habitats, including boreal forests, riparian woody shrublands and shrub swamps, and Arctic shrublands (birch-ericaceous and willow). Shrub thickets (1.2 to 2.4 meters tall) are some of the most productive habitats for passerines on the Seward Peninsula, supporting species such as willow ptarmigan, gray-cheeked thrush, Fox Sparrow, and warbler species (Kessel 1989). Taller shrub thickets (up to 4.9 meters tall) can be found in protected valleys and are frequented by blackpoll warbler. These habitats comprise nearly a third of the project area and reflect landbirds' need for vertical structure and woody vegetation that provides essential perching sites, nesting habitat, and insect diversity (Spindler and Kessel 1980; Boelman et al. 2015). Seven species (spruce grouse, willow ptarmigan, common raven, boreal chickadee, gray-headed chickadee, pine grosbeak, and snow bunting) are considered year-round residents whereas one species (McKay's bunting) winters in the area.

Shorebirds

A total of 27 species of shorebirds occur in the Project area. Shorebird species concentrate in wetland and coastal habitats, with the highest species diversity occurring in tidal salt and brackish marshes and wet sedge tundra. Tidal salt, brackish marshes, and coastal wetlands provide rich invertebrate feeding areas, especially during spring and fall migration, for shorebirds such as Dunlin and sandpiper and phalarope species (Kessel 1989). During the breeding season, most shorebirds use wetlands (wet sedge tundra, freshwater marshes, and peatlands) with diverse microhabitats that provide both dry areas for nesting and littoral areas for feeding (Kessel 1989). All shorebird species are migrants, and four species (sharp-tailed sandpiper, stilt sandpiper, sanderling, and buff-breasted sandpiper) are only expected in the project area during migration.

Literature Cited

- Alaska Department of Fish and Game (ADF&G). 2025. Alaska's wildlife action plan, draft for public and agency review, May 2025. Division of Wildlife Conservation, Juneau. Accessed July 14, 2025 at https://www.adfg.alaska.gov/static/species/wildlife_action_plan/draft_2025_alaska_wildlife_action_plan.pdf.
- Bechard, M. J., T. R. Swem, J. Orta, P. F. D. Boesman, E. Garcia, and J. S. Marks. 2020. Rough-legged Hawk (*Buteo lagopus*), version 1.0. In Birds of the World (S. M. Billerman, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. Accessed August 6, 2025 at <https://doi.org/10.2173/bow.rolhaw.01>.
- Bente, P. J. 2011. Abundance and multi-year occupancy of Gyrfalcons *Falco rusticolus* on the Seward Peninsula, Alaska. Pages 295–306 In Gyrfalcons and Ptarmigan in a Changing World (RT Watson, TJ Cade, M. Fuller, G. Hunt, and E. Potapov, Editors). The Peregrine Fund, Boise, ID, USA.
- Boelman, N. T., L. Gough, J. Wingfield, S. Goetz, A. Asmus, H. E. Chmura, J. S Krause, J. H. Perez, S. K. Sweet, and K. C. Guay. 2015. Greater shrub dominance alters breeding habitat and food resources for migratory songbirds in Alaskan arctic tundra. *Global Change Biology* 21: 1508–1520.
- Bureau of Land Management (BLM). 2019. BLM Alaska special status species list. Version 8-2-19. Accessed July 7, 2025 at https://www.blm.gov/sites/blm.gov/files/uploads/Alaska_Special-Status-Species-List_2019.pdf.
- Carboneras, C., F. Jutglar, and G. M. Kirwan. 2020. Short-tailed Shearwater (*Ardenna tenuirostris*), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. Accessed July 28, 2025 at <https://doi.org/10.2173/bow.shtshe.01>.
- Divoky, G. J., G. A. Sanger, S. A. Hatch, and J. C. Haney. 1988. Fall migration of Ross' Gull (*Rhodostethia rosea*) in Alaskan Chukchi and Beaufort Seas. USGS Report 108.
- Drew, G. S., Schoen, S. K., Hood, M. D., Arimitsu, M. L., Piatt, J.F. 2005. North Pacific Pelagic Seabird Database (NPPSD) (ver. 4.1, May 2023): U.S. Geological Survey data release. Accessed August 6, 2025 <https://doi.org/10.5066/F7WQ01T3>.
- Herzog, J. L., J. M. Eisaguirre, B. D. Linkhart, and T. L. Booms. 2019. Golden Eagle diet in western Alaska. *Journal of Raptor Research* 53: 393–401.
- Kessel, B. 1989. Birds of the Seward Peninsula, Alaska: their biogeography, seasonality, and natural history. University of Alaska Press.
- Morgan, T. C., A. E. Gall, A. T. Hovis, R. Schaeffer, J. P. Parrett. 2016. Distribution and abundance of marine birds and mammals in Kotzebue Sound, 2016. Final Report. Prepared for Northwest Arctic Borough, Kotzebue, AK by ABR, Inc—Environmental Research & Services, Fairbanks, AK. 37 pp.

- North, M. R. 2020. Aleutian Tern (*Onychoprion aleuticus*), version 1.0. In Birds of the World (S. M. Billerman, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. Accessed August 6, 2025 at <https://doi.org/10.2173/bow.aleter1.01>.
- Rizzolo, D. J., C. E. Gray, J. A. Schmutz, J. F. Barr, C. Eberl, and J. W. McIntyre. 2020. Red-throated Loon (*Gavia stellata*), version 2.0. In Birds of the World (P. G. Rodewald and B. K. Keeney, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. Accessed July 28, 2025 at <https://doi.org/10.2173/bow.retloo.02>.
- Spindler, M. A., & Kessel, B. 1980. Avian populations and habitat use in interior Alaska taiga. *Syesis* 13: 61–104.
- Uher-Koch, B. D., M. R. North, and J. A. Schmutz. 2020. Yellow-billed Loon (*Gavia adamsii*), version 1.0. In Birds of the World (S. M. Billerman, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. Accessed July 28, 2025 at <https://doi.org/10.2173/bow.yebloo.01>.
- U.S. Fish and Wildlife Service. 2021. Birds of Conservation Concern 2021. United States Department of the Interior, U.S. Fish and Wildlife Service, Migratory Birds, Falls Church, Virginia. Accessed July 7, 2025 at <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>.