

## The Alaska National Wildlife Refuges Checklist Program

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1998

### INTRODUCTION

The Alaska National Wildlife Refuge Checklist Project was initiated in 1992 in order to standardize bird monitoring methods and better understand the distribution of migratory birds on refuge lands in Alaska. Determining the abundance and distribution of birds on refuge lands was made a priority in the U.S. Fish & Wildlife Service's action plan for developing a nongame bird inventory and monitoring strategy for National Wildlife Refuge system lands (U.S. Fish & Wildlife Service 1993).

There are several widely used methods for distribution studies conducted over a broad scale. The simplest is a checklist in which presence or absence of a species is recorded. Breeding bird atlases are similar, but breeding status codes are also included. Since its initiation, the Refuge Checklist Project has evolved into an area search method which includes both of the above methods and measures abundance. The additional measurement of a categorical abundance, standardized by the amount of effort (person-hours) during a survey, will allow us to monitor population changes over time.

The area search method is useful for detecting the distribution, abundance, and breeding status of many different species over a wide variety of geographic areas. The simple methods easily allow data to be collected secondarily to another field project. They may also be used to help familiarize inexperienced observers with nongame species. In this report we present results of analysis of area search data from several refuges.

### METHODS

Refuge personnel submitted summarized area search data that was collected according to protocol developed by Nongame Migratory Bird Management (Andres 1992, 1995). In summary, data were collected on species breeding status, and categorical abundance throughout refuges using townships as the spatial unit (Table 1-2). Most collection was incidental to another field project (>90%).

Nine refuges have contributed to the database. In order to illustrate how this information may be used, we analyzed data from the summer season of 5 refuges. The relative abundance of species on each refuge was calculated from townships with >3 hours of effort. Using the categorical abundance recorded for each township and year, we calculated a mean abundance for every species observed on a refuge. We delineated categories for mean bird abundance (Table 3) so that the distribution of the mean abundance ranks generally follows a truncated lognormal distribution (Preston 1980). Because species might be found only in certain areas of a refuge, we calculated abundance ranks for species on townships where they occurred as well as on all refuge

townships surveyed. The highest breeding status for each species observed on any township was used to characterize its breeding status on the refuge. Species that were classified as confirmed during spring or fall surveys only were also included.

## RESULTS

Five refuges have contributed data from more than 1 year (Table 4). Species lists showing breeding status and mean abundance for these refuges are presented in Tables 5-11. The Alaska Maritime Refuge was analyzed according to the Aleutian Islands, Alaska Peninsula, and Cape Thompson units. Lists were also generated from river surveys at Togiak and Yukon Flats (Table 12-13). A compilation of checklist data (spanning several years up to 1997) from the Aleutian Islands unit was used to determine occurrence of species and breeding status on 75 islands (Table 14).

Comparing the area search method to the recently updated checklists from the Tetlin and Kodiak refuges suggests that it is an effective way of determining breeding status. Throughout the 17 townships surveyed on the Kodiak refuge, 90% of the confirmed breeders listed on the checklist were detected (n=84). This included two species, Whimbrel and Dunlin, that were classified as confirmed breeders by the area search method, but were not listed as breeders on the checklist. On the Tetlin refuge, which had greater coverage (88 townships), there were 27 more species classified as probable or confirmed using the area search method than were on the checklist.

Table 1. Descriptions and codes of breeding status of birds recorded on Alaska National Wildlife Refuges.

Status	Code	Description
<b>Observed</b>	<b>O</b>	Male or female observed, but did not show evidence of breeding, was not in suitable nesting habitat or was an obvious migrant.
	<b>P</b>	Species (male or female) heard or seen in suitable nesting habitat but no further evidence of breeding was noted; included soaring birds (raptors) over suitable habitat.
<b>Probable</b>	<b>L</b>	Any of the following behaviors:
	PO	Pair observation - Male and female simultaneously observed in suitable habitat.
	PT	Permanent territory - Permanent territory presumed by observation of multiple, well-spaced, singing males (indicated territory holders). Also, if chases of individuals of the same species were seen.
	PC	Courtship behavior - Male-female behavior observed that was indicative of breeding or observed copulation; included aerial displays of pipits, longspurs, and shorebirds.
	PA	Agitated behavior - Adults seen exhibiting anxiety behavior, including distress calls.
<b>Confirmed</b>	<b>C</b>	Any of the following behaviors:
	CN	Carrying nesting material - Adult observed transporting nest building items such as sticks.
	CB	Nest building - Adults seen constructing nest at singular nest site.
	CO	Occupied nest - Adults observed repeatedly entering or leaving a nest site with food items or long bouts of nest occupation (contents of treetop or cavity nests that could not be directly observed).
	CD	Distraction display - Adults observed feigning injury (used by ground-nesting species to deter predators from detecting nest or young).
	CE	Nest with eggs - Nest found that contained eggs.
	CY	Nest with young - Live young seen or heard; dead, identifiable hatchlings found in a nest.
	CG	Precocial young - Flightless young observed in the immediate nest area and were dependent on adults or had limited development.
	CF	Carrying food - Adults seen delivering food to young.
	CR	Recently fledged young - Young birds (either precocial or altricial) observed that were incapable of sustained flight and were restricted to the natal area by dependence on adults or by limited mobility.
CI	Feeding recently fledged young - Adult observed feeding recently fledged young (those incapable of sustained flight) away from nest site.	

Table 2. Abundance ranks and descriptions for breeding birds found on townships within Alaska National Wildlife Refuges.

Abundance rank	Description (per plot-day = 8 person-hours)
1	1 individual per day
2	2-4 individuals per day, <1 individual per hour
3	5-9 individuals per day, 1 individual per hour
4	10-49 individuals per day, 2-5 individuals per hour
5	≥50 individuals per day, ≥6 individuals per hour

Table 3. Range of abundance ranks averaged across townships within a Alaska National Wildlife Refuge and abundance categories used for summaries.

Abundance category	Range of averaged ranks
Rare (R)	0.00 - 0.50
Uncommon (U)	0.51 - 1.50
Fairly Common (F)	1.51 - 2.75
Common (C)	2.76 - 3.75
Abundant (A)	3.76 - 5.00

Table 4. Number of townships and years surveyed, total number of species, number of breeding species, % of breeding species on refuges using area search methods.

Refuge	Species			Years	Townships	
	Total	Breeding <sup>3</sup>	% Breeding		>3 hrs. effort	Total
Alaska Maritime					16	81
Aleutian Islands <sup>1</sup>	193	116	60	4	10	75 <sup>2</sup>
AK Peninsula	65	52	80	1	5	5
Cape Thompson	60	49	82	1	1	1
Kodiak	103	82	80	7	10	17
Tetlin	153	144	94	7	78	88
Togiak	150	129	86	6	24	29
Yukon Flats	111	103	93	5	14	14

<sup>1</sup> Islands used as spatial unit instead of townships

<sup>2</sup> Includes compilation of several years of data for 65 islands where no effort was recorded

<sup>3</sup> Breeding status of possible, probable, or confirmed

Table 5 Breeding status<sup>1</sup> and mean abundance<sup>2</sup> (Obs.= where observed, All = across all townships) at Kodiak NWR 1993-1998.

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Red-throated Loon	C	F	U	Lesser Yellowlegs	L	F	R
Common Loon	C	F	R	Wandering Tattler	L	R	R
Northern Fulmar	O			Spotted Sandpiper	P	F	R
Fork-tailed Storm-Petrel	O			Whimbrel	P	F	R
Pelagic Cormorant	C	F	R	Black Turnstone	O	F	R
Red-faced Cormorant	C			Surfbird	O		
Tundra Swan	C	U	F	Western Sandpiper	P	F	U
Trumpeter Swan	P	U	R	Least Sandpiper	C	F	F
Canada Goose	O	F	R	Rock Sandpiper	C	F	R
Green-winged Teal	C	C	F	Dunlin	C	U	R
Mallard	C	C	F	Short-billed Dowitcher	C	F	U
Northern Pintail	C	F	U	Common Snipe	C	F	F
Gadwall	C	F	U	Red-necked Phalarope	C	F	U
American Wigeon	C	F	U	Red Phalarope	P	R	R
Tufted Duck	P	R	R	Parasitic Jaeger	C	F	U
Greater Scaup	C	F	U	Long-tailed Jaeger	C	F	U
Common Eider	L			Bonaparte's Gull	O		
Harlequin Duck	L	U	R	Mew Gull	C	C	U
Oldsquaw	O			Glaucous-winged Gull	C	C	U
Black Scoter	L	F	R	Black-legged Kittiwake	C		
White-winged Scoter	O			Arctic Tern	C	C	U
Common Goldeneye	L			Aleutian Tern	C	C	U
Barrow's Goldeneye	L	F	U	Common Murre	O		
Bufflehead	O			Pigeon Guillemot	C	U	R
Common Merganser	C	F	U	Marbled Murrelet	C		
Red-breasted Merganser	C	C	F	Kittlitz's Murrelet	O		
Bald Eagle	C	C	F	Ancient Murrelet	O		
Northern Harrier	O	U	R	Parakeet Auklet	L		
Rough-legged Hawk	O	U	R	Tufted Puffin	C	A	R
Golden Eagle	P	U	R	Horned Puffin	C		
Merlin	O	F	R	Short-eared Owl	P	F	U
Peregrine Falcon	L			Belted Kingfisher	C	F	R
Gyrfalcon	O	U	R	Downy Woodpecker	P		
Willow Ptarmigan	C	C	F	Black-billed Magpie	L	C	F
Rock Ptarmigan	C	F	R	Northwestern Crow	P	F	U
Black-bellied Plover	P	F	R	Common Raven	C	F	U
Pacific Golden Plover		C	R	Tree Swallow	P	C	U
Lesser Golden Plover	O	U	R	Violet-green Swallow	O	C	U
Semipalmated Plover	C	U	U	Bank Swallow	C	C	F
Black Oystercatcher	C			Black-capped Chickadee	P	F	U
Greater Yellowlegs	L	F	U	Red-breasted Nuthatch	P		

<sup>1</sup>Status: C = confirmed, L = probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 5 (cont.).

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Brown Creeper	P			Wilson's Warbler	C	F	R
Winter Wren	C	F	U	Savannah Sparrow	C	C	F
American Dipper	O	U	R	Fox Sparrow	C	C	F
Gray-cheeked Thrush	P			Song Sparrow	P	F	U
Swainson's Thrush	C			Golden-crowned Sparrow	C	C	F
Hermit Thrush	C	C	F	White-crowned Sparrow	O	A	U
Varied Thrush	C	C	R	Lapland Longspur	C	C	U
American Pipit	C	C	R	Pine Grosbeak	P		
Northern Shrike	L	F	U	White-winged Crossbill	P		
Orange-crowned Warbler	C	F	R	Common Redpoll	L	F	R
Yellow Warbler	C	F	U				

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 6. Breeding status<sup>1</sup> and mean abundance<sup>2</sup> (Obs.= where observed, All = across all townships) at Tetlin NWR 1994-1998.

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Red-throated Loon	L	F	R	Peregrine Falcon	C	U	R
Pacific Loon	C	F	U	Gyr Falcon	P	U	R
Common Loon	C	U	R	Spruce Grouse	C	U	R
Horned Grebe	C	F	U	Willow Ptarmigan	L	U	R
Red-necked Grebe	C	F	U	Rock Ptarmigan	L	U	R
Double-crested Cormorant	O	U	R	Ruffed Grouse	C	U	R
Tundra Swan	L	U	R	Sharp-tailed Grouse	C	U	R
Trumpeter Swan	C	F	U	Sora	L	F	R
Greater White-fronted Goose	C	U	R	American Coot	C	F	R
Brant	O	U	R	Sandhill Crane	C	F	U
Canada Goose	C	F	U	American Golden-Plover	C	C	R
Green-winged Teal	C	F	U	Semipalmated Plover	C	U	R
Mallard	C	C	U	Greater Yellowlegs	P		
Northern Pintail	C	F	U	Lesser Yellowlegs	C	C	F
Blue-winged Teal	C	F	R	Killdeer	P		
Northern Shoveler	C	F	U	Solitary Sandpiper	C	F	U
Gadwall	C	U	R	Wandering Tattler	P	U	R
American Wigeon	C	C	U	Spotted Sandpiper	C	F	U
Canvasback	C	F	R	Upland Sandpiper	L	F	R
Redhead	L	U	R	Whimbrel	C	C	R
Ring-necked Duck	C	F	U	Ruddy Turnstone	O		
Greater Scaup	C			Semipalmated Sandpiper	P	F	R
Lesser Scaup	C	C	F	Western Sandpiper	P	U	R
Harlequin Duck	L			Least Sandpiper	L	U	R
Oldsquaw	L	U	R	Baird's Sandpiper	O		
Surf Scoter	C	C	R	Pectoral Sandpiper	P		
White-winged Scoter	C	F	U	Short-billed Dowitcher	P		
Common Goldeneye	C	F	R	Long-billed Dowitcher	P	F	R
Barrow's Goldeneye	C	F	R	Common Snipe	C	F	U
Bufflehead	C	F	U	Red-necked Phalarope	L	F	R
Common Merganser	L	U	R	Long-tailed Jaeger	C	U	R
Ruddy Duck	C	F	R	Bonaparte's Gull	C	F	U
Osprey	C	F	R	Mew Gull	C	F	U
Bald Eagle	C	F	U	Herring Gull	C	F	R
Northern Harrier	L	U	R	Arctic Tern	C	F	U
Sharp-shinned Hawk	C	U	R	Black Tern	L	U	R
Northern Goshawk	C	U	R	Great Horned Owl	C	U	R
Red-tailed Hawk	C	U	R	Northern Hawk Owl	C	U	R
Golden Eagle	C	U	R	Great Gray Owl	C	U	R
American Kestrel	C	U	R	Short-eared Owl	L	U	R
Merlin	C	F	R	Boreal Owl	P	U	R

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare



Table b (cont.).

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Common Nighthawk	L	F	R	Yellow Wagtail	P		
Belted Kingfisher	C	U	R	American Pipit	C	F	R
Yellow-bellied Sapsucker	C	F	R	Bohemian Waxwing	C	F	U
Downy Woodpecker	P	U	R	European Starling	L	F	R
Hairy Woodpecker	C	U	R	Tennessee Warbler	C	U	R
Three-toed Woodpecker	C	U	R	Orange-crowned Warbler	C	F	U
Black-backed Woodpecker	P			Yellow Warbler	L	F	U
Northern Flicker	C	F	U	Yellow-rumped Warbler	C	F	U
Olive-sided Flycatcher	L	F	R	Townsend's Warbler	P	U	R
Western Wood-Pewee	L	F	R	Blackpoll Warbler	P	U	R
Yellow-bellied Flycatcher	P	F	R	Northern Waterthrush	C	F	R
Alder Flycatcher	C	F	F	Common Yellowthroat	P	U	R
Least Flycatcher	P	U	R	Wilson's Warbler	C	F	R
Hammond's Flycatcher	C	U	R	American Tree Sparrow	C	F	U
Say's Phoebe	C	U	R	Chipping Sparrow	C	F	U
Gray Jay	C	C	F	Brewer's Sparrow	C	F	R
Black-billed Magpie	C	F	R	Savannah Sparrow	C	F	U
Common Raven	C	F	U	Fox Sparrow	C	F	U
Horned Lark	P	F	R	Song Sparrow	P	U	R
Tree Swallow	C	F	R	Lincoln's Sparrow	C	F	U
Violet-green Swallow	C	F	U	White-throated Sparrow	O		
Bank Swallow	C	F	U	Golden-crowned Sparrow	P	U	R
Cliff Swallow	C	C	U	White-crowned Sparrow	C	F	F
Barn Swallow	C	U	R	Dark-eyed Junco	C	C	F
Black-capped Chickadee	C	F	R	Lapland Longspur	O		
Boreal Chickadee	C	F	U	Smith's Longspur	L	C	R
Red-breasted Nuthatch	P	U	R	Snow Bunting	O		
Arctic Warbler	L	U	R	Red-winged Blackbird	C	F	U
Ruby-crowned Kinglet	C	F	U	Rusty Blackbird	C	F	U
Mountain Bluebird	L	U	R	Gray-crowned Rosy-Finch	P	U	R
Townsend's Solitaire	L	U	R	Pine Grosbeak	C	U	R
Gray-cheeked Thrush	C	U	R	White-winged Crossbill	C	F	U
Swainson's Thrush	C	C	F	Common Redpoll	C	F	U
Hermit Thrush	C	F	R	Hoary Redpoll	C	U	R
American Robin	C	F	F	Pine Siskin	P	F	R
Varied Thrush	C	U	R				

<sup>1</sup>Status: C = confirmed, L = probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 7. Breeding status<sup>1</sup> and mean abundance<sup>2</sup> (Obs.= where observed, All = across all townships) at Togiak NWR 1994-1998.

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Red-throated Loon	L	F	U	Peregrine Falcon	C	U	R
Pacific Loon	C	F	R	Gyr Falcon	C	R	R
Common Loon	C	U	R	Willow Ptarmigan	C	U	R
Horned Grebe	P	R	R	Rock Ptarmigan	C	U	R
Red-necked Grebe	O	R	R	Sandhill Crane	C	F	U
Short-tailed Shearwater	O	U	R	Black-bellied Plover	C	F	R
Double-crested Cormorant	C	C	U	American Golden-Plover	C	R	R
Pelagic Cormorant	C	A	U	Pacific Golden-Plover	C	A	R
Red-faced Cormorant	C	U	R	Semipalmated Plover	C	F	U
Tundra Swan	C	F	U	Greater Yellowlegs	C	F	F
Trumpeter Swan	C	F	R	Lesser Yellowlegs	C	F	U
Greater White-fronted Goose	P	C	R	Solitary Sandpiper	O		
Emperor Goose	O	F	R	Wandering Tattler	L	U	R
Brant	P	A	U	Gray-tailed Tattler	O		
Canada Goose	C			Spotted Sandpiper	C	F	U
Green-winged Teal	C	F	U	Whimbrel	L	F	R
Mallard	C	U	U	Bristle-thighed Curlew	O	R	R
Northern Pintail	C	C	U	Hudsonian Godwit	O	R	R
Northern Shoveler	P	F	R	Bar-tailed Godwit	O	U	R
American Wigeon	C	U	R	Ruddy Turnstone	P	U	R
Greater Scaup	C	C	U	Black Turnstone	P	F	R
Common Eider	C	C	U	Surfbird	P	U	R
King Eider	L	F	R	Red Knot	O	U	R
Steller's Eider	L	F	R	Semipalmated Sandpiper	C	F	R
Harlequin Duck	C	F	U	Western Sandpiper	C	C	U
Oldsquaw	C	U	R	Long-toed Stint	O	R	R
Black Scoter	C	A	U	Least Sandpiper	C	F	U
Surf Scoter	P	U	R	Baird's Sandpiper	O	R	R
White-winged Scoter	L	C	U	Rock Sandpiper	C	F	R
Common Goldeneye	C	U	R	Dunlin	C	U	R
Barrow's Goldeneye	C			Short-billed Dowitcher	C	R	R
Bufflehead	O	R	R	Long-billed Dowitcher	P	U	R
Common Merganser	C	C	U	Common Snipe	C	U	U
Red-breasted Merganser	C	C	F	Red-necked Phalarope	C	C	U
Osprey	P	U	R	Red Phalarope	O	U	R
Bald Eagle	C	U	U	Pomarine Jaeger	O	R	R
Northern Harrier	L	U	R	Parasitic Jaeger	C	F	R
Rough-legged Hawk	C	U	R	Long-tailed Jaeger	C	U	R
Golden Eagle	C	U	R	Bonaparte's Gull	L	F	R
Merlin	L	U	R	Mew Gull	C	F	U

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 7 (cont.).

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Herring Gull	P			Arctic Warbler	C	F	R
Slaty-backed Gull	O	R	R	Ruby-crowned Kinglet	P		
Glaucous-winged Gull	C	A	F	Gray-cheeked Thrush	C	U	R
Glaucous Gull	C	F	R	Swainson's Thrush	P	F	R
Black-legged Kittiwake	C	A	U	Hermit Thrush	C	U	R
Sabine's Gull	O	R	R	American Robin	C	U	R
Arctic Tern	C	C	C	Varied Thrush	L	R	R
Aleutian Tern	P	U	R	Yellow Wagtail	C	C	F
Common Murre	C	A	U	Gray Wagtail	P	U	R
Pigeon Guillemot	C	F	R	White Wagtail	C	U	R
Parakeet Auklet	C	F	U	Black-backed Wagtail	O	U	R
Tufted Puffin	C	C	U	American Pipit	C	F	R
Horned Puffin	C	A	U	Bohemian Waxwing	P		
Great Horned Owl	C			Northern Shrike	C	U	R
Snowy Owl	C			Orange-crowned Warbler	C	U	R
Great Gray Owl	O			Yellow Warbler	C	U	R
Short-eared Owl	L	U	R	Yellow-rumped Warbler	O		
Northern Saw-whet Owl	P			Blackpoll Warbler	C	C	R
Belted Kingfisher	L	U	R	Northern Waterthrush	C	U	R
Three-toed Woodpecker	O			Wilson's Warbler	C	F	U
Olive-sided Flycatcher	P			American Tree Sparrow	C	F	U
Alder Flycatcher	L	U	R	Savannah Sparrow	C	C	U
Gray Jay	L	U	R	Fox Sparrow	C	F	R
Black-billed Magpie	C	U	R	Song Sparrow	C	F	U
Common Raven	C	F	U	Swamp Sparrow	P	F	R
Horned Lark	L	U	R	Golden-crowned Sparrow	C	C	F
Tree Swallow	C	C	F	White-crowned Sparrow	L	U	R
Violet-green Swallow	O	U	R	Dark-eyed Junco	O		
Bank Swallow	C	C	U	Lapland Longspur	C	F	U
Cliff Swallow	C	U	R	Snow Bunting	C	C	U
Barn Swallow	C	U	R	Rusty Blackbird	C		
Black-capped Chickadee	C	U	R	Gray-crowned Rosy-Finch	C	F	R
Boreal Chickadee	P	U	R	Common Redpoll	C	C	F
Winter Wren	P	U	R	Hoary Redpoll	C	R	R
American Dipper	P	U	R				

<sup>1</sup>Status: C = confirmed, L = probable (likely), P = possible, O = observed<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 8. Breeding status<sup>1</sup> and mean abundance<sup>2</sup> (Obs.= where observed, All = across all townships) at Yukon Flats NWR 1994-1997.

Species	Status	Mean Abundance		Species	Status	Mean Abundance	
		Obs.	All			Obs.	All
Red-throated Loon	P	U	R	Sandhill Crane	L	F	F
Pacific Loon	C	F	F	Semipalmated Plover	L	F	U
Common Loon	L	U	U	Lesser Yellowlegs	C	C	F
Horned Grebe	C	F	U	Solitary Sandpiper	L	F	F
Red-necked Grebe	C	F	U	Spotted Sandpiper	C	F	U
Tundra Swan	L	F	R	Surfbird	P	U	R
Trumpeter Swan	L	U	R	Semipalmated Sandpiper	O	C	R
Greater White-fronted Goose	C	U	R	Least Sandpiper	O	U	R
Canada Goose	C	F	F	Baird's Sandpiper	P	U	R
Green-winged Teal	C	F	F	Pectoral Sandpiper	O	U	R
Mallard	C	F	F	Stilt Sandpiper	O	U	R
Northern Pintail	C	F	U	Long-billed Dowitcher	O	U	R
Northern Shoveler	C	F	U	Common Snipe	C	F	F
Gadwall	O	U	R	Red-necked Phalarope	L	F	U
American Wigeon	C	C	C	Long-tailed Jaeger	P	U	R
Canvasback	C	F	U	Bonaparte's Gull	C	F	U
Redhead	L	U	R	Mew Gull	L	C	F
Ring-necked Duck	L	U	R	Herring Gull	L	U	U
Greater Scaup	L	F	R	Arctic Tern	C	C	C
Lesser Scaup	C	C	F	Great Horned Owl	L	U	R
Oldsquaw	O	U	R	Northern Hawk Owl	C	U	R
Surf Scoter	C	F	R	Great Gray Owl	L	U	R
White-winged Scoter	C	C	F	Short-eared Owl	L	U	R
Common Goldeneye	C	F	R	Boreal Owl	C	U	R
Barrow's Goldeneye	C	U	R	Belted Kingfisher	C	U	U
Bufflehead	C	F	U	Downy Woodpecker	P	U	R
Common Merganser	P	U	R	Hairy Woodpecker	P	U	R
Red-breasted Merganser	L	F	R	Three-toed Woodpecker	C	U	U
Ruddy Duck	C	U	R	Black-backed Woodpecker	P	U	R
Osprey	P	U	R	Northern Flicker	C	U	U
Bald Eagle	C	U	U	Olive-sided Flycatcher	C	F	U
Northern Harrier	C	U	R	Western Wood-Pewee	C	F	R
Northern Goshawk	P	U	R	Alder Flycatcher	C	F	F
Sharp-shinned Hawk	P	U	R	Hammond's Flycatcher	P	U	R
Red-tailed Hawk	L	U	U	Say's Phoebe	P	U	R
Rough-legged Hawk	C	U	R	Eastern Kingbird	O	U	R
Golden Eagle	O	R	R	Common Raven	C	F	F
American Kestrel	C	U	R	Horned Lark	P	R	R
Peregrine Falcon	C	F	U	Tree Swallow	C	F	U
Spruce Grouse	C	U	R	Violet-green Swallow	P	F	R
Ruffed Grouse	C	U	R	Bank Swallow	P	C	F

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 8 (cont.).

Species	Status	Mean Abundance		Species	Status	Mean Abundance	
		Obs.	All			Obs.	All
Gray Jay	P	F	F	Northern Waterthrush	C	F	U
Cliff Swallow	P	A	R	Wilson's Warbler	P	U	R
Black-capped Chickadee	P	U	R	American Tree Sparrow	C	U	U
Boreal Chickadee	C	F	F	Chipping Sparrow	C	F	U
Ruby-crowned Kinglet	C	F	U	Savannah Sparrow	C	F	U
Gray-cheeked Thrush	C	U	R	Fox Sparrow	C	F	U
Swainson's Thrush	C	C	C	Lincoln's Sparrow	C	F	U
Hermit Thrush	P	F	R	White-crowned Sparrow	C	F	F
American Robin	C	C	C	Dark-eyed Junco	C	C	C
Varied Thrush	L	F	U	Red-winged Blackbird	C	F	U
Bohemian Waxwing	C	C	F	Rusty Blackbird	C	F	F
Orange-crowned Warbler	C	F	U	Pine Grosbeak	L	U	U
Yellow Warbler	C	C	F	White-winged Crossbill	C	C	F
Yellow-rumped Warbler	C	C	F	Common Redpoll	C	F	F
Blackpoll Warbler	C	U	R	Pine Siskin	P	U	R

<sup>1</sup>Status: C = confirmed, L = probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 9. Breeding status<sup>1</sup> and mean abundance<sup>2</sup> (Obs.= where observed, All = across all townships) at AMNWR, Aleutian Islands Unit 1994-1997.

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Red-throated Loon	C	F	R	Rock Ptarmigan	C	C	F
Pacific Loon	O	U	R	Sandhill Crane	O	U	R
Common Loon	C	F	R	American Golden-Plover	O	U	R
Red-necked Grebe	O	U	R	Mongolian Plover	P	U	R
Laysan Albatross	O	U	R	Semipalmated Plover	O	U	R
Northern Fulmar	C	A	F	Eurasian Dotterel	O	U	R
Mottled Petrel	O	F	R	Black Oystercatcher	C	F	F
Sooty Shearwater	O	U	R	Lesser Yellowlegs	P	U	R
Short-tailed Shearwater	O	U	R	Wood Sandpiper	O	F	R
Fork-tailed Storm-Petrel	C	A	F	Wandering Tattler	P	U	U
Leach's Storm-Petrel	C	C	F	Gray-tailed Tattler	O	U	R
Double-crested Cormorant	C	C	U	Whimbrel	O	U	R
Red-faced Cormorant	C	A	F	Bar-tailed Godwit	P	U	R
Pelagic Cormorant	C	A	C	Ruddy Turnstone	P	F	R
Emperor Goose	O	U	R	Semipalmated Sandpiper	O	U	R
Snow Goose	O	U	R	Western Sandpiper	O	U	R
Canada Goose	C	C	U	Red-necked Stint	O	U	R
Brant	O	U	R	Long-toed Stint	O	F	R
Gadwall	O	U	R	Least Sandpiper	P	U	R
Eurasian Wigeon	P	U	R	Sharp-tailed Sandpiper	O	U	R
American Wigeon	L	F	R	Rock Sandpiper	C	C	F
Mallard	C	F	U	Dunlin	O	U	R
Northern Shoveler	P	U	R	Short-billed Dowitcher	O	U	R
Northern Pintail	L	U	R	Common Snipe	O	F	R
Green-winged Teal	C	C	F	Red-necked Phalarope	C	F	U
Tufted Duck	L	F	R	Pomarine Jaeger	O	U	R
Greater Scaup	L	F	R	Parasitic Jaeger	C	F	U
Common Eider	C	C	F	Bonaparte's Gull	O	U	R
Harlequin Duck	L	C	F	Mew Gull	O	U	R
Surf Scoter	O	F	R	Glaucous-winged Gull	C	A	A
White-winged Scoter	O	U	R	Black-legged Kittiwake	C	C	F
Black Scoter	O	U	R	Red-legged Kittiwake	C	A	R
Bufflehead	P	U	R	Arctic Tern	L	C	R
Common Goldeneye	P	U	R	Aleutian Tern	P	U	R
Common Merganser	P	U	R	Common Murre	C	A	C
Red-breasted Merganser	C	F	U	Thick-billed Murre	C	A	C
Bald Eagle	C	F	F	Pigeon Guillemot	C	C	C
White-tailed Eagle	O	U	R	Marbled Murrelet	P	U	R
Rough-legged Hawk	O	U	R	Ancient Murrelet	C	C	F
Gyrfalcon	O	U	R	Cassin's Auklet	C	F	R
Peregrine Falcon	C	F	F	Parakeet Auklet	C	A	F

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 4 (cont.).

Species	Status	Mean abundance		Species	Status	Mean abundance	
		Obs.	All			Obs.	All
Least Auklet	C	A	U	Winter Wren	C	C	C
Whiskered Auklet	C	A	F	Eyebrowed Thrush	O	U	R
Crested Auklet	C	A	U	Yellow Wagtail	O	U	R
Horned Puffin	C	A	A	American Pipit	C	F	U
Tufted Puffin	C	A	A	Savannah Sparrow	C	A	F
Snowy Owl	L	F	R	Song Sparrow	C	A	C
Short-eared Owl	P	U	R	Golden-crowned Sparrow	O	U	R
Say's Phoebe	O	U	R	Lapland Longspur	C	A	C
Common Raven	L	F	F	Snow Bunting	C	C	F
Cliff Swallow	P	U	R	Brambling	L	U	R
Bank Swallow	P	U	R	Gray-crowned Rosy-Finch	C	C	F

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 10. Breeding status<sup>1</sup> and mean abundance<sup>2</sup> (Obs.= where observed, All = across all townships) at Alaska Peninsula sites, AMNWR 1995.

Species	Status	Mean abundance		Species	Status	Mean Abundance	
		Obs.	All			Obs.	All
Northern Fulmar	C	A	F	Glaucous-winged Gull	C	A	A
Fork-tailed Storm-Petrel	P	F	R	Black-legged Kittiwake	C	A	A
Leach's Storm-Petrel	P	U	U	Arctic Tern	L	C	U
Double-crested Cormorant	L	F	U	Common Murre	C	C	F
Red-faced Cormorant	C	C	F	Thick-billed Murre	C	A	U
Pelagic Cormorant	L	C	C	Pigeon Guillemot	C	C	C
Tundra Swan	P	C	U	Ancient Murrelet	P	F	F
Northern Pintail	O	U	R	Cassin's Auklet	O	A	U
Green-winged Teal	C	C	U	Parakeet Auklet	C	A	A
Greater Scaup	C	C	U	Least Auklet	O	A	U
Harlequin Duck	O	A	C	Rhinoceros Auklet	C	U	U
Common Merganser	C	C	U	Horned Puffin	C	A	A
Red-breasted Merganser	P	F	R	Tufted Puffin	C	A	A
Bald Eagle	C	C	C	Belted Kingfisher	O	U	R
Rough-legged Hawk	L	F	R	Black-billed Magpie	C	A	F
Golden Eagle	P	F	R	Common Raven	C	F	F
Merlin	O	U	R	Bank Swallow	C	A	C
Peregrine Falcon	C	U	U	Black-capped Chickadee	P	U	R
Willow Ptarmigan	C	C	F	Red-breasted Nuthatch	O	U	R
Rock Ptarmigan	C	U	U	Winter Wren	C	C	U
American Golden-Plover	O	U	R	Hermit Thrush	L	F	R
Semipalmated Plover	P	C	F	American Pipit	L	C	F
Black Oystercatcher	C	C	F	Yellow Warbler	L	F	U
Wandering Tattler	O	U	U	Wilson's Warbler	L	F	U
Whimbrel	O	C	U	Savannah Sparrow	C	A	A
Ruddy Turnstone	O	C	U	Fox Sparrow	C	A	C
Western Sandpiper	O	U	R	Song Sparrow	C	A	A
Least Sandpiper	C	C	F	Golden-crowned Sparrow	C	A	C
Rock Sandpiper	L	F	U	Lapland Longspur	C	C	C
Common Snipe	P	C	U	Snow Bunting	L	F	F
Red-necked Phalarope	P	U	R	Gray-crowned Rosy-Finch	C	F	U
Parasitic Jaeger	C	F	F	Red Crossbill	O	U	R
Mew Gull	C	C	F				

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare



Table 1. Breeding status<sup>1</sup> and abundance<sup>2</sup> of birds recorded at Cape Thompson, Alaska Maritime NWR 1995.

Species	Status	Abundance	Species	Status	Abundance
Red-throated Loon	C	R	Pomarine Jaeger	L	U
Pacific Loon	P	R	Parasitic Jaeger	L	U
Yellow-billed Loon	P	R	Long-tailed Jaeger	O	F
Northern Fulmar	O	R	Herring Gull	O	R
Short-tailed Shearwater	O	R	Glaucous Gull	C	A
Pelagic Cormorant	C	C	Black-legged Kittiwake	C	A
Tundra Swan	O	R	Arctic Tern	O	R
Brant	O	U	Common Murre	C	A
Common Eider	P	U	Thick-billed Murre	C	A
King Eider	P	R	Black Guillemot	C	F
Harlequin Duck	P	F	Pigeon Guillemot	L	U
Red-breasted Merganser	P	U	Tufted Puffin	L	U
Northern Harrier	O	R	Horned Puffin	C	F
Rough-legged Hawk	L	U	Snowy Owl	L	R
Golden Eagle	O	R	Short-eared Owl	P	R
Merlin	P	R	Bank Swallow	P	R
Peregrine Falcon	P	R	Common Raven	L	C
Gyr Falcon	L	U	American Dipper	L	R
Willow Ptarmigan	P	R	Arctic Warbler	P	R
Sandhill Crane	O	R	Bluethroat	O	R
Black-bellied Plover	L	R	Northern Wheatear	C	C
American Golden-Plover	P	R	Gray-cheeked Thrush	L	U
Semipalmated Plover	P	U	American Pipit	L	U
Solitary Sandpiper	P	R	Yellow Warbler	P	R
Whimbrel	P	R	White-crowned Sparrow	P	R
Ruddy Turnstone	P	R	Dark-eyed Junco	L	R
Semipalmated Sandpiper	C	F	Lapland Longspur	C	C
Western Sandpiper	L	U	Snow Bunting	L	C
Pectoral Sandpiper	P	R	Gray-crowned Rosy-Finch	L	R
Red-necked Phalarope	P	U	Common Redpoll	L	F

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 1. Breeding status<sup>1</sup> and mean abundance<sup>2</sup> for species recorded during river surveys at Togiak NWR, 1994-1996.

Species	Status	Abundance	Species	Status	Abundance
Red-throated Loon	O	U	Long-tailed Jaeger	O	R
Pacific Loon		O	Bonaparte's Gull		O
Common Loon		R	Mew Gull	L	C
Tundra Swan	L	U	Herring Gull		O
Brant		O	Glaucous-winged Gull	O	C
Canada Goose	O	R	Glaucous Gull		R
Green-winged Teal	L	F	Black-legged Kittiwake		O
Mallard	O	F	Arctic Tern	C	C
Northern Pintail	L	R	Aleutian Tern		O
American Wigeon	O	O	Great Horned Owl		O
Greater Scaup		O	Short-eared Owl	O	O
Harlequin Duck	L	F	Belted Kingfisher		O
Oldsquaw		O	Alder Flycatcher		R
Black Scoter	L	O	Tree Swallow	L	C
Common Merganser	L	U	Bank Swallow	C	C
Red-breasted Merganser	L	C	Cliff Swallow		O
Osprey	O	O	Black-billed Magpie	O	U
Bald Eagle	O	U	Common Raven	O	F
Northern Harrier	O	U	Black-capped Chickadee		F
Sharp-shinned Hawk		O	American Dipper		R
Rough-legged Hawk	P	R	Arctic Warbler		F
Merlin		O	Gray-cheeked Thrush	O	F
Gyr Falcon	L	O	Hermit Thrush	O	U
Willow Ptarmigan	O	R	American Robin	O	U
Sandhill Crane	O	F	Varied Thrush	O	O
Black-bellied Plover		O	Yellow Wagtail	O	C
Lesser Golden Plover		O	Northern Shrike		O
Semipalmated Plover	P	U	Orange-crowned Warbler		O
Yellowlegs spp.	L	F	Yellow Warbler	O	R
Wandering Tattler		O	Blackpoll Warbler		U
Spotted Sandpiper		O	Northern Waterthrush		O
Whimbrel		O	Wilson's Warbler	P	F
Black Turnstone		O	American Tree Sparrow	P	U
Semipalmated Sandpiper		O	Savannah Sparrow	O	F
Western Sandpiper	L	O	Fox Sparrow		O
Least Sandpiper		O	Song Sparrow		O
Dunlin		O	Golden-crowned Sparrow	O	F
Common Snipe	C	F	White-crowned Sparrow		R
Red-necked Phalarope	O	O	Lapland Longspur		O
Red Phalarope	O	O	Rusty Blackbird	O	R
Parasitic Jaeger	O	O	Common Redpoll	O	C

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 19. Breeding status<sup>1</sup> and mean abundance<sup>2</sup> for species recorded during river surveys at Yukon Flats NWR 1994-1997.

Species	Status	Abundance	Species	Status	Abundance
Red-throated Loon	P	U	Herring Gull	P	F
Pacific Loon	P	F	Arctic Tern	C	C
Common Loon	P	O	Great Horned Owl	P	O
Red-necked Grebe	O	O	Great Gray Owl	O	O
Greater White-fronted Goose	C	U	Belted Kingfisher	P	R
Canada Goose	C	A	Three-toed Woodpecker		O
Green-winged Teal	L	U	Northern Flicker	O	U
Mallard	P	U	Olive-sided Flycatcher	P	F
Northern Pintail	O	U	Western Wood-Pewee	P	O
Northern Shoveler	C	F	Alder Flycatcher	L	C
American Wigeon	C	C	Tree Swallow	P	U
Canvasback	O	O	Violet-green Swallow	O	U
Redhead	O	O	Bank Swallow	C	A
Lesser Scaup	C	F	Cliff Swallow	C	F
Surf Scoter	O	U	Gray Jay	P	F
White-winged Scoter	O	F	Common Raven	C	C
Common Goldeneye	P	R	Boreal Chickadee	C	F
Bufflehead	P	F	Ruby-crowned Kinglet	P	R
Red-breasted Merganser	O	O	Swainson's Thrush	L	C
Osprey	P	U	American Robin	P	C
Bald Eagle	P	U	Varied Thrush	P	U
Northern Harrier	O	O	Bohemian Waxwing	P	F
Sharp-shinned Hawk	P	O	Orange-crowned Warbler	L	F
Northern Goshawk	P	O	Yellow Warbler	L	F
Red-tailed Hawk	P	F	Yellow-rumped Warbler	P	U
Rough-legged Hawk	P	O	Northern Waterthrush	P	F
Golden Eagle	C	O	American Tree Sparrow	P	O
Peregrine Falcon	C	F	Chipping Sparrow	P	O
Sandhill Crane	L	F	Savannah Sparrow	P	U
Semipalmated Plover	C	C	Fox Sparrow	P	U
Lesser Yellowlegs	L	F	White-crowned Sparrow	C	C
Solitary Sandpiper	L	F	Dark-eyed Junco	L	C
Spotted Sandpiper	C	A	Rusty Blackbird		O
Common Snipe	L	C	Pine Grosbeak	P	R
Bonaparte's Gull	P	O	White-winged Crossbill	P	U
Mew Gull	C	A	Common Redpoll	P	F

<sup>1</sup>Status: C = confirmed, L= probable (likely), P = possible, O = observed

<sup>2</sup>Abundance: A = abundant, C = common, F = fairly common, U = uncommon, R = rare

Table 11. Percent of islands (n=75) where species occurred and were classified as confirmed or probable breeders in the Aleutian Islands, Alaska Maritime NWR.

Species	% occurrence	% breeders	Species	% occurrence	% breeders
Red-throated Loon	14	9	Steller's Eider	8	0
Arctic Loon	5	0	Harlequin Duck	73	3
Pacific Loon	12	1	Oldsquaw	15	0
Common Loon	16	7	Black Scoter	20	0
Yellow-billed Loon	7	1	Surf Scoter	9	0
Horned Grebe	9	0	White-winged Scoter	23	0
Red-necked Grebe	15	0	Common Goldeneye	15	3
Laysan Albatross	4	0	Barrow's Goldeneye	5	0
Northern Fulmar	39	11	Bufflehead	16	0
Mottled Petrel	1	0	Hooded Merganser	4	0
Sooty Shearwater	3	0	Common Merganser	19	3
Short-tailed Shearwater	3	0	Red-breasted Merganser	32	12
Fork-tailed Storm-Petrel	65	31	Osprey	4	0
Leach's Storm-Petrel	50	24	Bald Eagle	86	62
Double-crested Cormorant	26	12	White-tailed Eagle	5	1
Brandt's Cormorant	1	1	Northern Harrier	7	0
Pelagic Cormorant	80	61	Northern Goshawk	1	0
Red-faced Cormorant	77	64	Rough-legged Hawk	18	3
Great Egret	1	0	Golden Eagle	1	0
Tundra Swan	4	0	Merlin	5	0
Greater White-fronted Goose	8	0	Peregrine Falcon	78	43
Snow Goose	7	0	Gyr Falcon	8	0
Emperor Goose	26	0	Willow Ptarmigan	1	0
Brant	9	0	Rock Ptarmigan	39	22
Canada Goose	35	9	Sandhill Crane	18	0
Green-winged Teal	50	31	Black-bellied Plover	8	0
Mallard	30	12	Lesser Golden-Plover	16	0
Northern Pintail	23	7	Mongolian Plover	11	1
Garganey	1	1	Semipalmated Plover	16	1
Blue-winged Teal	3	0	Eurasian Dotterel	4	0
Northern Shoveler	14	3	Black Oystercatcher	68	27
Gadwall	8	0	Greater Yellowlegs	4	0
Eurasian Wigeon	7	3	Lesser Yellowlegs	7	0
American Wigeon	8	1	Wood Sandpiper	11	1
Common Pochard	1	1	Wandering Tattler	28	0
Canvasback	5	1	Gray-tailed Tattler	3	0
Ring-necked Duck	4	0	Common Sandpiper	3	1
Tufted Duck	3	1	Terek Sandpiper	1	0
Greater Scaup	16	8	Whimbrel	15	0
Lesser Scaup	4	0	Bristle-thighed Curlew	9	0
Common Eider	73	30	Black-tailed Godwit	1	0
King Eider	8	1	Bar-tailed Godwit	14	0
Spectacled Eider	3	0	Ruddy Turnstone	23	0

Table 14 (cont.).

Species	% occurrence	% breeders	Species	% occurrence	% breeders
Red Knot	5	0	Cassin's Auklet	34	15
Sanderling	8	0	Parakeet Auklet	65	19
Semipalmated Sandpiper	4	0	Least Auklet	43	9
Western Sandpiper	8	0	Whiskered Auklet	58	18
Rufous-necked Stint	9	0	Crested Auklet	49	12
Little Stint	1	0	Rhinoceros Auklet	4	1
Long-toed Stint	9	0	Tufted Puffin	92	70
Least Sandpiper	18	1	Horned Puffin	89	61
Baird's Sandpiper	9	0	Snowy Owl	12	5
Pectoral Sandpiper	9	0	Short-eared Owl	20	1
Sharp-tailed Sandpiper	11	0	Rufous Hummingbird	1	0
Rock Sandpiper	58	26	Belted Kingfisher	3	0
Dunlin	12	0	Northern Flicker	1	0
Curlew Sandpiper	3	0	Say's Phoebe	1	0
Broad-billed Sandpiper	3	1	Eurasian Skylark	4	0
Ruff	9	0	Horned Lark	1	0
Short-billed Dowitcher	4	0	Tree Swallow	3	0
Long-billed Dowitcher	5	0	Violet-green Swallow	3	0
Common Snipe	11	3	Bank Swallow	18	1
Red-necked Phalarope	28	7	Cliff Swallow	4	0
Red Phalarope	16	0	Barn Swallow	7	0
Pomarine Jaeger	16	0	Common Raven	66	18
Parasitic Jaeger	35	11	Winter Wren	62	23
Long-tailed Jaeger	8	0	American Dipper	1	1
Common Black-headed Gull	1	0	Arctic Warbler	7	0
Bonaparte's Gull	3	0	Red-breasted Flycatcher	1	0
Mew Gull	11	0	Siberian Rubythroat	8	1
Herring Gull	9	0	Bluethroat	1	0
Slaty-backed Gull	3	0	Northern Wheatear	7	0
Glaucous-winged Gull	95	64	Gray-cheeked Thrush	3	0
Glaucous Gull	12	0	Eyebrowed Thrush	3	0
Black-legged Kittiwake	39	14	American Robin	4	0
Red-legged Kittiwake	18	3	Yellow Wagtail	9	1
Sabine's Gull	5	0	White Wagtail	5	0
Arctic Tern	19	9	Black-backed Wagtail	8	1
Aleutian Tern	12	8	Pechora Pipit	1	0
Common Murre	62	31	Red-throated Pipit	4	0
Thick-billed Murre	47	26	American Pipit	20	1
Black Guillemot	4	1	Bohemian Waxwing	7	0
Pigeon Guillemot	91	41	Northern Shrike	3	0
Marbled Murrelet	16	3	Yellow Warbler	3	0
Kittlitz's Murrelet	18	3	Yellow-rumped Warbler	1	0
Ancient Murrelet	55	18	Townsend's Warbler	1	0

Table 14 (cont.).

Species	% occurrence	% breeders	Species	% occurrence	% breeders
American Tree Sparrow	1	0	Gray-crowned Rosy-Finch	55	23
Savannah Sparrow	23	7	Pine Grosbeak	1	0
Fox Sparrow	3	0	Common Rosefinch	1	0
Song Sparrow	65	24	Red Crossbill	1	0
Golden-crowned Sparrow	7	0	White-winged Crossbill	1	0
Dark-eyed Junco	4	0	Common Redpoll	15	0
Lapland Longspur	59	23	Hoary Redpoll	8	1
Yellow-breasted Bunting	1	0	Pine Siskin	3	0
Snow Bunting	39	22	Eurasian Bullfinch	1	0
McKay's Bunting	3	0	Hawfinch	1	0
Brambling	5	3			