

1994 OFF-ROAD POINT COUNT BIRD SURVEYS
ANAKTUVUK PASS, PINGO LAKE, MIDDLE FORK KOYOKUK RIVER

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The 1994 Off-road Point Count Bird Survey is the second year of an ongoing project conducted to document species diversity and abundance of birds, particularly neotropical migrant species, in 3 areas of the park. By annually monitoring these survey lines, information about avian population trends can be obtained.

STUDY AREA

Three point counts were conducted: 1) on foot southwest of Anaktuvuk Pass, 2) on foot near Pingo lake in the Upper Noatak River and 3) by canoe on the Middle Fork Koyokuk River along the southern park boundary (Fig. 1). Maps of actual transect routes are in Appendix I.

METHODS

Survey transects were repeated from the 1993 Off-road Breeding Bird Point Count. Each transect contained twelve points spaced at approximately 400 meters intervals. Topographic maps and 1993 vegetation descriptions were used to relocate points. Habitat types at each point were classified by Vierick et al (1992) and Kessel (1979). Transects in Anaktuvuk Pass and Pingo Lake were flagged the day prior to the survey. Flagging was also placed out from the transect point to define a 50 meter circle around the center point. Surveys at Anaktuvuk Pass (June 15) and the Middle Fork of the Koyokuk (June 23) were started at 0400. Due to inclement morning weather, the Pingo Lake survey (June 19) began at 1650 to correspond with the second peak of singing activity. Auditory and visual counts were conducted at each survey point for 5 minutes. The data were recorded in accordance with instructions from Alaska Partners in Flight.

RESULTS

Birds censused during each survey are summarized in Tables 1, 4 and 7, while birds and abundances observed during the trip to conduct the surveys are summarized in Table 2, 5, and 8. Habitat types in which each species was observed during the surveys are listed in Tables 3, 6 and 9.

Nests were found at Anaktuvuk Pass and Pingo Lake. Females were flushed off the nests in all cases. Two Lapland Longspur nests (3 eggs and 4 eggs) and 1 Smith's Longspur nest (4 eggs) were found in tussocky areas at Anaktuvuk Pass. Three shorebird nests were found on the Pingo Lake survey line. At point 8, one Upland Sandpiper nest with 4 eggs was found. Two Least Sandpiper nests (3 eggs and 4 eggs) were found between points 11 and 12.

DISCUSSION

In general, bird abundance remained constant from 1993 to 1994. Birds abundant in 1993 were also high in number in 1994. There was

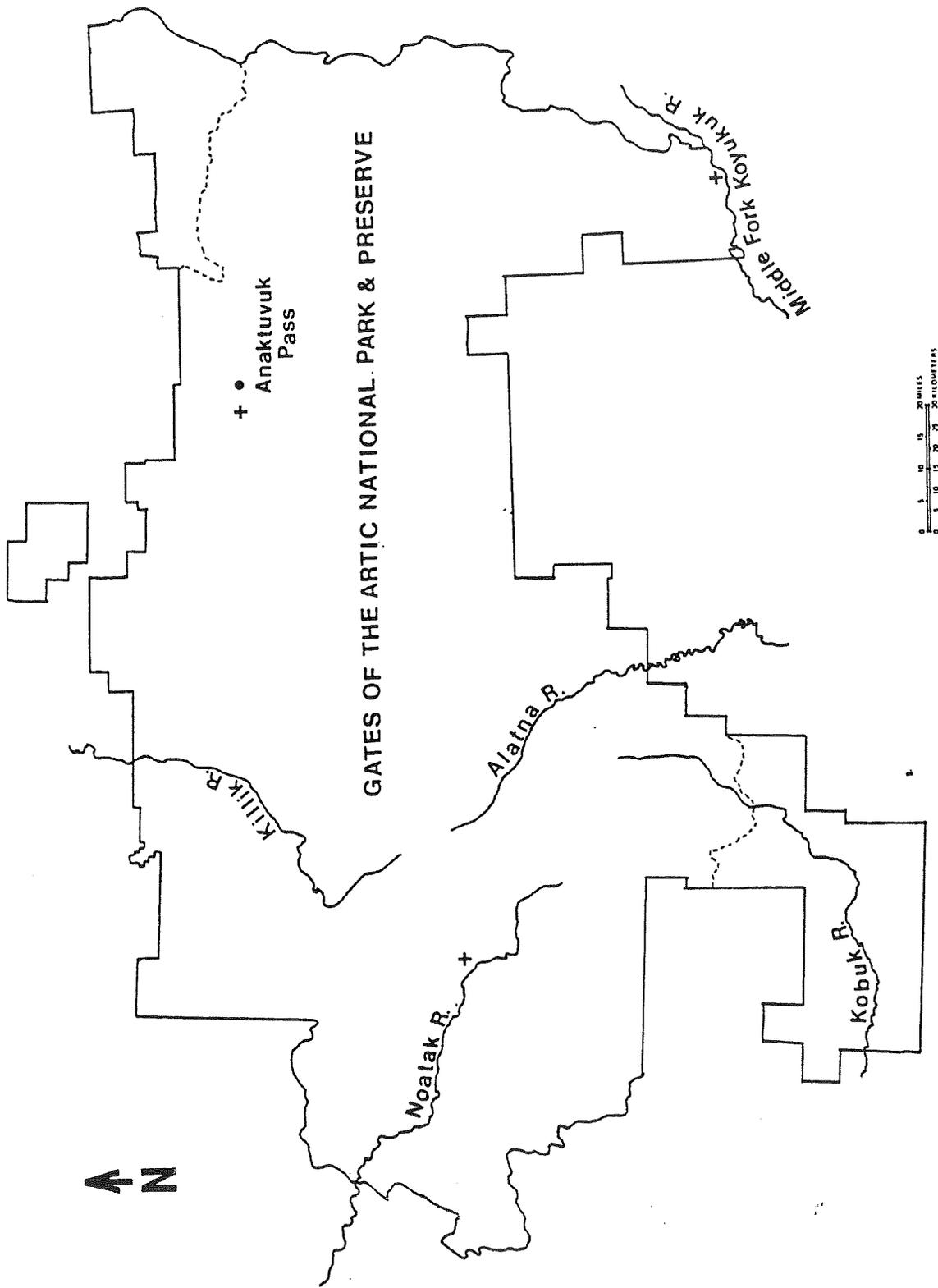


Fig. 1. Location of 3 off-road point count bird surveys, Gates of the Arctic National Park and Preserve, Brooks Range, AK, 1993-1994. Survey route locations are designated by "+".

some variation in the species represented by a small number of individuals. This could be due to chance encounters, weather or seasonal variation. Birds missing from the actual survey in either year were usually observed at some point in the vicinity of the transect line.

An interesting variation in species composition was found on the Middle Fork survey. In 1993, Olive-sided Flycatchers were the most abundant flycatcher (7 individuals). Alder Flycatchers were represented by 3 individuals. This contrasts to the total absence of Olive-sided Flycatchers in 1994 and an increase in Alder Flycatchers to 9 birds. Both birds have distinctive calls, so the chance of observer error is low. There may be a year to year variation in the timing of the arrival of these birds. Alder Flycatchers arrive on the breeding grounds much later than Olive-sided Flycatchers and this timing difference may be exacerbated by weather (T. Pogson, Alaska Bird Observatory, pers. commun.). This may produce a time when Alder Flycatchers are singing vigorously and Olive-sided Flycatchers are on the downside of singing frequency. Olive-sided Flycatchers have been listed as a species of concern by Alaska Partners of Flight. While conclusions can not be drawn with only two years of data, close attention should be paid to the status of Olive-sided Flycatchers on the Middle Fork.

There was also a sharp increase in the number of White-winged Crossbills on the Middle Fork in 1994. This corresponds with an abundant white spruce cone crop and a general increase in the number of White-wings in the interior of Alaska (S. Sharbaugh, University of Alaska, Fairbanks, pers. obs.). Due to the eruptive nature of this species, it is not uncommon to find large year to year fluctuations in population size.

The 1994 survey at Pingo Lake presented an opportunity to compare abundance with time of day. Alaska Partners in Flight protocol limits the census time from 0300 until 0830 in the Arctic. Inclement weather precluded the survey during this time. The survey was run in the late afternoon (1650-2030), corresponding with a break in the weather and a consequent increase in singing activity. The only difference between the 1993 morning survey and the 1994 evening survey was in the occurrence of Upland Sandpipers; 12 Upland Sandpipers were observed during the 1993 survey but none were detected during the 1994 survey. However, 8 Upland Sandpipers were seen in the area on the day previous to the 1994 survey, and the birds were observed on the way back to camp after completing the afternoon survey. This variation in detection may be due to time of day, weather conditions or chance.

Pingo Lake was the only area of the three where adults were seen carrying food and fledglings were spotted. Variation in the timing of reproduction was evidenced by the presence of White-crowned Sparrow and Robin fledglings along with Upland Sandpipers and Least Sandpipers sitting on eggs. At Anaktuvuk Pass, 2 Lapland Longspur nests and 1 Smith's Longspur nest were found. Females were flushed off all three nests. All nests contained eggs.

The Anaktuvuk Pass surveys were very similiar with little year to year variation.

Comparing year to year differences in abundance of migrants in Alaska is an interesting challenge. There are many factors that contribute to the timing of arrivals in the spring and their subsequent breeding success after arrival. Both of these events can have a profound effect on the number of birds singing during the assigned census period. Although having a standardized experimental protocol will reduce some of the variation, this inflexibility makes it difficult to take advantage of obvious year to year differences. For example, the presence of fledglings and adults feeding young at Pingo Lake is an indication that the breeding season was well past the peak singing period. Spring weather conditions and the time of break-up must be taken into consideration when trying to draw conclusions about year to year changes in abundance.

In addition to the year to year variation, there is also a daily variation in singing frequency. It is suggested that the survey only be run in the early morning. This corresponds to the peak in singing activity (the dawn chorus) that is obvious at temperate latitudes. The continuous daylight of northern latitudes may generate different patterns of singing frequency. Establishment of an alternate time to census (late afternoon) would provide an option when weather is inclement in the early morning. At Pingo Lake, we saw no real difference between the 1993 survey run in the morning and the 1994 survey run in the late afternoon. This flexibility would aid in collecting data at remote sites when time is limited.

There was some difference between years in the number of birds recorded within the 50 meter radius from the transect point. This may be due to differences in estimatation of 50 meters. Flagging was paced to 50 meters in the four compass directions in 1994 at Anaktuvuk and in two directions at Pingo Lake. This may aid in assessing which birds are within the 50 meter circle. It also may help to track down singing birds prior to the survey to gain an idea of how far songs travel in different habitats.

Although there may be some difficulty in judging the appropriate times each year to conduct these censuses, the information obtained is extremely valuable. Baseline data on the species diversity and abundance of birds in the park, particularly neotropical migrants, is necessary to document any change in those numbers. This information is useful in assessing the impact of many different activities on the natural populations. Knowledge of the status of these populations will aid in future management decisions.

Table 1. Bird species and abundances observed during two off-road point count bird surveys near Anaktuvuk Pass, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 16 June 1993 and 15 June 1994. Abundance reflects the number of birds observed during the survey and is coded as follows: 1 = 1-5 birds, 2 = 6-10 birds, 3 = >10 birds.

Common Name	Abundance 1993	Abundance 1994
Old Squaw	1	1
Greater Scaup	3	3
Northern Pintail	1	0
Green-winged Teal	0	1
Lesser Golden Plover	1	1
Lesser Yellowlegs	1	1
Solitary Sandpiper	1	0
Common Snipe	0	1
Long-tailed Jaeger	0	1
Common Raven	0	1
American Robin	2	1
Northern Wheatear	1	1
Common Redpoll	3	3
American Tree Sparrow	3	3
Savannah Sparrow	3	3
White-crowned Sparrow	3	3
Lapland Longspur	3	3
Smith's Longspur	1	0
Bluethroat	0	1

Table 2. Bird species and abundances observed during two trips to conduct off-road point count bird surveys near Anaktuvuk Pass, Gates of the Arctic National Park, Brooks Range, Alaska, 14-16 June 1993 and 13-16 June 1994. Abundance codes are as follows: 1 = 1-5 birds, 2 = 6-10 birds, 3 = >10 birds.

Common Name	Abundance 1993	Abundance 1994
Pacific Loon ^a	1	0
Red-throated Loon ^b	0	1
Old Squaw	1	1
Harlequin Duck ^a	1	0
Greater Scaup	3	3
Northern Pintail	1	0
American Widgeon ^a	1	0
Green-winged Teal ^a	1	1
Red-breasted Merganser ^{a,b}	1	1
White-winged Scoter ^b	0	1
Golden Eagle ^a	1	0
Northern Harrier ^b	0	1
Lesser Golden Plover	1	2
Lesser Yellowlegs	1	2
Common Snipe ^a	1	1
Least Sandpiper ^b	0	1
Solitary Sandpiper	1	0
Red-necked Phalarope ^a	2	0
Glaucous Gull ^b	0	1
Mew Gull ^{a,b}	1	2
Long-tailed Jaeger ^a	1	1
Parasitic Jaeger ^b	0	1
Common Raven ^a	3	1

Table 2. continued		
Common Name	Abundance 1993	Abundance 1994
American Robin	2	1
Swainson's Thrush ^b	0	1
Bluethroat ^a	1	1
Northern Wheatear	3	2
Yellow Warbler ^a	1	0
Wilson's Warbler ^a	1	0
Common Redpoll	3	3
American Tree Sparrow	3	3
Savannah Sparrow	3	3
Fox Sparrow ^a	3	0
White-crowned Sparrow	3	3
Horned Lark ^a	2	0
Lapland Longspur	3	3
Smith's Longspur ^b	1	2

^a(1993) and ^b(1994) denote bird species not observed during the off-road point count but seen in the area on the preceding day.

Table 3. Vegetation types associated with bird species censused during an off-road point count survey near Anaktuvuk Pass, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 1993 and 1994. Vegetation classification follows Viereck et al (1992).

Common Name	Dryas Dwarf Scrub ¹	Mesic Graminoid Herbaceous ²	Wet Graminoid Herbaceous ³
Old Squaw		+	+
Greater Scaup		+	+
Northern Pintail			+
Green-winged Teal	+		
Lesser Golden Plover	+		
Lesser Yellowlegs	+		
Solitary Sandpiper		+	
Common Snipe		+	+
Long-tailed Jaeger	+		
Common Raven			+
American Robin	+	+	+
Northern Wheatear		+	
Common Redpoll	+	+	+
American Tree Sparrow	+	+	+
Savannah Sparrow	+	+	+
White-crowned Sparrow	+	+	+
Lapland Longspur	+	+	+
Smith's Longspur		+	
Bluethroat	+		

¹Survey points in this vegetation type classified as Dwarf Shrub Mat or Inland Blockfield/Dwarf Shrub Mat in Avian Habitat Classification for Alaska (Kessel 1979).

²Survey points in this vegetation type classified as Dwarf Shrub Meadow or Dwarf Shrub Mat in Avian Habitat Classification for Alaska (Kessel 1979).

³Survey points in this vegetation type classified as Dwarf Shrub Meadow in Avian Habitat Classification for Alaska (Kessel 1979).

Table 4. Bird species and abundances observed during two off-road point count bird surveys at Pingo Lake, Noatak River, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 20 June 1993 and 19 June 1994. Abundance reflects the number of birds observed during the survey and is coded as follows: 1 = 1-5 birds, 2 = 6-10 birds, 3 = >10 birds.

Common Name	Abundance 1993	Abundance 1994
Lesser Golden Plover	0	1
Lesser Yellowlegs	2	2
Upland Sandpiper	3	0
Semi-palmated Sandpiper	1	0
Red-necked Phalarope	2	0
Common Snipe	1	1
Mew Gull	0	1
Common Raven	1	1
American Robin	1	2
Gray-cheeked Thrush	2	2
Blackpoll Warbler	0	1
Orange-crowned Warbler	0	1
Yellow Warbler	1	0
Wilson's Warbler	1	0
Common Redpoll	3	3
American Tree Sparrow	3	3
Savannah Sparrow	1	1
White-crowned Sparrow	3	3
Smith's Longspur	1	0

Table 5. Bird species and abundances observed during two trips to conduct off-road point count bird surveys at Pingo Lake, Noatak River, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 18-21 June 1993 and 17-20 June 1994. Abundance codes are as follows: 1 = 1-5 birds, 2 = 6-10 birds, 3 = >10 birds.

Common Name	Abundance 1993	Abundance 1994
Tundra Swan ^a	1	0
Horned Grebe ^{a,b}	1	1
Green-winged Teal ^b	0	1
Greater Scaup ^{a,b}	3	3
Northern Shoveler ^b	0	1
Oldsquaw ^b	0	1
White-winged Scoter ^{a,b}	1	1
Golden Eagle ^{a,b}	1	1
Northern Harrier ^a	1	1
Gyr Falcon ^a	1	0
Merlin ^b	0	1
Lesser Golden Plover ^a	1	1
Lesser Yellowlegs	2	3
Least Sandpiper ^b	0	1
Upland Sandpiper ^b	3	2
Solitary Sandpiper ^a	1	0
Semi-palmated Sandpiper	2	0
Red-necked Phalarope ^b	3	1
Common Snipe	1	1
Mew Gull ^a	1	3
Arctic Tern ^b	0	1
Bank Swallow ^a	1	0
Cliff Swallow ^b	0	3

Table 5. continued.		
Common Name	Abundance 1993	Abundance 1994
Willow Ptarmigan ^b	0	1
Common Raven ^a	2	1
Gray Jay ^b	0	1
Say's Phoebe ^b	0	1
American Robin	3	3
Northern Wheatear ^a	1	0
Gray-cheeked Thrush	2	3
Northern Shrike ^a	1	0
Blackpoll Warbler	0	1
Orange-crowned Warbler	0	1
Yellow Warbler	1	0
Wilson's Warbler	1	0
Common Redpoll	3	3
American Tree Sparrow	3	3
Savannah Sparrow	1	1
White-crowned Sparrow	3	3
Smith's Longspur	1	1

^a(1993) and ^b(1994) denote bird species not observed during the off-road point count but seen in the vicinity on the preceding day.

Table 6. Vegetation types associated with bird species censused during an off-road point count survey near Pingo Lake on the Noatak River, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 1993 and 1994. Vegetation classification follows Viereck et al (1992).

Common Name	Open Tall Shrub ¹	Mesic Graminoid Herbaceous ²	Dryas Dwarf Shrub ³	Medium Shrub Thicket ⁴	Open Low Shrub ⁵
Lesser Golden Plover		+	+		
Lesser Yellowlegs	+	+	+		+
Upland Sandpiper		+	+		+
Semi-palmated Sandpiper	+				+
Red-necked Phalarope		+			
Common Snipe	+	+	+		+
Mew Gull		+			
Common Raven		+	+		
American Robin	+	+		+	+
Gray-cheeked Thrush	+	+		+	
Blackpoll Warbler	+				
Orange-crowned Warbler	+				
Yellow Warbler	+	+			
Wilson's Warbler	+	+			
Common Redpoll	+	+	+	+	+
American Tree Sparrow	+	+	+	+	+

Table 6. (cont.)					
Common Name	Open Tall Shrub ¹	Mesic Graminoid Herbaceous ²	Dryas Dwarf Shrub ³	Medium Shrub Thicket ⁴	Open Low Shrub ⁵
Savannah Sparrow	+	+		+	
White-crowned Sparrow	+	+	+	+	+
Smith's Longspur	+	+			+

¹ Survey points in this vegetation type classified as Tall Shrub Thicket/Wet Meadow or Tall Shrub Thicket in Avian Habitat Classification for Alaska (Kessel 1979).

² Survey points in this vegetation type classified as Low Shrub Thicket or Medium Shrub Thicket/Dwarf Scrub Mat in Avian Habitat Classification for Alaska (Kessel 1979).

³ Survey points in this vegetation type classified as Medium Shrub Thicket/Dwarf Shrub Mat in Avian Habitat Classification for Alaska (Kessel 1979).

⁴ Corresponds with Medium Shrub Thicket in Avian Habitat Classification for Alaska (Kessel 1979).

⁵ Corresponds with Low Shrub Thicket/Dwarf Shrub Mat in Avian Classification for Alaska (Kessel 1979).

Table 7. Bird species and abundances observed during two off-road point count bird surveys along the Middle Fork Koyokuk River, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 24 June 1993 and 23 June 1994. Abundance reflects the number of birds observed during the survey and is coded as follows: 1 = 1-5 birds, 2 = 6-10 birds, 3 = >10 birds.

Common Name	Abundance 1993	Abundance 1994
Canada Goose	1	0
Merlin	1	0
Lesser Sandpiper	1	0
Spotted Sandpiper	1	1
Great-horned Owl	1	0
Alder Flycatcher	1	2
Olive-sided Flycatcher	2	0
Bank Swallow	3	0
Gray Jay	1	0
Boreal Chickadee	0	1
Varied Thrush	1	1
Swainson's Thrush	3	3
Gray-cheeked Thrush	1	1
Ruby-crowned Kinglet	1	1
Orange-crowned Warbler	0	1
Yellow Warbler	0	1
Yellow-rumped Warbler	1	2
Wilson's Warbler	0	1
Blackpoll Warbler	1	0
Northern Waterthrush	1	0
White-winged Crossbill	0	1
Common Redpoll	1	3

Table 7. continued		
Common Name	Abundance 1993	Abundance 1994
Dark-eyed Junco (Slate-color)	3	2
White-crowned Sparrow	2	2
Fox Sparrow	1	0

Table 8. Bird species and abundances observed during two trips to conduct off-road point count bird surveys along the Middle Fork Koyokuk River, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 22-25 June 1993 and 21-24 June 1994. Abundance codes are as follows: 1 = 1-5 birds, 2 = 6-10 birds, 3 = >10 birds.

Common Name	Abundance 1993	Abundance 1994
Canada Goose ^b	3	2
Green-winged Teal ^a	1	0
Red-breasted Merganser ^b	1	1
Golden Eagle ^b	0	1
Rough-legged Hawk ^{a,b}	1	1
Red-tailed (Harlan's) Hawk ^{a,b}	1	1
Peregrine Falcon ^{a,b}	1	1
Merlin	1	0
American Kestrel ^a	1	0
Lesser Yellowlegs	1	2
Spotted Sandpiper	1	3
Arctic Tern ^{a,b}	1	1
Great-horned Owl	1	0
Boreal Owl ^a	1	0
Alder Flycatcher	1	3
Olive-sided Flycatcher	2	0
Bank Swallow ^b	3	3
Tree Swallow	3	0
Violet-green Swallow ^b	0	3
Common Raven ^{a,b}	2	0
Gray Jay	3	1
Boreal Chickadee	0	2

Table 8. continued		
Common Name	Abundance 1993	Abundance 1994
Varied Thrush	2	1
Swainson's Thrush	3	3
Gray-cheeked Thrush	2	1
Ruby-crowned Kinglet	3	3
Bohemian Waxwing ^{a,b}	1	2
Orange-crowned Warbler	0	2
Yellow Warbler ^a	2	1
Yellow-rumped Warbler	1	2
Wilson's Warbler ^a	1	2
Blackpoll Warbler	1	0
Northern Waterthrush	3	0
Rusty Blackbird ^a	1	0
White-winged Crossbill ^a	1	3
Common Redpoll	2	3
Pine Grosbeak ^b	0	1
Savannah Sparrow ^a	1	0
Dark-eyed Junco (Slate-color)	3	3
White-crowned Sparrow	3	3
Fox Sparrow	3	1

^a(1993) and ^b(1994) denote bird species not observed during the off-road point count but seen in the area on the preceding day.

Table 9. Vegetation types associated with bird species censused during an off-road point count survey on the Middle Fork Koyukuk River, Gates of the Arctic National Park and Preserve, Brooks Range, Alaska, 1993 and 1994. Vegetation classification follows Vierick et al (1992).

Common Name	Open Broadleaf Forest ¹	Open Needleleaf Forest ²	Open Mixed Forest	Closed Needleleaf Forest ¹	Open/Closed Needleleaf Forest ¹	Broadleaf Woodland ¹	Needle leaf Wood land ³
Lesser Yellowlegs						+	
Spotted Sandpiper		+	+	+			+
Great-Horned Owl					+		
Alder Flycatcher	+	+	+			+	
Olive-sided Flycatcher	+	+	+				
Tree Swallow	+						
Gray Jay					+		
Boreal Chickadee	+						
Varied Thrush	+	+				+	

Table 9.		continued							
Common Name	Open Broadleaf Forest ¹	Open Needleleaf Forest ²	Open Mixed Forest	Closed Needleleaf Forest ¹	Open/Closed Needleleaf Forest ¹	Broadleaf Woodland ¹	Needle leaf Woodland ³		
Swainson's Thrush	+	+	+	+	+	+	+		
Gray-cheeked Thrush		+				+			
Ruby-crowned Kinglet	+	+				+			
Orange-crowned Warbler		+							
Yellow Warbler			+						
Yellow-rumped Warbler	+	+	+	+					
Wilson's Warbler	+	+	+						
Blackpoll Warbler	+								
Northern Waterthrush				+			+		
White-winged Crossbill	+	+	+						

Table 9.	continued	Open Broadleaf Forest ¹	Open Needleleaf Forest ²	Open Mixed Forest	Closed Needleleaf Forest ¹	Open/Closed Needleleaf Forest ¹	Broadleaf Woodland ¹	Needle leaf Woodland ³
Common Redpoll	+	+	+	+	+		+	
Dark-eyed Junco	+	+	+	+	+			+
White-crowned Sparrow	+	+	+	+	+		+	+
Fox Sparrow	+			+				+

¹Survey points in this vegetation type are classified as Mixed Deciduous-Coniferous Forest in Avian Classification for Alaska (Kessel 1979).

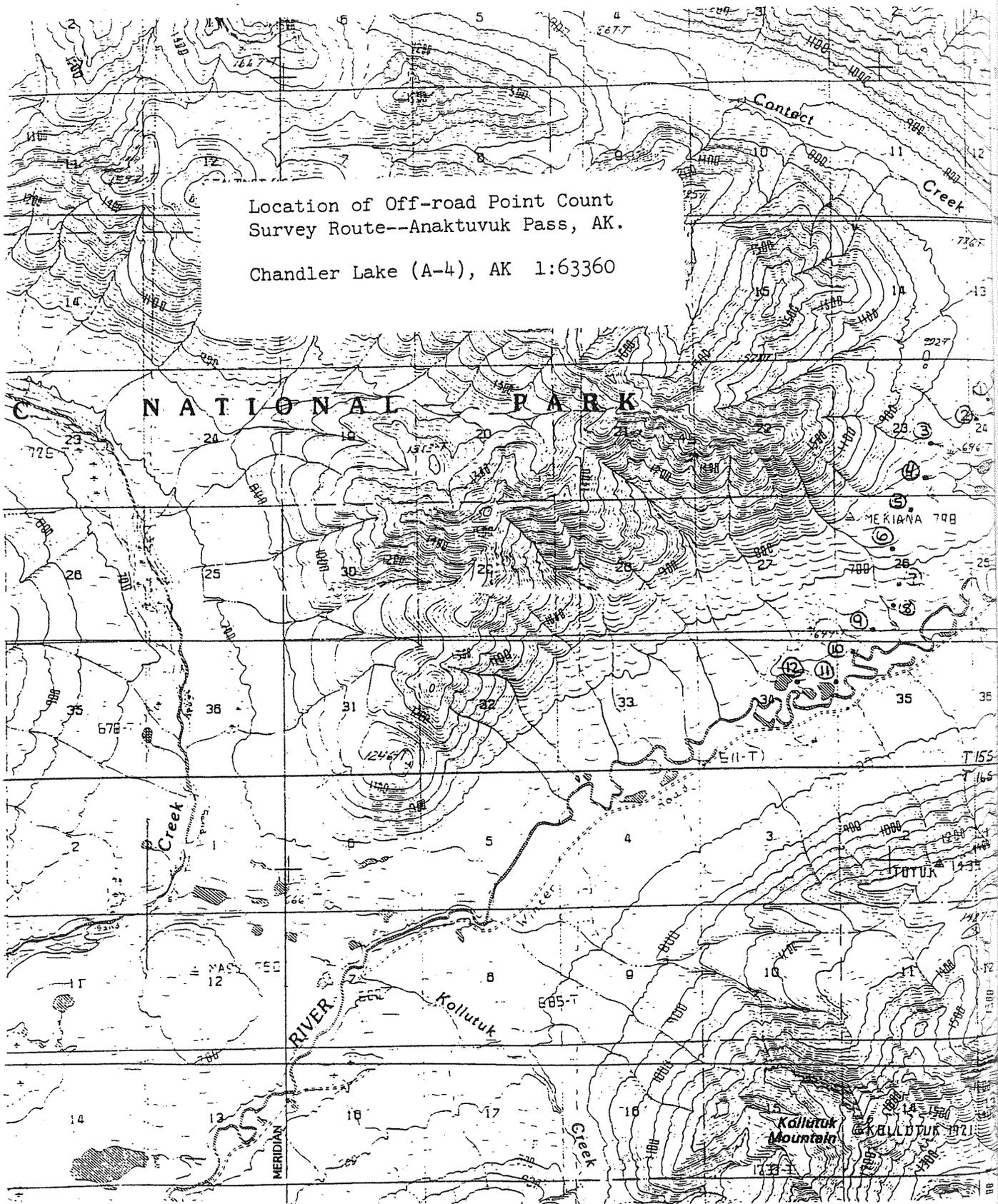
²Survey points in this vegetation type are classified as Coniferous Forest or Mixed Deciduous-Coniferous Forest in Avian Classification for Alaska (Kessel 1979).

³Survey points in this vegetation type are classified as Coniferous Forest in Avian Classification for Alaska (Kessel 1979).

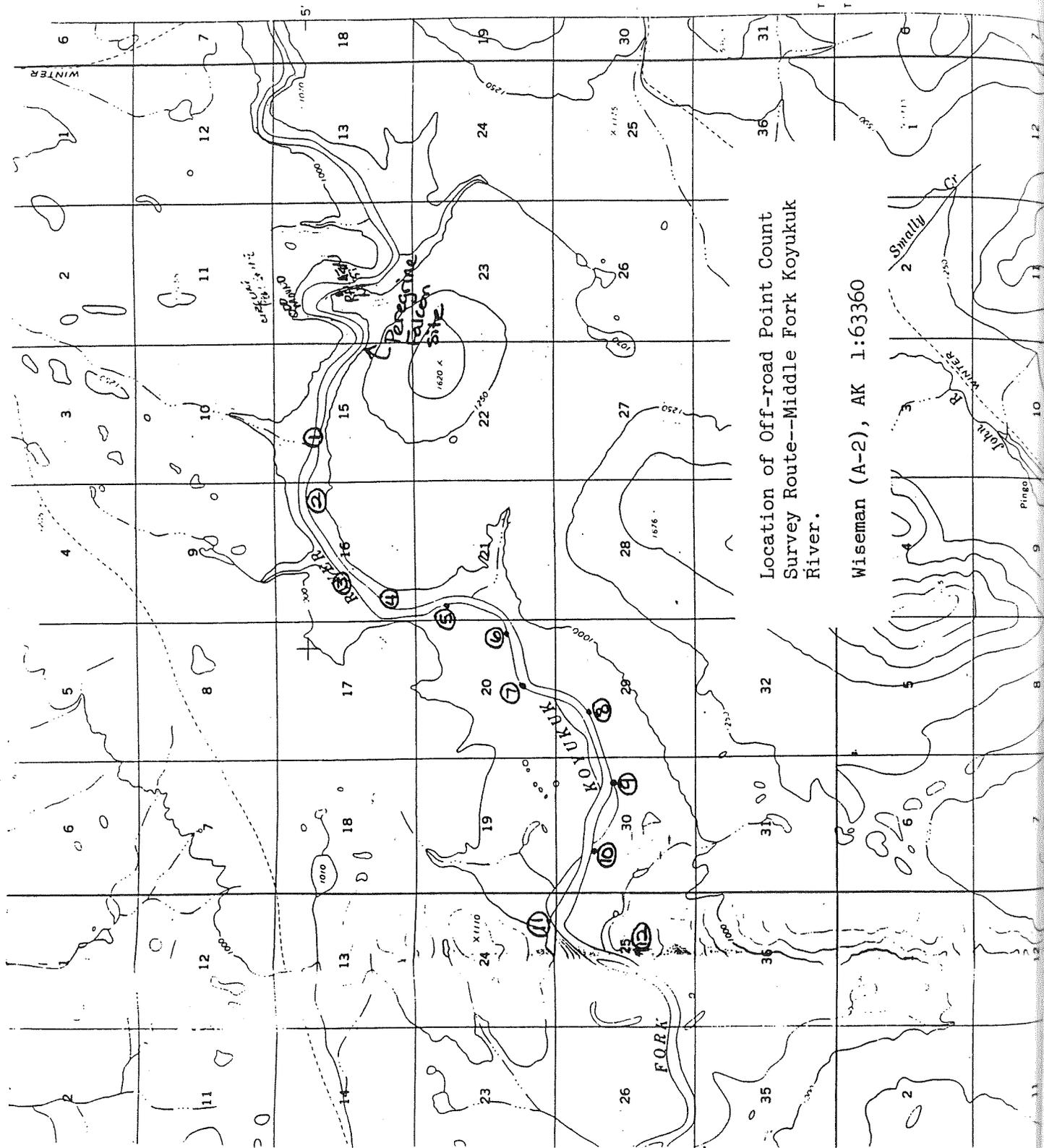
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- Viereck, L.A., C.T. Dyrness, A.R. Batten, and K.J. Wenzlick. 1992. The Alaskan vegetation classification. Gen. Tech. Rep. PNW-GTR-286. Portland, OR; U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 278 pp.

Appendix I. Detailed location of off-road point count transects,
Gates of the Arctic National Park and Preserve, Brooks Range, AK,
1993 and 1994.



Location of Off-road Point Count
 Survey Route--Anaktuvuk Pass, AK.
 Chandler Lake (A-4), AK 1:63360



Location of Off-road Point Count
Survey Route--Middle Fork Koyukuk
River.

Wiseman (A-2), AK 1:63360