

**Alaska Department of Fish & Game  
Division of Wildlife Conservation**

**Grant SE 3-2  
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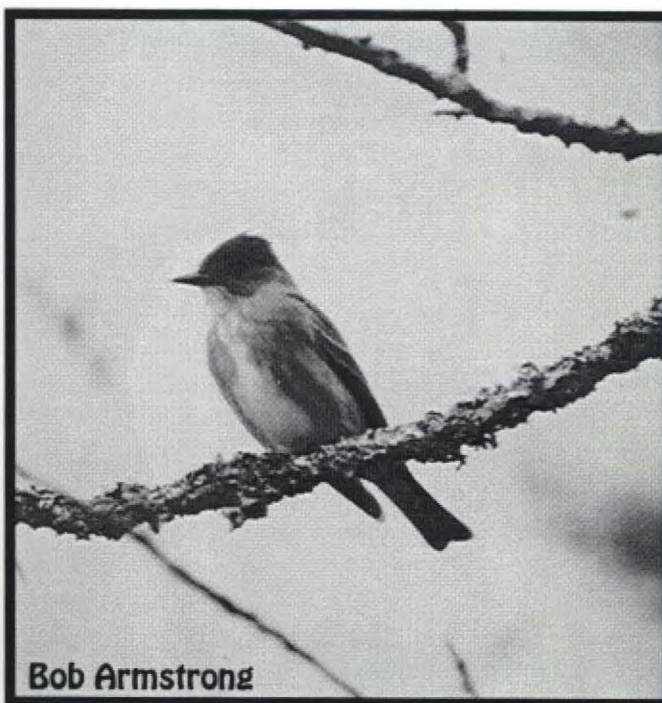
**Federal Aid in Wildlife Restoration  
Research Final Report**

**1 July 1993- 30 June 1994**

**Abundance, Timing, and Demography  
of Neotropical Migratory Birds During Migration  
and Preliminary Study of  
Olive-sided Flycatchers in Alaska**

**by**

**John M. Wright**



**Bob Armstrong**

**Alaska Department of Fish and Game  
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## FINAL REPORT (RESEARCH)

State: Alaska

Cooperator: USDI Fish and Wildlife Service

Project No.: SE-3-2

Project Title: Monitoring Neotropical Migratory  
Birds in Alaska

Study Title: Abundance, Timing and Demography of  
Neotropical Migratory Birds During  
Migration; and Preliminary Study of  
Olive-sided Flycatchers in Alaska

Period Covered: 1 July 1993-30 June 1994

### SUMMARY

Begun in 1992, the landbird migration monitoring study at Creamer's Field Migratory Waterfowl Refuge in Fairbanks is a cooperative effort of the Alaska Bird Observatory and the Alaska Department of Fish and Game. In fall 1993, 1,724 individual birds of 30 species were captured and banded in 51 days of mist netting between 21 July and 1 October. In spring 1994, 803 individual birds of 30 species were captured in 43 days between 25 April and 14 June. Two-thirds to 3/4 of the individuals captured were neotropical migrants, of which 38-42% belonged to species wintering entirely south of the U.S.-Mexico border.

In 1994 olive-sided flycatchers were studied near Glennallen and Fairbanks. Information on phenology and rate of singing, habitat use, and breeding biology was collected. Data from the 1994 field season will be compiled and analyzed during winter 1994-95.

*Key Words:* Alaska Bird Observatory, Creamer's Field Migratory Waterfowl Refuge, migration monitoring, mist netting, neotropical migrant landbirds, olive-sided flycatcher, perch sites, singing behavior

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## BACKGROUND

Long- and short-term declines of migrant landbirds have been well-documented in the eastern United States and Canada. The species undergoing the largest declines are long-distance migrant species that winter in the neotropics of Central and South America (Finch 1991). Recent analyses of population trends of migrant landbirds suggest that species breeding in North American regions other than the eastern U.S. and Canada are also experiencing declines. The species undergoing population declines include flycatchers, thrushes, wood warblers, and others (Sauer and Droege 1992). Alaska is an important portion of the breeding range of several species of boreal forest landbirds that are declining in other parts of their geographic range in North America. One species in the Alaska Region, the olive-sided flycatcher (*Contopus borealis*), was listed in 1993 as a Category 2 species under the federal Endangered Species Act for consideration for threatened status.

In conjunction with the international *Partners in Flight* Neotropical Migratory Bird Conservation Program, an Alaska/Yukon *Boreal Partners in Flight* group has recently been organized. This group is composed of federal and state agencies, conservation organizations, independent bird research groups, and concerned individuals. *Boreal Partners in Flight* provides coordination and direction for local projects so that a

comprehensive monitoring and research program can be formed from the individual efforts of the many partners.

Monitoring of neotropical migrants in Alaska will be accomplished through several methods. The Breeding Bird Survey (BBS) is the primary monitoring method in most of North America. This road-based survey will be used as much as possible, but is of limited use in many parts of Alaska. Off-road point counts will supplement the BBS where they are logistically feasible. Mist netting studies of breeding birds (MAPS: Monitoring Avian Productivity and Survival) are identified as a more intensive method for use at selected sites. Migration studies will be used at a few selected locations to monitor abundance and productivity from a larger geographic base.

In 1992 the Alaska Bird Observatory (ABO), in cooperation with the Alaska Department of Fish and Game, established a migration monitoring study at Creamer's Field Migratory Waterfowl Refuge in Fairbanks, Alaska. The ABO has been conducting studies of migrant landbirds in central Alaska using systematic mist netting and banding since 1989. In 1993, the potential for conducting field studies of olive-sided flycatchers was investigated in interior Alaska.

## **OBJECTIVES**

The study objectives for neotropical migratory birds in 1994 were to:

1. monitor the abundance, timing and demography of neotropical migrants using systematic mist netting and banding,
2. conduct field studies of olive-sided flycatchers to gather information on singing behavior to improve survey methodology, and compile basic natural history information including habitat selection and breeding biology.

## **STUDY AREA AND METHODS**

### **Migration Monitoring**

The migration study site includes approximately 15 ha of boreal forest, shrub and wetland habitats on Creamer's Field Migratory Waterfowl Refuge in Fairbanks, Alaska. An established array of 20-35 mist nets were used to capture birds. All birds were banded with standard aluminum leg bands. A series of data were collected from each bird, including age, sex, wing chord and tail length, weight, fat status, breeding condition, and molt.

### Olive-sided Flycatchers

Olive-sided flycatchers were studied in 2 areas, near Glennallen and Fairbanks. Both areas provided road access to boreal forest habitats. Near Glennallen, field work focused on 2 Breeding Bird Survey (BBS) routes, the Sourdough Route (#054) located between Milepost 134.5 -159 on the Richardson Highway, and the Chistochina Route (#009) along the Tok Cutoff between MP 24-49. In Fairbanks, field work was at three sites within 10 miles of the city center.

To determine the seasonal phenology of singing by olive-sided flycatchers, the Sourdough and Chistochina BBS routes were run weekly from mid May through the end of June, 1994. [The Breeding Bird Survey is a national land bird monitoring program consisting of 24.5 mile routes with 50 points visited once each breeding season.] Routes were surveyed in the early morning between 0320 and 0900 hours. At each stop the observer or observers stood quietly for three minutes and recorded all olive-sided flycatchers, alder flycatchers, Swainson's thrushes, gray-cheeked thrushes, and blackpoll warblers heard or seen within 500 meters. The last four species listed were chosen as index species to compare arrival times and seasonal singing phenology with olive-sided flycatchers. Surveys were not conducted on days when strong winds or rain might influence singing behavior.

Information on the rate of singing by olive-sided flycatchers was gathered by following individual males. It was our intention to randomly select 5 or more males detected along BBS routes for intensive observation to document singing rates, other activities, and habitat use. Each bird was to be watched 20 hours (covering the daylight hours of 0330-2330), during 4 5-hour watches within the presumed singing period of 1-20 June. However, because most of the olive-sideds detected along the routes could not be relocated on following days, we adopted a more spontaneous and flexible "take what we could get" approach. Singing data was recorded on a prepared data form. A timer was set to beep every 60 seconds, and notes recorded in one minute blocks. Other recorded activities besides singing included perching, flying, hawking, eating, displaying, aggression, preening, and copulating. When a male was seen perching, the species of the perch tree and whether the perch was alive or dead was recorded. For any time a bird was out of sight, it was recorded as "not seen." Additional notes on behaviors of interest were kept in a field observation notebook.

While recording singing data, we tried to follow the bird from one perch to another in order to gain more information about the types of perches used by OSFLs. If an OSFL perched at one location for 10 minutes or more, or returned to the same perch more than 3 times, that tree was marked with colored flagging and given a perch number. Measurements of perch trees were recorded after the watch or on another day. Information recorded included tree species, general vegetation type, proportion of the tree live or dead, location of perch on the tree, distance to water and type of water, distance to nearest edge and description of adjacent vegetation type, and distance and direction to nearest neighboring perch tree. A clinometer was used to determine tree height, slope, and average canopy height. For average canopy height, the heights of two additional trees within an 11.3 m radius plot around the perch tree were taken and the 3 heights averaged. The slope for a 5 m radius plot around the perch tree was recorded in degrees. A

compass was used to determine the aspect of the 5 m radius plot. A centimeter tape was used to measure the circumference and diameter at breast height (1.4 m). Maps of perch tree locations were sketched in the field observation notebook.

## RESULTS

### Migration Monitoring

In fall 1993 mist nets were operated on 51 days between 21 July and 1 October for 13,599 net-hours. A total of 1,724 new captures were banded and released; 1,286 (74%) of these individuals were neotropical migrant species. Of these neotropical migrants, more than half that winter were Type A's entirely south of the U.S.-Mexico border (Table 1). The most commonly captured Type A neotropical migrants were the orange-crowned warbler, Wilson's warbler, Swainson's thrush, alder flycatcher, yellow warbler, northern waterthrush, and gray-cheeked thrush. Among Type B neotropical migrants (those wintering predominantly north of the border, but with some populations wintering to the south), the dark-eyed junco, Lincoln's sparrow, ruby-crowned kinglet, savannah sparrow, and yellow-rumped warbler were the species most frequently captured. The American tree sparrow, a North American migrant, was the most commonly captured species in fall 1993.

In spring 1994 birds were captured in mist nets and banded on 43 days between 25 April and 14 June for 11,197 net-hours. A total of 749 birds were new captures, of which 503 (67%) were neotropical migrants (Table 2). Sixty-two percent of the neotropical migrants were long-distance migrant Type A's. The most frequently captured Type A's were the northern waterthrush, Swainson's thrush, Wilson's warbler, orange-crowned warbler, blackpoll warbler, and yellow warbler. Type B's most commonly captured were the yellow-rumped warbler, savannah sparrow, American robin, and dark-eyed junco. The common redpoll, a nomad of the boreal forest, was the most captured species in spring 1994.

### Olive-sided Flycatcher

The Sourdough and Chistochina Breeding Bird Survey routes were each run 7 times between 18 May and 30 June 1994. Detections of olive-sided flycatchers were extremely variable, ranging from 0 to 11 at Sourdough and 1 to 4 at Chistochina (Table 3). Peak numbers at Sourdough were recorded on 8 June, and at Chistochina on 25 May. On 11 and 12 June, when the routes were surveyed independently from this study by the observer who has traditionally done these 2 BBSs, 10 olive-sideds were detected on the Sourdough route and 4 were counted on the Chistochina route (T. Doyle, USFWS, pers. comm.).

Intensive observations of olive-sideds to gather information on rate of singing were on 14 days between 3 June and 1 July near Glennallen for a total of 54 hours, and on 5 days between 10 and 17 June near Fairbanks for 28 hours.



Descriptive habitat information was recorded on 24 perches from 5 olive-sided flycatcher territories near Glennallen, and on 10 perches from 3 territories near Fairbanks. More detailed data were gathered at two nests sites, 1 near Glennallen and 1 near Fairbanks.

The nest near Glennallen was found on 25 June, approximately 3 days after hatching. The nest was monitored every 2-3 days until the 4 young fledged on or before 12 July. The nest near Fairbanks was discovered on 17 June, apparently within 1 day or 2 of hatching, and was destroyed (probably blown out of the tree by strong winds) on 30 June.

The 4 young in the nest near Glennallen were banded with standard aluminum leg bands. In addition, 4 adults in the Glennallen area were captured during the nestling stage of the breeding season in mist nets, attracted by playback of recorded olive-sided flycatcher songs and calls. They were banded with color bands in addition to standard aluminum leg bands. Attempts at capturing birds after young had fledged using tape playback and a stuffed owl proved unsuccessful.

Analysis of data collected on singing behavior, habitat, and nesting biology has not been completed.

## **CONCLUSIONS AND RECOMMENDATIONS**

Migration monitoring of neotropical migrant birds by mist netting continued for its third year at Creamer's Refuge in 1994. Like any long-term monitoring program, only through consistent, continued effort will sufficient data be amassed to adequately reflect population trends. Therefore, it is improper to attempt any between year comparisons at this early stage in the study.

Initial efforts to gather information on olive-sided flycatchers were largely successful, but in the Glennallen area most males could not be relocated consistently and apparently were not settled on breeding territories. Although this season's data has yet to be analyzed, information gathered on singing behavior should prove useful in determining the utility of existing surveys for monitoring trends of olive-sided flycatchers and, if necessary, designing future censuses. Capture of adults for color marking using tape playback proved feasible. Experience gained in the 1994 field season will be used to improve our studies planned for summer 1995.

## ACKNOWLEDGMENTS

Thanks to the many people who participated in and supported this project. The Alaska Bird Observatory was responsible for the migration monitoring study at Creamer's Refuge. Tom Pogson, director of the ABO, was assisted by his staff, Jeff Bouton, and many volunteers. Kristian McIntyre, Eric Kelchlin, and Derek Sands conducted the field work on olive-sided flycatchers near Glennallen. Staff of the Bureau of Land Management office in Glennallen provided logistical and field assistance.

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Table 1. Birds captured in mist nets between 21 July and 1 October 1993 at Creamer's Migratory Waterfowl Refuge.

Species	Migration Type*	New Captures	Total Captured
Northern Harrier	B	1	1
Sharp-shinned Hawk	B	2	2
Three-toed Woodpecker	R	3	3
Yellow-bellied Flycatcher	A	1	1
Hammond's Flycatcher	A	13	16
Alder Flycatcher	A	76	88
Gray Jay	R	1	2
Black-capped Chickadee	R	25	107
Boreal Chickadee	R	10	10
Ruby-crowned Kinglet	B	89	101
Swainson's Thrush	A	95	146
Gray-cheeked Thrush	A	28	35
Hermit Thrush	B	5	8
American Robin	B	19	21
Varied Thrush	N	3	3
Northern Shrike	N	1	1
Orange-crowned Warbler	A	231	272
Yellow Warbler	A	59	68
Yellow-rumped Warbler	B	56	60
Townsend's Warbler	A	2	2
Blackpoll Warbler	A	20	20
Northern Waterthrush	A	30	49
Wilson's Warbler	A	109	128
American Tree Sparrow	N	394	431
Savannah Sparrow	B	73	78
Fox Sparrow	B	31	33
Lincoln's Sparrow	B	149	250
White-crowned Sparrow	B	40	44
Dark-eyed Junco	B	157	187
Rusty Blackbird	N	1	1
Total number of individual birds		1724	2168
Number of bird species			30
Number of days banding			51
Number of net-hours			13599

\*A=neotropical migrant with winter range entirely south of U.S.-Mexico border;  
 B=neotropical migrant with some wintering south of U.S.-Mexico border but most  
 north of border; N=migrant wintering in North America; R=resident

Table 2. Birds captured in mist nets between 25 April and 14 June 1994 at Creamer's Migratory Waterfowl Refuge.

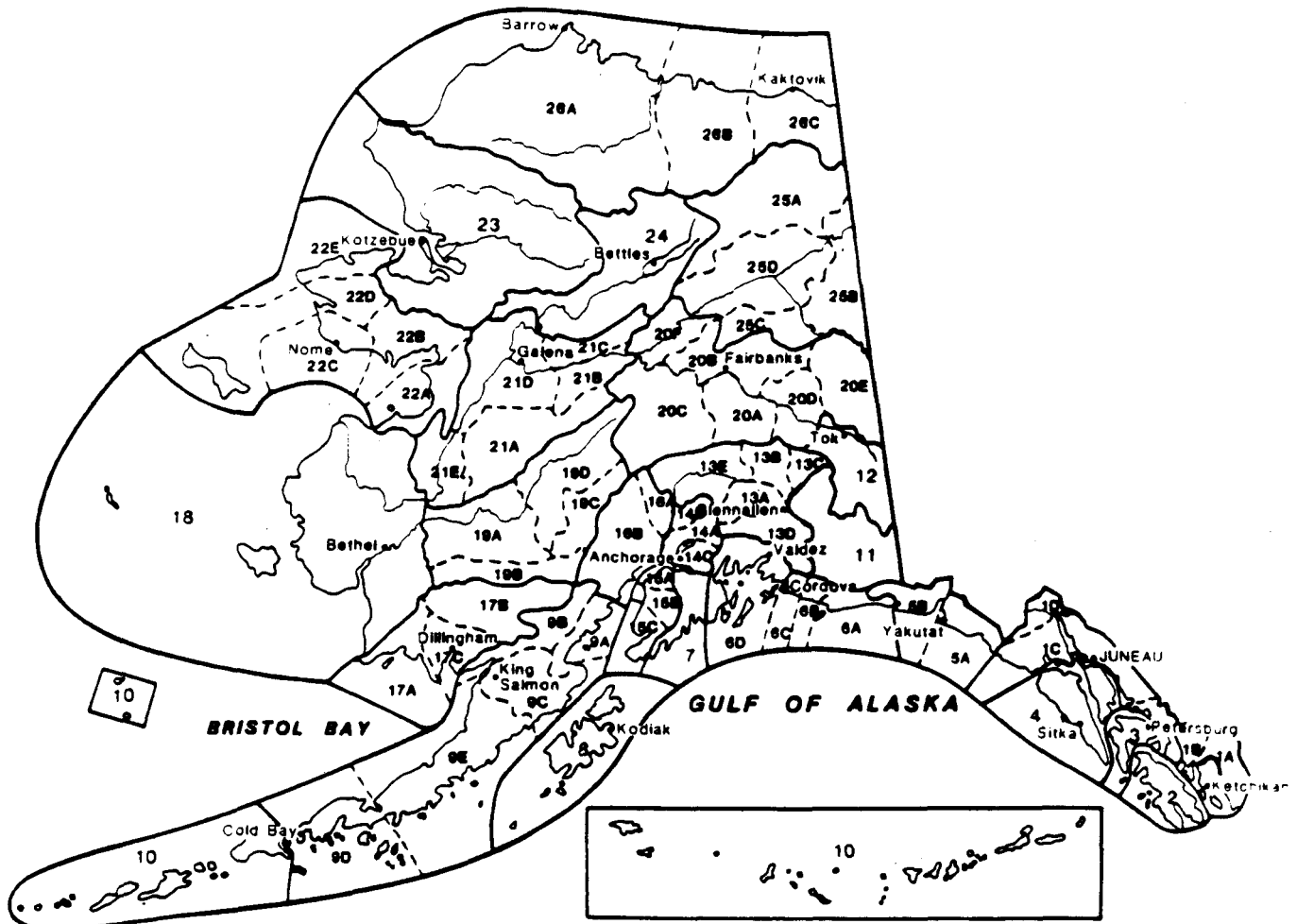
Species	Migration Type*	New Captures	Total
Sharp-shinned Hawk	B	3	4
American Kestrel	B	1	1
Solitary Sandpiper	A	3	4
Downy Woodpecker	R	1	1
Northern Flicker	N	1	1
Hammond's Flycatcher	A	16	32
Alder Flycatcher	A	7	8
Black-capped Chickadee	R	3	24
Boreal Chickadee	R	2	3
Ruby-crowned Kinglet	B	5	5
Swainson's Thrush	A	55	68
Gray-cheeked Thrush	A	21	22
Hermit Thrush	B	1	1
American Robin	B	30	52
Orange-crowned Warbler	A	47	57
Yellow Warbler	A	21	23
Yellow-rumped Warbler	B	54	79
Blackpoll Warbler	A	24	24
Northern Waterthrush	A	65	85
Wilson's Warbler	A	54	56
American Tree Sparrow	N	9	10
Savannah Sparrow	B	33	53
Fox Sparrow	B	9	9
Lincoln's Sparrow	B	12	16
White-crowned Sparrow	B	19	31
Dark-eyed Junco	B	23	37
Rusty Blackbird	N	6	8
Lapland Longspur	N	1	1
Common Redpoll	N	218	343
Hoary Redpoll	N	5	19
Total number of individual birds		749	1077
Number of bird species			30
Number of days banding			43
Number of net-hours			11197

\*A=neotropical migrant with winter range entirely south of U.S.-Mexico border; B=neotropical migrant with some wintering south of U.S.-Mexico border but most north of border; N=migrant wintering in North America; R=resident

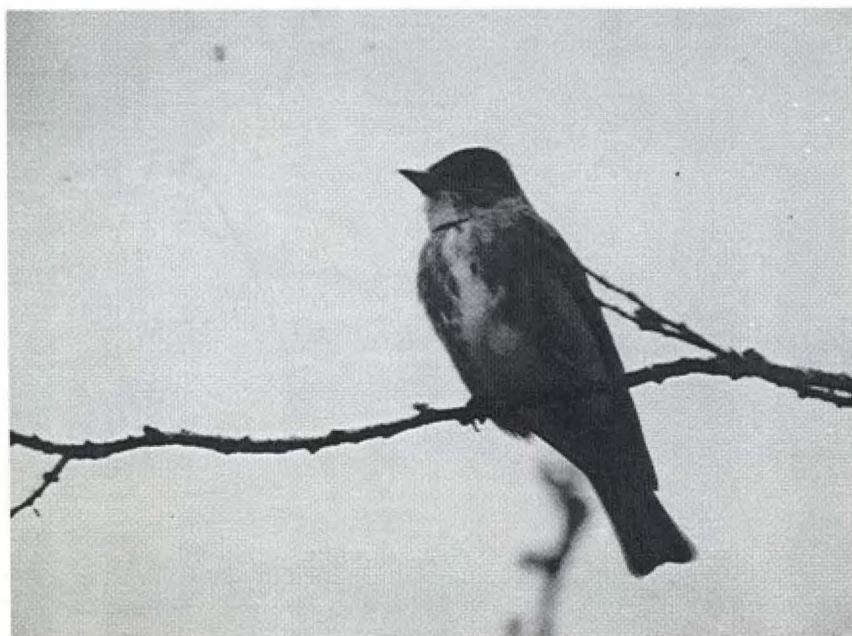
Table 3. Detections of olive-sided flycatchers on the Sourdough and Chistochina Breeding Bird Survey routes in 1994.

Date	<u>Number of Olive-sided Flycatchers Detected</u>	
	Sourdough	Chistochina
May 18	2	
19		1
25		4
28	0	
June 1	0	
2		1
8	11	1
16		2
17	6	
23		1
24	2	
29		1
30	1	

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