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Monitoring Neotropical and Migratory Birds in Alaska

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COVER

Photographer/travel writer Gerhard Kraus lives in the German Alps and specializes in northern countries of the world. He has spent much time hiking Alaska's major trails and canoeing Alaska's rivers. Kraus has written books about Scandinavia and over 100 articles about trekking, mountaineering, canoeing, cycling, and cross-country skiing. He currently writes for Nordis magazine. In this photograph Kraus captures an alert yet restful brown bear.

ANNUAL RESEARCH PERFORMANCE REPORT

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STUDY TITLE: Monitoring Neotropical and Migratory Birds in Alaska

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SUMMARY

In 1999 monitoring of migratory land birds continued for the eighth year at the Creamer's Refuge migration station in a cooperative project with the Alaska Bird Observatory. Mist nets were used to capture birds in fall on 61 days between 15 July and 29 September. The standard fall array of 36 nets established in 1997 was operated again in 1999. The fall 1999 capture rate (34.9 birds/100 net hours) for all species was just above the average for the first 8 years of this project (31.8). Thirty-two species were captured, including 20 neotropical migrants. Seventy-seven percent of all individuals captured were neotropical migrants; of those, 40% were long-distance migrants wintering primarily south of the USA/Mexico border. American tree sparrows, yellow-rumped and orange-crowned warblers were captured most frequently, followed by dark-eyed juncos, Savannah sparrows, yellow warblers, blackpoll warblers, Lincoln's sparrows, Swainson's thrushes, and Wilson's warblers. The proportion of juvenile birds captured in fall, an index of production, was 88% in 1999, close to the long-term average of 87%. Data on timing of migration are being compiled and analyzed as part of a graduate student thesis.

The educational program continued with banding demonstrations for school classes operating at maximum capacity. Summer demonstrations increased, and "Alaska Bird Camp" ran a weeklong program in its second year.

Key words: Alaska, migration monitoring, mist netting, Neotropical migratory birds.

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BACKGROUND

Declines in populations of migrant land birds have been well documented in North America. Long distance migrants, including flycatchers, thrushes, and wood warblers that breed in North America and winter in Neotropical Central and South America are among the species of concern (Askins et al. 1990; Sauer and Droege 1992). Alaska is an important part of the breeding range of several species of boreal forest land birds known to be declining in other portions of their North American breeding range.

A concerted international conservation effort, *Partners In Flight* Neotropical Migratory Bird Conservation Program, was developed in the early 1990s to address this problem. In Alaska, the *Boreal Partners in Flight* working group provides coordination and direction for local projects so that a comprehensive statewide monitoring and research program can be formed from the individual efforts of the many partners.

The Creamer's Refuge migration station is operated by the Alaska Bird Observatory in cooperation with ADF&G and a host of other contributors. The migration station is part of the statewide monitoring network, providing information on abundance and productivity on a broad scale to complement Breeding Bird Survey, off-road point counts, and MAPS (Monitoring Avian Productivity and Survival) studies. Approximately 150 migration monitoring sites are located throughout North America. Creamer's is the northernmost migration monitoring station and the longest running of 6 stations in Alaska. Among the 19

species captured in adequate numbers for monitoring at the Creamer's migration station are 3 species of conservation concern (gray-cheeked thrush and blackpoll warbler: Alaska State "Species of Special Concern" and Boreal Partners In Flight "Priority Species for Conservation" and Hammond's flycatcher: Boreal Partners In Flight "Priority Species for Conservation").

OBJECTIVE

- Gather information in fall 1999 on the abundance and productivity of migratory songbirds as part of a long-term monitoring project in the boreal forest of central Alaska.

- Collect information on timing of migration, breeding, and molt for a variety of land birds breeding in central Alaska.

STUDY AREA

The migration station is located on Creamer's Field Migratory Waterfowl Refuge in Fairbanks and encompasses about 15 ha of boreal forest, shrub, and wetland habitats at the edge of farm fields.

METHODS

An array of mist nets was used to capture birds. Nets were opened about 7 hours each day, from sunrise to early afternoon, weather permitting. The fall 1999 netting season extended from 15 July to 29 September. In the first 5 years of this project, from 4 to 51 nets were operated on a given day at the station. In 1997 a standard array of mist nets was established using a subset of previous years' nets so that all nets could be operated consistently, regardless of bird abundance or number of staff available. This reduced set of nets was the standard array operated in 1999. Birds were banded with standard aluminum leg bands, and information was collected on age, sex, wing chord, tail length, fat index, breeding condition, and molt.

Public education programs were also provided at the banding station. A 30–45 minute banding demonstration with information about bird migration, biology, and conservation was provided to 2–3 classes of local school children each school day in May and September. Structured programs were also provided to groups from summer science camps and tours. In addition, the Alaska Bird Observatory operated the "Alaska Bird Camp," a weeklong, full day program for 10–12-year-olds. Scheduled visitors were supplied with activity guides and individual booklets before their visit to the banding station. Impromptu presentations were provided to unscheduled drop-in visitors.

RESULTS

FALL 1999

Abundance and Productivity

In fall 1999 nets were operated for 61 days for a total of 12,111 net hours, comparable to prior years (Table 1). A total of 4267 birds were captured, representing 32 species (Table 2). The overall capture rate of 34.76 birds/100 net hours was above the average (31.79) and was the third highest in the 8 years of this project. As in prior years, most species captured were Type A (38%) or Type B (25%) Neotropical migrants, as were most (77%) individuals (Type A, 40%; Type B, 37%). The American tree sparrow, and yellow-rumped and orange-crowned warblers were captured most frequently, followed by the dark-eyed junco, Savannah sparrow, yellow warbler, blackpoll warbler, Lincoln's sparrow, Swainson's thrush, and Wilson's warbler.

Among the 19 regularly captured species in fall, 2 (alder flycatcher and ruby-crowned kinglet) were captured at the lowest rates recorded in the 8 years of fall netting, and 1 (Lincoln's sparrow) was captured at a rate equaling the previous low record (Table 4). Two species (blackpoll warbler and Savannah sparrow) were captured at new record high rates. Overall, 9 species were caught at higher rates than their long-term average (1992–1999), 7 were captured at lower rates than average, and 3 were captured at average rates.

In fall 1999, 88% of birds captured were young of the year (HY, hatch year) (Table 5). This is close to the 8-year average (87%). The proportion of young in 10 of the 19 commonly captured species was higher in 1999 than the long-term average, in 6 species the proportion of young was lower than average, and 3 species were close to average. Only one species (ruby-crowned kinglet) set a new high for proportion of young, another (gray-cheeked thrush) equaled its previous high, and 1 (white-crowned sparrow) set a new low.

TIMING OF MIGRATION

Information on timing of migration, breeding, and molt are being compiled and analyzed as part of a thesis for a graduate degree by Anna-Marie Benson (biologist with the Alaska Bird Observatory), advised by Kevin Winker, Curator of Ornithology at the University of Alaska Museum.

EDUCATION

Forty-five school groups (1129 individuals) participated in banding demonstrations provided by the Alaska Bird Observatory in fall 1999, slightly more than in 1998. This is the maximum number that can be accommodated in September when the banding station is active while schools are in session. The Alaska Bird Observatory conducted its second annual, weeklong "Alaska Bird Camp" in 1999, with nine 10–12-year-olds attending. Workshops on the "Basics of Birding," "Warblers," and other topics were also provided on the Refuge.

CONCLUSIONS AND RECOMMENDATIONS

This was the eighth year of the long-term migratory bird monitoring effort at Creamer's Refuge. The banding station is a cooperative project conducted by the Alaska Bird Observatory with support from the Alaska Department of Fish and Game. This arrangement with a local nonprofit organization has proven capable of sustaining the consistent effort necessary to maintain a project requiring 15–20 years or more of data collection. Recent analyses and reviews have confirmed the usefulness of standardized netting stations for study of the abundance and productivity of migratory bird populations (Dunn and Hussell 1995; Johnson and Geupel 1996; Dunn et al. 1997). In addition to its value in monitoring species of concern, this project is also gathering important information on the timing of migration, reproduction, molt, juvenile dispersal, changes in body condition, and other life-history events. It has also become a valued educational program for regional schools and the general community.

ACKNOWLEDGMENTS

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The dedicated board of directors and staff of the Alaska Bird Observatory are responsible for the success of this long-term project. I would especially like to thank Lori Quakenbush, Board President, Anna-Marie Benson, Chief Biologist, Nancy DeWitt, Executive Director, Steve Springer, Banding Biologist, and Andrea Swingley, Education Coordinator for the key roles they played in this effort. Thanks also to the interns and volunteers who regularly got up before dawn to run the nets. Mark Ross, ADF&G, helped coordinate visits by school groups and developed complementary educational programs for visiting school children.

LITERATURE CITED

ASKINS RA, JF LYNCH, AND R GREENBERG. 1990. Population declines in migratory birds in Eastern North America. Pages 1–57 *in* DM Power, editor. Current Ornithology Volume 7, Plenum Press, New York.

DUNN EH AND DT HUSSELL. 1995. Using migration counts to monitor landbird populations; review and evaluation of current methods. Pages 43–88 *in* DM Power, editor. Current Ornithology Volume 12, Plenum Press, New York.

DUNN EH, DT HUSSELL, AND RJ ADAMS. 1997. Monitoring songbird population change with autumn mist netting. *Journal of Wildlife Management* 61:389–396.

JOHNSON MD AND GR GUEPEL. 1996. The importance of productivity to the dynamics of a Swainson's Thrush population. *Condor* 98:133–141

SAUER JR AND S DROEGE. 1992. Geographic patterns in population trends of neotropical migrants in North America. Pages 26–42 *in* JM Hagan and DW Johnston, editors. Ecology and Conservation of Neotropical Migrant Landbirds, Smithsonian Institution Press, Washington, DC.

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Table 1 Mist netting effort at Creamer's Refuge migration station, 1992–1999

Season		Year							
		1992	1993	1994	1995	1996	1997	1998	1999
Spring	Number of days nets open	42	43	41	45	44	42	40	40
	Net hours	6903	10,552	11,252	12,731	12,411	7,548	6,760	7,180
	Number of nets per day	16–29	16–33	27–47	36–47	33–45	26	26	24-26
Fall	Number of days nets open	46	53	52	58	57	66	55	61
	Net hours	5890	13,711	13,934	14,156	14,985	14,617	12,091	12,111
	Number of nets per day	4–35	11–47	21–51	16–49	18–49	36	36	26-36

Table 2 Birds captured at Creamer's Refuge migration station, 1999

Species	Migration Type[a]	Spring 1999	Fall 1999
Sharp-shinned Hawk (*Accipter striatus*)	B	2	5
Lesser Yellowlegs (*Tringa flavipes*)	A	9	
Solitary Sandpiper (*Tringa solitaria*)	A	7	
Northern Hawk Owl (*Surnia ulula*)	R	1	
Yellow-bellied Sapsucker (*Sphyrapicus varius*)	B	1	
Downy Woodpecker (*Picoides pubescens*)	R		2
Hairy Woodpecker (*Picoides villosus*)	R		2
Three-toed Woodpecker (*Picoides tridactylus*)	R		2
Northern Flicker (*Colaptes auratus*)	B	1	2
Alder Flycatcher (*Empidonax alnorum*)	A	1	57
Hammond's Flycatcher (*Empidonax hammondi*)	A	8	30
Tree Swallow (*Tachycineta bicolor*)	B	2	
Gray Jay (*Perisoreus canadensis*)	R	1	
Black-capped Chickadee (*Poecile atricapillus*)	R	10	50
Boreal Chickadee (*Poecile hudsonicus*)	R	4	
Ruby-crowned Kinglet (*Regulus calendula*)	B		64
Arctic Warbler (*Phylloscopus sibilatrix*)	P		4
Gray-cheeked Thrush (*Catharus minimus*)	A	11	49
Swainson's Thrush (*Catharus ustulatus*)	A	20	131
Hermit Thrush (*Catharus guttatus*)	B		19
American Robin (*Turdus migratorius*)	B	54	33
Varied Thrush (*Ixoreus naevius*)	N		3
Northern Shrike (*Lanius excubitor*)	N		4
Orange-crowned Warbler (*Vermivora celata*)	A	36	729
Yellow Warbler (*Dendroica petechia*)	A	4	203
Yellow-rumped Warbler (*Dendroica coronata*)	B	80	751
Townsend's Warbler (*Dendroica townsendi*)	A		3
Blackpoll Warbler (*Dendroica striata*)	A	2	81
Northern Waterthrush (*Seiurus noveboracensis*)	A	15	51
Wilson's Warbler (*Wilsonia pussilla*)	A	9	129
American Tree Sparrow (*Spizella arborea*)	N	4	780
Savannah Sparrow (*Passerculus sandwichensis*)	B	22	210
Fox Sparrow (*Passerella iliaca*)	B		70
Lincoln's Sparrow (*Melospiza lincolnii*)	A	12	161
Golden-crowned *Sparrow (Zonotricia atricapilla*)	N		4
White-crowned Sparrow (*Zonotrichia leucophrys*)	B	16	34
Dark-eyed Junco (*Junco hyemalis*)	B	44	458
Rusty Blackbird (*Euphagus carolinus*)	N	4	1
White-winged Crossbill (*Loxia leucoptera*)	N	1	
Common Redpoll (*Carduelis flammea*)	N	45	45
Totals: Individuals		426	4267
Species		29	32

Table 2 Continued

Species	Migration Type[a]	Spring 1999	Fall 1999
Dates nets open		5 Apr–15 Jun	15 Jul–29 Sep
Number of days nets operated		40	61
Number of net hours		7180	12111

[a] Winter range/migration: A = primarily south of USA/Mexico border; B = some populations south of US/Mexico border; P = Pacific/Eurasia/Africa; N = North America; R = Resident.

Table 3 Capture rates (birds/100 net hr) in spring of common species and total for all species, Creamer's Refuge migration station, spring 1999

Species	1992	1993	1994	1995	1996	1997	1998	1999	1992-1999 Average
Hammond's Flycatcher	0.17	0.12	0.14	0.17	0.06	0.12	0.16	0.11	0.13
Ruby-crowned Kinglet	0.29	0.01	0.04	0.05	0.06	0.04	0.06	0.00	0.07
Gray-cheeked Thrush	0.23	0.13	0.19	0.09	0.18	0.07	0.21	0.15	0.16
Swainson's Thrush	0.41	0.45	0.49	0.38	0.63	0.33	0.58	0.28	0.44
American Robin	0.45	0.34	0.28	0.35	0.29	0.50	1.17	0.75	0.52
Orange-crowned Warbler	0.58	0.47	0.40	0.36	0.24	0.25	0.78	0.50	0.45
Yellow Warbler	0.67	0.26	0.36	0.06	0.17	0.13	0.18	0.06	0.24
Yellow-rumped Warbler	1.58	0.93	0.48	0.70	0.65	0.94	1.46	1.11	0.98
Northern Waterthrush	0.33	0.13	0.58	0.19	0.44	0.32	0.21	0.21	0.30
Wilson's Warbler	0.48	0.51	0.51	0.46	0.14	0.17	0.21	0.13	0.33
American Tree Sparrow	0.51	0.01	0.08	0.07	0.19	0.01	0.18	0.06	0.14
Savannah Sparrow	0.83	0.14	0.29	0.25	0.42	0.20	0.56	0.31	0.38
Lincoln's Sparrow	0.09	0.05	0.11	0.16	0.10	0.11	0.99	0.17	0.22
White-crowned Sparrow	0.20	0.08	0.16	0.08	0.07	0.17	0.44	0.22	0.18
Dark-eyed Junco	0.42	0.09	0.21	0.29	0.73	0.45	0.72	0.61	0.44
Common Redpoll	1.17	0.18	1.99	0.68	0.08	0.20	9.51	0.63	1.81
Total (all species)	10.46	4.27	6.91	4.63	4.87	4.29	17.28	5.93	7.33

Table 4 Capture rates (birds/100 net hr) in fall of common species and total for all species, Creamer's Refuge migration station, fall 1999

Species	1992	1993	1994	1995	1996	1997	1998	1999	1992-1999 Average
Alder Flycatcher	0.58	0.55	0.44	0.47	0.48	0.86	0.47	0.33	0.52
Hammond's Flycatcher	0.14	0.10	0.29	0.35	0.59	0.50	0.28	0.31	0.32
Black-capped Chickadee	0.58	0.18	0.21	0.48	0.31	0.23	0.36	0.34	0.34
Ruby-crowned Kinglet	0.88	0.65	0.91	0.87	1.56	1.36	1.15	0.51	0.99
Gray-cheeked Thrush	0.63	0.18	0.20	0.35	0.11	0.28	0.33	0.40	0.31
Swainson's Thrush	1.06	0.67	0.73	1.24	0.59	1.29	0.88	1.04	0.94
American Robin	2.73	0.15	0.27	0.24	0.24	0.27	0.27	0.27	0.56
Orange-crowned Warbler	7.35	1.71	4.23	6.12	3.06	4.41	7.59	5.48	4.99
Yellow Warbler	2.17	0.43	0.64	1.38	0.76	1.29	0.69	1.58	1.12
Yellow-rumped Warbler	13.40	0.41	7.18	4.15	7.77	8.44	11.17	5.60	7.27
Blackpoll Warbler	1.38	0.15	0.35	0.36	0.33	0.70	0.36	1.39	0.63
Northern Waterthrush	0.69	0.22	0.12	0.20	0.22	0.36	0.33	0.40	0.32
Wilson's Warbler	2.15	0.79	0.83	1.19	0.50	1.27	1.26	1.04	1.13
American Tree Sparrow	1.81	2.88	2.46	4.66	1.83	5.22	9.95	5.93	4.34
Savannah Sparrow	0.75	0.52	0.20	1.23	0.55	0.72	0.78	1.64	0.80
Fox Sparrow	0.26	0.23	0.30	0.23	0.25	0.45	0.58	0.57	0.36
Lincoln's Sparrow	2.73	1.09	1.27	2.56	1.56	1.68	2.35	1.09	1.79
White-crowned Sparrow	0.69	0.31	0.43	0.30	0.80	0.48	0.80	0.26	0.51
Dark-eyed Junco	2.33	1.18	3.84	2.92	3.86	3.17	6.75	3.38	3.43
Total (all species)	43.16	12.58	25.32	30.78	26.73	33.41	47.58	34.79	31.79

Table 5 Proportion of juvenile (HY, hatch year) birds in fall captures of common species and for all individuals, Creamer's Refuge migration station, fall 1999

Species	1992	1993	1994	1995	1996	1997	1998	1999	1992-1999 Average
Alder Flycatcher	0.89	0.61	0.76	0.64	0.72	0.68	0.82	0.63	0.72
Hammond's Flycatcher	0.89	0.85	0.76	0.96	0.89	0.90	1.00	0.83	0.89
Black-capped Chickadee	0.94	0.75	0.69	0.90	0.93	0.94	1.00	0.82	0.87
Ruby-crowned Kinglet	0.82	0.90	0.89	0.91	0.87	0.87	0.91	0.92	0.89
Gray-cheeked Thrush	0.79	0.76	0.75	0.78	0.88	0.76	0.90	0.90	0.82
Swainson's Thrush	0.82	0.79	0.86	0.91	0.96	0.90	0.89	0.93	0.88
American Robin	0.42	0.50	0.89	0.76	0.86	0.85	0.87	0.88	0.75
Orange-crowned Warbler	0.83	0.63	0.86	0.86	0.84	0.79	0.91	0.87	0.82
Yellow Warbler	0.91	0.58	0.88	0.84	0.94	0.94	0.90	0.90	0.86
Yellow-rumped Warbler	0.91	0.75	0.94	0.91	0.95	0.94	0.93	0.90	0.90
Blackpoll Warbler	0.94	0.71	0.86	0.94	0.96	0.92	0.84	0.96	0.89
Northern Waterthrush	0.93	0.87	0.94	0.93	0.97	0.90	0.98	0.88	0.93
Wilson's Warbler	0.90	0.67	0.84	0.89	0.85	0.96	0.96	0.98	0.88
American Tree Sparrow	0.67	0.72	0.87	0.81	0.85	0.90	0.93	0.87	0.83
Savannah Sparrow	0.87	0.92	0.96	0.96	0.98	0.92	0.88	0.95	0.93
Fox Sparrow	0.69	0.77	0.79	0.81	0.78	0.68	0.83	0.70	0.76
Lincoln's Sparrow	0.92	0.79	0.93	0.95	0.97	0.93	0.95	0.92	0.92
White-crowned Sparrow	0.86	0.90	0.90	0.91	0.93	0.94	0.93	0.68	0.88
Dark-eyed Junco	0.84	0.88	0.96	0.90	0.91	0.89	0.93	0.89	0.90
Total (all individuals captured)	0.84	0.75	0.90	0.87	0.90	0.89	0.92	0.88	0.87

Table 6 Educational programs and visitors, Creamer's Refuge banding station, 1999

Season	Number of groups	Number of individuals in groups	Number of drop-in visitors
Spring	39	916	
Summer	19	336	
Fall	45	1129	
Alaska Bird Camp	1	9	
Totals	104	2390	723

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve, and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes for responsible hunting. Seventy-five percent of the funds for this report are from Federal Aid.

James L Davis