

Exxon Valdez Oil Spill
State/Federal Natural Resource Damage Assessment Final Report

Reconnaissance Survey of Passerine Birds in Prince William Sound

Bird Study Number 13
Annual Report

This annual report has been prepared for peer review as part of the *Exxon Valdez* Oil Spill Trustee Council restoration program for the purpose of assessing project progress. Peer review comments have not been addressed in this annual report.

Alaska Department of Fish and Game
Division of Wildlife Conservation
333 Raspberry Road
Anchorage, Alaska 99518

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Study History: Bird Study Number 13 was initiated in 1990 to provide a preliminary assessment of injury from the *Exxon Valdez* oil spill to passerine birds on Perry Island in northwestern Prince William Sound. Field work was carried out during May, July, and August, 1990, and the results are summarized in this annual report. This project was not continued after the initial field season.

Abstract: A reconnaissance survey was conducted in 1990 to provide preliminary information about injury from the *Exxon Valdez* oil spill to birds in the order Passeriformes on Perry Island in northwestern Prince William Sound. The intent of the project was to use the preliminary information as a basis for determining whether more detailed studies were needed. Survey methods followed a pattern that had been established during work at the same location in 1983-1986. Birds seen or heard (singing males) were counted along on-shore and off-shore transects, and totals by species and by transect were recorded. On-shore transects were walked just after dawn or just before dusk. Off-shore counts were conducted at mid-day by kayak, 5-20 feet from the beach. On-shore transects includes areas that were heavily and moderately oiled and non-oiled. Off-shore transects covered the entire Perry Island shoreline. Results of these surveys were examined and compared (non-statistically) with the similarly-obtained data from 1983-1986. A total of 1,523 birds of 19 species was recorded on the on-shore transects. These preliminary data suggest that the oil spill had no dramatic impact on the species or number of birds at Perry Island, and comparisons of postspill and historical data revealed no remarkable differences.

Key Words: *Exxon Valdez* oil spill, passeriformes, Perry Island, Prince William Sound.

Project Data: Original data sheets for this project are archived at the Alaska Department of Fish and Game, 333 Raspberry Road, Anchorage, Alaska 99518. Contact Celia Rozen, Librarian, at (907) 267-2314.

Citation:

Alaska Department of Fish and Game. 1991. Reconnaissance survey of passerine birds in Prince William Sound, *Exxon Valdez* Oil Spill State/Federal Natural Resource Damage Assessment Annual Report (Bird Study Number 13), Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, Alaska.

EXECUTIVE SUMMARY

A reconnaissance survey was conducted during summer 1990 to provide preliminary information about injury from the Exxon Valdez oil spill to passerine birds on Perry Island in Prince William Sound. Birds were counted along on-shore and off-shore transects during May, July and August. On-shore data were collected in oiled and non-oiled areas and results were compared. Results from on-shore transects were also compared to historical data collected from 1983 through 1986. The data indicated no dramatic impact on presence or total number of birds within the oiled study areas. Most species expected from historical data were present within the oiled areas in 1990. Absence of the few species not observed may be explained by their historical scarcity. Comparisons of total number of birds between oiled and unoiled areas in 1990 and between historical and 1990 data also revealed no remarkable differences.

INTRODUCTION

This project was a reconnaissance survey designed to provide only preliminary information about injury from the Exxon Valdez oil spill (EVOS) to passerine birds within Prince William Sound (PWS). This information will be used to assess the need for more detailed studies.

OBJECTIVES

The objectives of this survey were to:

1. Observe, record and report the presence or absence of passerine species in oiled and non-oiled study sites in PWS.
2. Compare count data for 1990 between oiled and non-oiled sites.
3. Compare count data for 1990 with historical data collected prior to the oil spill.

METHODS

Study Area

The survey was conducted on Perry Island in western PWS. Shoreline oiling varied from heavy to none. The island is typical of passerine bird habitat in much of PWS and contains a representation of resident and breeding birds. Nineteen species of passerines inhabit the shoreline and forest fringe and most other wildlife species that occur in the sound are also present. Perry Island normally receives a variety of human uses including: camping, hiking, pleasure and tour boating and commercial fishing. A variety of oil spill response activities also took place there during 1989 and 1990. These included: wildlife rescue, oil skimming, beach cleanup and bioremediation, task force berthing, and sediment and stream sampling.

Surveys

Survey methods were not strictly standardized, but rather followed a pattern that had been established during work on Perry Island from 1983 through 1986 prior to EVOS. Birds were counted along on-shore and off-shore transects during 21-31 May, 3-13 July, and 5-15 August of 1990. Totals by species and by transect were recorded. Both observed birds and singing males were counted. Most on-shore counts were done by walking along transects in the morning just after dawn and occasionally in the late afternoon just before dusk. Off-shore counts were done

in the middle of the day by kayak at 5 - 20 ft from the beach. On both types of transects, observers moved at a slow pace (2 -3 mph), stopping for about 2 minutes every quarter hour.

On-shore transects were located in heavily oiled, moderately oiled and non-oiled areas. These were Day Care Cove, Meares Point, and West twin Bay, respectively. Habitat and length of transects were similar at all three sites. Off-shore transects were located around the entire coastline of Perry Island, which varied from non-oiled to heavily oiled. These data were not stratified by degree of oiling.

Data Analysis

Species presence or absence was recorded for all transects. Also, species present within on-shore transects were compared to those present on these transects during various surveys conducted from 1983 through 1986.

Counts of individual birds were totaled for each time period by species and by transect. Transect totals from on-shore counts were compared between oiled and non-oiled sites. These totals were also compared to various historical counts that were completed from 1983 through 1986. All comparisons were simple, non-statistical, examinations of values to discover any obvious differences.

RESULTS

Forty-eight passerine species are expected to occur in PWS (Table 1) (Isleib and Kessel 1973). Nineteen of those species were seen along the transects, with a total of 1,523 birds observed (Table 2).

Historical species presence within on-shore transects was not substantially different from observations made in 1990 (Table 3). In the heavily oiled area, 13 species were seen historically, while 9 were observed in 1990. All 4 missing species had only been seen during 1 of 5 historical surveys used in the comparisons. In the moderately oiled area, 12 species were seen in past surveys, and all but 2 of those were observed in 1990. Both missing species were present during only 1 of 4 historical comparisons. In the non-oiled area, 9 species were present historically, and all but 1 of those were seen in 1990. Conversely, some species that had not been observed historically were observed in 1990. In the moderately oiled and non-oiled areas 1 and 7 species, respectively, were observed that had not been seen previously.

Total counts within on-shore transects during May were higher in the non-oiled area than in the heavily and moderately oiled areas (Table 4). However, the reverse was true in July and August. Both the heavily and moderately oiled areas had higher numbers than the non-oiled area.

Total numbers of birds seen within on-shore transects was within the range of values expected from historical counts where comparisons were possible. In the

heavily oiled area, 26 birds were seen in May 1990. Comparable historical totals varied from 17 to 40. The total for August 1990 was 23, while one historical survey in 1985 counted 36 (Table 5). In the moderately oiled area, 32 birds were seen during May 1990. Historical counts varied from 6 to 34 (Table 6). In the non-oiled area, 43 birds were seen during May 1990. Counts during 1985 and 1986 observed 23 and 3, respectively. The total for August 1990 was 30, while one historical survey in 1984 counted 37 (Table 7).

CONCLUSIONS

The preliminary survey data from on-shore transects indicated that EVOS had no dramatic impact on presence or total number of birds within the oiled study areas on Perry Island. Most species expected from historical data were present within the oiled areas in 1990. Absence of the few species not observed may be explained by their historical scarcity. Comparisons of total number of birds between oiled and unoled areas in 1990 and between historical and 1990 data also revealed no remarkable differences.

LITERATURE CITED

Isleib, M.E. and B. Kessel. 1973. Birds of the North Gulf Coast-Prince William Sound Region, Alaska. Biol. Pap. Univ. of Alaska No. 14.

Table 1. Passerine bird species of Prince William Sound (Isleib and Kessel 1989)

Common Name	Scientific Name	Common Name	Scientific Name
Tree Swallow	<i>Iridoprocne bicolor</i>	American Dipper	<i>Cinclus mexicanus</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>	Bohemian Waxwing	<i>Bombycilla garrulus</i>
Bank Swallow	<i>Ripariar riparia</i>	Orange-crowned Warbler	<i>Vermivora celata</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Yellow-rumped Warbler	<i>Dendroica coronata</i>
Barn Swallow	<i>Hirundo rustica</i>	Townsend's Warbler	<i>Dendroica townsendi</i>
Steller's Jay	<i>Cyanocitta stelleri</i>	Blackpoll Warbler	<i>Dendroica striata</i>
Gray Jay	<i>Perisoreus canadensis</i>	Yellow Warbler	<i>Dendroica petechia</i>
Black-billed Magpie	<i>Pica pica</i>	Wilson's Warbler	<i>Wilsonia pusilla</i>
Northwestern Crow	<i>Corvus caurinus</i>	Savannah Sparrow	<i>Passerculus saandwichensis</i>
Common Raven	<i>Corvus corax</i>	Song Sparrow	<i>Melospiza melodia</i>
Black-capped Chickadee	<i>Parus atricapillus</i>	Tree Sparrow	<i>Spizella arborea</i>
Chestnut-backed Chickadee	<i>Parus rufescens</i>	Dark-eyed Junco	<i>Junco hyemalis</i>
Boreal Chickadee	<i>Parus hudsonicus</i>	White-throated Sparrow	<i>Zonotrichia albicollis</i>
Brown Creeper	<i>Certhia familiaris</i>	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Winter Wren	<i>Troglodytes troglodytes</i>	Fox Sparrow	<i>Passerella iliaca</i>
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Lincoln's Sparrow	<i>Melopiza lincolni</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Pine Siskin	<i>Carduelis pinus</i>
Grey-cheeked Thrush	<i>Catharus minimus</i>	Red Crossbill	<i>Loxia curvirostra</i>
Hermit Thrush	<i>Catharus guttatus</i>	White-winged Crossbill	<i>Loxia leucoptera</i>
Varied Thrush	<i>Ixoreus naevius</i>	Pine Grosbeak	<i>Pinicola enucleator</i>
American Robin	<i>Turdus migratorius</i>	Common Redpoll	<i>Carduelis flammea</i>
Northern Shrike	<i>Lanius excubitor</i>	Hoary Redpoll	<i>Carduelis hornemani</i>
Water Pipit	<i>Anthus spinoletta</i>	Rosy Finch	<i>Leucosticte arctoa</i>

Table 2. Passerine birds counted on Perry Island during May, July, and August 1991.

Species	Survey Dates			Total
	5/21-31	7/3-13	8/5-15	
Tree Swallow	0	2	0	2
Steller's Jay	18	34	39	91
Northwestern Crow	37	32	45	114
Common Raven	7	10	3	20
Chestnut-backed Chickadee	33	136	229	398
Brown Creeper	0	4	8	12
Winter Wren	2	2	0	4
Ruby-crowned Kinglet	2	0	0	2
Hermit Thrush	54	84	3	141
Varied Thrush	44	16	0	60
American Robin	0	2	0	2
Orange-crowned Warbler	123	255	164	542
Yellow Warbler	0	3	0	3
Wilson's Warbler	3	6	1	10
Savannah Sparrow	6	2	0	8
Song Sparrow	5	16	4	25
Fox Sparrow	16	24	31	71
Lincoln's Sparrow	6	3	3	12
Pine Siskin	0	4	2	6
				1523

Table 3. Presence or absence of Passerine birds on Perry Island within on-shore transects historically and during 1990.

Species	<u>Heavily Oiled</u>		<u>Moderately Oiled</u>		<u>Non-oiled</u>	
	Hist. ¹	1990	Hist. ²	1990	Hist. ³	1990
Tree Swallow	P ⁴	A ⁵	P	A	A	P
Steller's Jay	P	P	P	P	P	P
Northwestern Crow	P	P	P	P	A	P
Common Raven	P	P	P	A	A	P
Chestnut-backed Chickadee	P	P	P	P	P	P
Brown Creeper	P	A	A	A	A	P
Winter Wren	P	A	P	P	A	A
Hermit Thrush	P	P	P	P	P	P
Varied Thrush	P	P	P	P	P	P
American Robin	A	A	A	A	A	P
Orange-crowned Warbler	P	P	P	P	P	P
Wilson's Warbler	P	P	P	P	A	A
Savannah Sparrow	A	A	P	P	P	P
Song Sparrow	P	A	A	P	P	P
Golden-Crowned Sparrow	A	A	A	A	P	A
Fox Sparrow	P	P	P	P	P	P
Lincoln's Sparrow	A	A	A	A	A	P
Pine Siskin	A	A	A	A	A	P

¹ Surveys conducted on 4 June 1983, 17 May 1984, 20 May 1985, and 4 August 1985, and 24 May 1986.

² Surveys conducted on 30 May 1983, 20 May 1984, 2 June 1985, and 22 May 1986.

³ Surveys conducted on 17 May 1985, 20 May 1986, and 1 July 1984.

⁴ Present

⁵ Absent

Table 4. Numbers of Passerine birds on Perry Island within on-shore transects in heavily oiled, moderately oiled and non-oiled areas during May, July, and August 1991.

Species	May			July			August		
	H ¹	M ²	N ³	H	M	N	H	M	N
Tree Swallow	0	0	0	0	0	2	0	0	0
Steller's Jay	0	2	4	0	4	0	2	5	3
Northwestern Crow	4	5	3	3	4	1	2	7	0
Common Raven	1	0	3	2	0	0	0	0	0
Chestnut-backed Chickadee	3	3	6	3	17	10	6	20	5
Brown Creeper	0	0	2	4	0	0	0	2	1
Winter Wren	0	2	0	0	2	0	0	0	0
Hermit Thrush	7	6	2	8	5	2	1	0	0
Varied Thrush	4	4	4	7	2	0	0	0	0
American Robin	0	0	2	1	0	0	0	0	0
Orange-crowned Warbler	6	5	6	14	15	10	8	3	1
Wilson's Warbler	0	1	0	0	0	0	1	0	0
Savannah Sparrow	0	1	3	0	1	0	0	0	0
Song Sparrow	0	1	1	3	0	2	0	2	0
Golden-crowned Sparrow	0	0	0	0	0	0	0	0	0
Fox Sparrow	1	2	2	4	4	1	3	1	4
Lincoln's Sparrow	0	0	0	0	0	2	0	0	0
Pine Siskin	<u>0</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL	26	32	43	49	54	30	23	40	14

¹ Heavily oiled

² Moderately oiled

³ Non-oiled

Table 5. Historical and 1991 counts of Passerine birds on Perry Island within on-shore transects in a heavily oiled area.

Species	May-June					August	
	1983 (6/4)	1984 (5/17)	1985 (5/20)	1986 (5/24)	1990 (5/30)	1985 (8/4)	1990 (8/6)
Tree Swallow	0	0	0	6	0	0	0
Steller's Jay	2	6	2	0	0	4	2
Northwestern Crow	10	0	4	15	4	6	2
Common Raven	1	0	2	2	1	2	0
Chestnut-backed Chickadee	0	1	20	6	3	10	6
Brown Creeper	0	0	0	0	0	2	0
Winter Wren	0	0	0	0	0	1	0
Hermit Thrush	6	0	2	0	7	1	1
Varied Thrush	4	6	4	0	4	2	0
Orange-crowned Warbler	4	0	2	0	6	4	8
Wilson's Warbler	0	0	2	0	0	0	1
Song Sparrow	0	2	0	0	0	0	0
Fox Sparrow	<u>8</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>4</u>	<u>3</u>
TOTAL	35	17	40	31	26	36	23

Table 6. Historical and 1991 counts of Passerine birds on Perry Island within on-shore transects in a moderately oiled area.

Species	May - June				
	1983 (5/30)	1984 (5/20)	1985 (6/2)	1986 (5/22)	1990 (5/22)
Tree Swallow	0	0	8	0	0
Steller's Jay	2	1	4	2	2
Northwestern Crow	0	1	2	0	5
Common Raven	0	1	0	0	0
Chestnut-backed Chickadee	0	0	4	0	3
Winter Wren	0	2	0	0	2
Hermit Thrush	2	4	2	2	6
Varied Thrush	2	2	0	0	4
Orange-crowned Warbler	4	2	2	2	5
Wilson's Warbler	2	0	2	0	1
Savannah Sparrow	0	0	6	0	1
Song Sparrow	0	0	0	0	1
Fox Sparrow	<u>2</u>	<u>2</u>	<u>4</u>	<u>0</u>	<u>2</u>
TOTAL	14	15	34	6	32

Table 7. Historical and 1991 counts of Passerine birds on Perry Island within on-shore transects in a non-oiled area.

Species	May			July	
	1985 (5/17)	1986 (5/20)	1990 (5/24)	1984 (7/01)	1990 (7/13)
Tree Swallow	0	0	0	0	2
Steller's Jay	2	0	4	2	0
Northwestern Crow	0	0	3	0	1
Common Raven	0	0	3	0	0
Chestnut-backed Chickadee	0	0	6	3	10
Brown Creeper	0	0	2	0	0
Hermit Thrush	0	0	2	6	2
Varied Thrush	0	0	4	4	0
American Robin	0	0	2	0	0
Orange-crowned Warbler	2	0	6	6	10
Savannah Sparrow	10	0	3	8	0
Song Sparrow	2	0	1	2	2
Golden-Crowned Sparrow	1	1	0	2	0
Fox Sparrow	6	2	2	4	1
Lincoln's Sparrow	0	0	0	0	2
Pine Siskin	<u>0</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>
TOTAL	23	3	43	37	30