

U.S. Fish and Wildlife Service

ALASKA LANDBIRD MONITORING SURVEY and OFF-ROAD POINT COUNT, ALASKA PENINSULA/BECHAROF NATIONAL WILDLIFE REFUGE, JUNE 2013

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Photo: USFWS, J. Johnson

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The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

Key Words: Alaska Peninsula, Becharof, landbirds, monitoring, point counts

Photo: Red-breasted mergansers swim on Lower Ugashik Lake; Mt. Peulik in the background.

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Background

The Alaska Landbird Monitoring Survey (ALMS) program is a cooperative statewide program established to monitor population trends of landbirds and other birds across roadless areas of Alaska. US Geological Survey-Alaska Science Center (ASC) Research Wildlife Biologist Colleen Handel leads the statewide program. The project is designed to complement the road-based Breeding Bird Survey. Because so much of Alaska is without roads, the success of landbird monitoring in Alaska relies on implementation of ALMS. The first ALMS blocks were attempted in 2004 with the Alaska Peninsula/Becharof NWR (Refuge) completing five helicopter accessed (Gertrude Creek, Bearskin Creek - Chignik Lake, North King Salmon River, Bear Creek – Becharof, Deer Mountain - Ugashik Lake) and two fixed-wing accessed (Dog Salmon and Wide Bay) ALMS blocks (Sesser & Jehle 2005; henceforth referred to as helicopter sample). Most program biologists at other federal conservation units could not find funding for helicopter accessed surveys, so the program took a step back from selecting random blocks across all federal lands to selecting random blocks from areas that were fixed-wing accessible (henceforth referred to as fixed-wing sample). The Refuge submitted a fixed-wing accessible GIS shape file to Handel in 2005 and again in early 2011. Under the new sampling regime, our Refuge is slated for four ALMS blocks (Handel and Matsuoka 2007), two to be surveyed in each of two consecutive years, with ongoing repetition of the cycle. Refuge management has supported our involvement in this program to date. In recent years the Alaska Regional Inventory and Monitoring Program (I&M), led by Branch Chief, Diane Granfors, has become interested in using ALMS for landbird monitoring in Refuges and in 2013, because of the Refuge's continued participation in the program, rewarded it by funding our effort.

Our participation since 2004 has included: Refuge staff repeating one survey in 2007 (Dog Salmon), ABO staff with Refuge support attempting two surveys in 2010 (Wide Bay and Dog Salmon; [see Savage: Memo to file: ALMS Surveys 2010]), Refuge staff completing two new blocks (Lower Ugashik Lake and King Salmon River South) in 2011 with additional resampling of one block (see Savage: Memo to file: ALMS Surveys 2011), and in 2012, resampling one block (Dog Salmon) and establishing one new block (Kejulik River; see Savage and Payne 2012). This year we resampled the "odd year" blocks: Lower Ugashik Lake and King Salmon River South, and visited a new block (Ruth Lake) and established an Off-Road Point Count (ORPC) along the Kanatak Trail. The following is an overview of the results of the 2013 work.

Methods

The survey follows the ALMS protocol developed in 2004 (Handel & Cady 2004), with a minor change to the *Habitat Description* data sheet (adds a check box under the Vegetation: Shrub "Total Cover < 25 %"). Since it was only two years since we visited Ugashik and King Salmon River, vegetation data were not recollected there and were only collected on the Ruth Lake block. The team members were trained with all required USFWS safety training, practiced with local bird songs, and distance estimation. Handel provided a set of new blocks (and GPS waypoints) to select from in 2011, and further logistics were used to determine which blocks were possible to conduct. We revisited the same points at Lower Ugashik Lake (Block 14880) and King Salmon River South (Block 14637) that were surveyed in 2011 and established an ORPC following ALMS procedure for everything except the layout of the grid, along the

Kanatak Trail (Ruth Lake: Block 14885). All equipment (safety, camping, boating, and survey) was provided by the Refuge. Regional I&M funds paid for transportation, travel, food and replacement gear for the ALMS blocks and Refuge funding paid for these items for the ORPC. All transportation was provided by USFWS or NPS aircraft and staff.

Paper data records and digital copies reside at the Refuge (see Notebooks in the Library) while PDF copies of the data forms were sent to Handel. The bird point count and vegetation data were digitized into the Refuge's Access database for ALMS. The daily checklists were entered into the Refuge's Access database for incidental observations. Digital photographs of the surveyed habitat are also stored at USGS-ASC and the Refuge. Point count data are summarized for each block by the number of birds detected and the number of points where each species was detected. Incidental data (checklist of all birds seen on the blocks during visits) are summarized by highest breeding score and relative abundance score per block and visit. Habitat data are summarized by Viereck (Viereck et al. 1992) class level III.

Results & Discussion

Refuge Maintenance Worker Kevin Payne (former Biological Technician) and Biological Intern Jonelle Johnson conducted the survey at Lower Ugashik Lake (10 – 14 June) using a Katmai National Park Beaver (DHC-2) on floats piloted by Alan Gilliland for transportation. Bird surveys were conducted on 11 – 14 June. Region 7 Interim Pilot Garland Dobson flew the Refuge Bushhawk Found on floats to move the team from Lower Ugashik to the outlet of Mother Goose Lake where the team camped overnight. On 15 June, they floated via an inflatable canoe to the King Salmon River South ALMS block. Bird surveys were completed on 16 – 18 June. When this plot was completed the team floated down the King Salmon River and was picked up by Kenai NWR Pilot Biologist Nate Olson in their Cessna 185. At Lower Ugashik Lake, 22 of 23 possible points and all 25 points at the King Salmon River South plot were surveyed and completed as in 2011. Logistical details for each block are given in Block Summaries (See Appendix I).

Wildlife Biologist Susan Savage and Volunteer Robert Blush conducted another ALMS survey block at Ruth Lake along the Kanatak Trail. This plot was established in 2013 to include some higher elevation points that were lost when the helicopter-accessed sample was abandoned (see discussion, Savage & Payne 2012). The team traveled to Ruth Lake via the Refuge Bushhawk Found on floats piloted by Regional Aviation Manager Kevin Fox. The team was able to survey points 2 through 14 on 25 and 27 June. Another point could be added at the east end of this survey, but required descending a steep scree slope; since the wind increased over the course of the survey day, we could not successfully survey at that point location so did not attempt the point. Avian and vegetation data were collected at all visited points and incidental checklists were made for each block. The only days of inclement weather occurred during the Ruth Lake survey. The team was not able to survey birds on the 26th of June, but completed vegetation work that day.

At Lower Ugashik Lake, 28 species were observed in 2013 versus 41 in 2011 (two visits in 2011: 34 species on first, and 31 species on second; Table 1). In 2013 we added mallard, green-winged teal, and parasitic jaeger to our block list, but did not observe tundra swan, greater scaup, harlequin duck, black and white-winged scoter, red-throated loon, bald eagle, northern harrier, golden eagle, merlin,

peregrine falcon, gyrfalcon, whimbrel, tree swallow, black-capped chickadee, and Lapland longspur. As in 2011, we encountered rock ptarmigan and alder flycatchers, two less commonly detected species. We discovered a willow ptarmigan nest with 11 eggs and a Gambel's white-crowned sparrow nest with five eggs on this block.

On the King Salmon River South plot, 40 species were observed (Table 1); in 2011, 43 species were observed. This year we added Eurasian wigeon, willow ptarmigan, short-billed dowitcher, short-eared owl, and pine grosbeak to the block list. However we did not observe northern pintail, greater scaup, black scoter, red-throated loon, bald eagle, sharp-shinned hawk, Hudsonian godwit, and black-capped chickadee. As the plot is fairly wet, several species of shorebirds, including marbled godwit, were commonly encountered. Forest dependent species (northern goshawk, downy woodpecker, tree swallow, and pine grosbeak) were also encountered due to the cottonwood forest found on several points.

At Ruth Lake/Kanatak, 26 species were observed (Table 1). We added semi-palmated plover, American pipit and snow bunting to the species observed at the ALMS plots this year due to higher elevations and/or barren habitat, but failed to detect rock ptarmigan or gray-crowned rosy finch as anticipated. The remainder of the species list was similar to that observed at Ugashik and King Salmon River with the notable absence of Gambel's white-crowned sparrow.

The point counts on Lower Ugashik resulted in 20 species and 304 individual bird detections (Table 2). The majority of the detections (17 species; 296 individuals) were of landbirds. At the King Salmon River South block 28 species and 399 individual birds were detected. Of these, 17 species and 239 detections were of landbirds. At Ruth Lake/Kanatak, 16 species and 154 detections of the total 21 species and 162 detections were landbirds. The survey conditions deteriorated on the first day of the Kanatak Trail survey as the observers climbed into the pass. It is likely that wind will be a regular issue during this survey. We were disappointed that we did not find more high altitude birds, but this may have been due to the conditions.

A summary of the vegetative data collected at the Ruth Lake/Kanatak (Table 3) shows this survey is dominated by open tall shrub (38.5%) and ericaceous dwarf shrub (35%). When compared to average composition at all blocks surveyed (Table 4), these two vegetation types are greater than the average for all blocks. This block also has more bare ground, and less mesic graminoid herbaceous or closed tall shrub than the average of all plots, however keep in mind that the blocks are all different in their general vegetation composition. We observed heavy defoliation by what was believed to be geometrid caterpillars (*Epirrita sp.*; T.M Heutte, USFS p.c.). Several species of sparrow were observed foraging on these. Rusty tussock moth (*Orgyia antiqua*) caterpillars were also quite common. We observed high alder mortality along some sections of the trail. Thomas Heutte (US Forest Service, p.c.) suggested alder canker may also be a factor causing what looks like dead branches in alder, but he said it is not usually fatal. The average elevation of the Ruth Lake/Kanatak points was 131 m; the odd year block points (Lower Ugashik and King Salmon River South) have an average elevation of 53 m and the even year blocks (Dog Salmon and Kejulik River) have an average of 20 m.

Nine species of mammal were detected during our landbird surveys (Table 5). Brown bear and wolf visual observation, sign or track were noted on all blocks. While moose track or sign were noted at Lower Ugashik and King Salmon River South, caribou visual or track were noted at King Salmon River South and Ruth Lake. The smaller mammals recorded included snowshoe hare, beaver, arctic ground squirrel, red-backed vole, and red fox.

The total costs of the survey sans regular staff salary were about \$5,000 (Table 6). Due to the federal sequestration, no actual comp time costs will be charged to the Refuge budget. Regional I&M funding paid for direct ALMS costs. The remainder of the cost was due to the Ruth Lake/Kanatak ORPC and the staff costs of the Wildlife Intern.

These data will be contributed to the statewide landbird monitoring effort in Alaska. The two blocks surveyed in 2013 begin our first round of repeated surveying of our four block complement as suggested in Handel and Matsuoka (2007). The addition of Ruth Lake/Kanatak will add another component to our landbird program in the future.

Recommendations

The Refuge's draft "Wildlife Inventory Plan" and "Comprehensive Conservation Plan" outline methods and need for landbird work at the Refuge. Our methods have evolved over the last decade, but we have continued to monitor landbirds within the Refuge boundaries on a regular basis. Our effort paid off this year with the financial support of the Regional I&M program. We recommend continuing our contribution to the Breeding Bird Survey in King Salmon annually and our now established survey of four ALMS blocks on an alternating schedule (Ugashik and King Salmon River in odd years and Dog Salmon and Kejulik in even years). We met last year's goal of adding the Ruth Lake/Kanatak with higher elevation points in 2013 and recommend an annual repeat of this ORPC until it is established; then fall back to biannual survey. We recommend visiting the trail by mid-June, rather than late June, in future years as long as snow conditions in the mountains permit traveling the pass. We also recommend following the "Jeep" trail near point six and relocating this point away from the ravine to allow better listening conditions.

Winter work for 2013/2014 includes creation of a file geodatabase for ALMS populated with all of the correct point positions (in NAD 83) and all of the historic data points as well as the reference blocks that are frequently used for other Refuge projects.

Acknowledgements

Thanks to Maintenance Worker Payne and Volunteer Blush for participating in the survey work. Thanks also to pilots Gilliland, Dobson and Olson for safe transport to and from the plots. We greatly appreciate the recognition and support from the Regional I&M Program (Diane Granfors). Thanks to USGS (Colleen Handel) for continued maintenance of the ALMS databases and program. We appreciate the support of Refuge Management, Susan Alexander, Kelly Chase and Acting Manager Tina Moran for this project.

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Table 1. Species observed during the point count surveys and incidentally during the block visits, ALMS and ORPC, Alaska Peninsula/Becharof NWR 2011 & 2013.

ALMS Block Name	Lower Ugashik				King Salmon River South			Ruth Lake	
ALMS Block Number	14880				14637			14885	
Year Surveyed	2011		2013		2011	2013		2013	
Visit Start Date	12-Jun	18-Jun	11-Jun		19-Jun	16-Jun		24-Jun	
Hours of Effort	38	29	24		22	18		25	
Kilometers of Effort	29	20	21.5		28	22		20	
Species - Common Name	Breeding Status	Breeding Status	Rel. Abun.	Breeding Status	Breeding Status	Rel. Abun.	Breeding Status	Rel. Abun.	Breeding Status
Tundra Swan		H			X	U	H	U	P
Eurasian Wigeon						U	H		
American Wigeon	P		U	H	P	U	H		
Mallard			U	P	H	U	Y		
Northern Pintail					H				
Green-winged Teal			U	P					
Greater Scaup		P			P			C	H
Harlequin Duck		P							
White-winged Scoter		P							
Black Scoter	P	P			P				
Common Goldeneye					X	U	H		
Red-breasted Merganser	P	P	U	P	Y	C	P	U	H
Willow Ptarmigan	C	C	C	N		U	C	C	P
Rock Ptarmigan	C		U	C					
Red-throated Loon	H				H				
Common Loon	X	P	U	P				U	P
Bald Eagle	X				P			U	P
Northern Harrier	P	H			X	U	H		
Sharp-shinned Hawk					X				
Northern Goshawk					X	U	H		
Golden Eagle	H	H							

Table 1, cont. Species observed during the point count surveys and incidentally during the block visits, ALMS and ORPC, Alaska Peninsula/Becharof NWR 2011 & 2013.

ALMS Block Name	Lower Ugashik				King Salmon River South			Ruth Lake	
ALMS Block Number	14880				14637			14885	
Year Surveyed	2011		2013		2011	2013		2013	
Visit Start Date	12-Jun	18-Jun	11-Jun		19-Jun	16-Jun		24-Jun	
Hours of Effort	38	29	24		22	18		25	
Kilometers of Effort	29	20	21.5		28	22		20	
Species - Common Name	Breeding Status	Breeding Status	Rel. Abun.	Breeding Status	Breeding Status	Rel. Abun.	Breeding Status	Rel. Abun.	Breeding Status
Merlin	P								
Peregrine Falcon	H								
Gyrfalcon	X								
Sandhill Crane	H	A	U	H	P	C	D		
Semipalmated Plover								U	H
Greater Yellowlegs		A	U	C	N	C	A	U	C
Whimbrel		X							
Hudsonian Godwit					P				
Marbled Godwit					A	C	A		
Least Sandpiper					A	C	A	U	H
Short-billed Dowitcher						C	C		
Wilson's Snipe	C	C	U	C	C	C	A	U	C
Red-necked Phalarope					A	C	H		
Mew Gull					H	U	H	U	H
Glaucous-winged Gull	H	H	U	H	H	C	H	U	X
Arctic Tern					H	C	H		
Parasitic Jaeger			U	X					
Short-eared Owl						U	H		
Downy Woodpecker					H	U	D		
Alder Flycatcher	S	S	U	S	H	U	S		
Northern Shrike					C	U	Y		
Black-billed Magpie	H		U	H	H	U	H	U	P
Common Raven	H	H	U	H	H	U	H		

Table 1, cont. Species observed during the point count surveys and incidentally during the block visits, ALMS and ORPC, Alaska Peninsula/Becharof NWR 2011 & 2013.

ALMS Block Name	Lower Ugashik			King Salmon River South			Ruth Lake		
ALMS Block Number	14880			14637			14885		
Year Surveyed	2011		2013	2011	2013		2013		
Visit Start Date	12-Jun	18-Jun	11-Jun	19-Jun	16-Jun		24-Jun		
Hours of Effort	38	29	24	22	18		25		
Kilometers of Effort	29	20	21.5	28	22		20		
Species - Common Name	Breeding Status	Breeding Status	Rel. Abun.	Breeding Status	Breeding Status	Rel. Abun.	Breeding Status	Rel. Abun.	Breeding Status
Tree Swallow		H			H	C	S		
Bank Swallow	X		U	H	H	C	N		
Black-capped Chickadee	H	P			H				
Gray-cheeked Thrush	S	S	C	S	S	C	S	C	S
Hermit Thrush	S	S	C	S	S	C	S	C	S
American Robin	S	F	C	S	S	C	S	U	S
American Pipit								U	S
Lapland Longspur	X								
Snow Bunting								U	S
Orange-crowned Warbler	S	S	C	S	S	A	S	C	S
Yellow Warbler	S	S	C	S	S	A	S	C	S
Wilson's Warbler	S	S	C	S	S	A	S	C	S
American Tree Sparrow	S	S	U	S	S	A	S	U	S
Savannah Sparrow	S	S	C	S	S	A	S	C	F
Fox Sparrow	S	S	C	S	S	U	S	C	S
White-crowned Sparrow	S	S	C	N	S	C	S		
Golden-crowned Sparrow	S	S	C	S	S	C	S	C	A
Pine Grosbeak						U	S		
Common Redpoll	H	A	C	S	X	C	S	C	S

Table 2. Species observed during the point count surveys including number of birds detected and count of points where each species was observed, ALMS and ORPC, Alaska Peninsula/Becharof NWR 2011 - 2013. Landbird species in bold text.

ALMS Block Name	Lower Ugashik Lake						King Salmon River South				Ruth Lake	
ALMS Block Number	14880						14637				14885	
Year Surveyed	2011			2013			2011		2013		2013	
Block Visit Dates	12 – 18 June		18 – 22 June		11 - 14 June		19 – 24 June		16 - 18 June		25 - 26 June	
Number of Points Surveyed	22		20		22		25		25		13	
Species Common Name	Det.	Points	Det.	Points	Det.	Points	Det.	Points	Det.	Points	Det.	Points
Tundra Swan									5	3		
American Wigeon					1	1	2	1				
Mallard							3	2	1	1		
Northern Pintail							1	1				
Greater Scaup							2	1				
Black Scoter			1	1			6	2				
Red-breasted Merganser											1	1
Willow Ptarmigan	9	7	5	3	17	13			2	2	4	4
Rock Ptarmigan	1	1			2	2						
Red-throated Loon							2	2				
Bald Eagle											2	1
Northern Goshawk							1	1				
Merlin	2	1										
Sandhill Crane	4	2	3	2			19	10	29	16		
Semipalmated Plover											1	1
Greater Yellowlegs					4	4	33	22	28	17	2	2
Whimbrel			1	1								
Marbled Godwit							48	16	49	24		
Least Sandpiper							13	9	8	6		
Short-billed Dowitcher							4	2	7	7		
Wilson's Snipe	6	6	1	1	3	3	15	13	21	15	3	2
Red-necked Phalarope							1	1	3	1		
Mew Gull							13	2	2	2		
Glaucous-winged Gull							4	3			1	1
Arctic Tern							11	5	7	5		

Table 2, cont. Species observed during the point count surveys including number of birds detected and count of points where each species was observed, ALM and ORPC, S Alaska Peninsula/Becharof NWR 2011 - 2013. Landbird species in bold text.

ALMS Block Name	Lower Ugashik Lake						King Salmon River South				Ruth Lake	
ALMS Block Number	14880						14637				14885	
Year Surveyed	2011			2013			2011		2013		2013	
Block Visit Dates	12 – 18 June		18 – 22 June		11 - 14 June		19 – 24 June		16 - 18 June		25 - 26 June	
Number of Points Surveyed	22		20		22		25		25		13	
Species Common Name	Det.	Points	Det.	Points	Det.	Points	Det.	Points	Det.	Points	Det.	Points
Downy Woodpecker							1	1	2	2		
Alder Flycatcher			1	1	1	1						
Northern Shrike							1	1				
Black-billed Magpie					1	1					2	1
Common Raven	2	2			1	1	4	3	1	1		
Tree Swallow							6	4	8	6		
Black-capped Chickadee	3	2	1	1								
Gray-cheeked Thrush	7	6	13	10	9	7	7	7	14	11	5	3
Hermit Thrush	38	20	32	17	36	20	16	10	13	9	15	8
American Robin	6	5	4	4	11	9	22	15	16	14	8	6
American Pipit											3	3
Snow Bunting											4	3
Orange-crowned Warbler	29	19	31	17	43	19	18	14	31	23	12	7
Yellow Warbler	10	6	18	10	17	12	10	7	11	10	12	7
Wilson's Warbler	57	21	59	19	56	22	39	20	21	16	16	7
American Tree Sparrow	4	3	7	7	7	3	51	24	59	24	1	1
Savannah Sparrow	18	15	16	12	21	12	1	1	30	17	15	7
Fox Sparrow	10	7	12	8	17	11			1	1	12	8
White-crowned Sparrow	4	3	5	4	12	6	9	9	24	20		
Golden-crowned Sparrow	24	16	41	19	40	20	3	3	1	1	33	10
Pine Grosbeak									1	1		
Common Redpoll	35	13	27	15	5	5	25	11	4	4	10	7
Total number of birds detected on point counts	269		278		304		391		399		162	
Total Number of Landbird Detections	259		272		296		214		239		154	
Total number of species observed per block	19		19		20		32		28		21	

Table 3. Viereck vegetation classes observed at the Ruth Lake (Block 14885) ORPC point locations, ALMS and ORPC, Alaska Peninsula/Becharof NWR 2013.

Ruth Lake	Water	Bare Ground	Mesic Gram Herb	Eric Dwarf Shub	Open Low Shrub	Open Tall Shrub	Closed Tall Shrub
2				100			
3				100			
4	40			60			
5		100					
6				100			
7					100		
8				95			5
9			40		60		
10						100	
11						100	
12						100	
13						100	
14						100	
Total %	3.1	7.7	3.1	35.0	12.3	38.5	0.4

Table 4. Comparison of Viereck vegetation classes summarized by block of the helicopter sample (2004), the Dog Salmon block (2007 and 2010) and the fixed-wing sample (2011-13) during ALMS and ORPC, Alaska Peninsula/Becharof NWR 2004 - 2013.

Block Number	Year	Points Surveyed ¹	Water & Wetland	Soil or Rock	Bryoid Moss	Wet Forb Herb	Wet Gram Herb	Mesic Forb Herb	Mesic Gram Herb	Dry Gram Herb	Eric Dwarf Shub	Willow Dwarf Shrub	Open Low Shrub	Closed Low Shrub	Open Tall Shrub	Closed Tall Shrub	Open Broad Forest
12714	2004	16	4.3			0.3	35.8	3.4	7.8	1.3			6.9	7.2	3.8	29.4	
14645	2004	16	0.6				1.4		8.9	4.4	26.9	3.8	10.9	2.9	2.5	37.8	
14878	2004	16	6.6			0.3	10.9		10.3		49.4	7.5	6.6		8.1	0.3	
14882	2004	21	7.6				1.9				13.3		9.5		56.2	11.4	
15125	2004	20	2.0	2.3		0.3	1.3	1.3		3.0	42.8			3.0	0.8	43.5	
16321	2004	25	0.4			4.0	5.0		3.8			27.2	55.8		3.8		
17035	2004	21	3.8				7.9		6.0		21.7	5.2	55.5				
Total			3.6	0.3		0.7	9.2	0.7	5.3	1.2	22.0	6.2	20.7	1.9	10.7	17.5	
14878	2007	16	7.8				20.0	0.9	8.1		43.8			14.1		5.3	
14878	2010	16	6.9				2.8		61.6				15.6	0.6	12.5		
14880	2011	22	1.7		3.4	1.1	1.4		17.3	4.5	2.3		6.8		23.5	38.0	
14637	2011	25	0.8			9.6	10.8		28.0		15.6				5.6	18.4	11.2
14878	2012	16	9.1						87.2		0.0		1.6		2.2		
15605	2012	20	4.3	0.5	10.5		13.3		26.3		29.8		4.3	2.3	8.0	1.0	
14885	2013	13	3.1	7.7					3.1		35.0		12.3		38.5	0.4	
Total			3.8	1.6	2.8	2.1	5.1		32.4	0.9	16.5		5.0	0.5	15.6	11.6	2.2

¹ At Block 12714 and 14882 one more point, and at 17035 two more points, were surveyed for vegetation than for birds.

Table 5. Mammal occurrence recorded at survey locations, during ALMS and ORPC, Alaska Peninsula/Becharof NWR 2004 - 2013.

	Lower Ugashik Lake	King Salmon River South	Ruth Lake
Arctic Ground Squirrel	V		V
Beaver	D	V	
Red-backed Vole			S
Vole Species	S		
Snowshoe Hare	V	V	
Wolf	S	T	T
Red Fox	V		
Brown Bear	T	V	V
Moose	S	T	
Caribou		V	T

V = visual observation, T = tracks, S = sign, D = damn

Table 6. Estimated expenses associated with ALMS and ORPC, Alaska Peninsula/Becharof NWR 2013.

	Cost	Totals
Batteries, SD cards, First Aid Supplies	95	
Misc. Camping Gear and supplies	179	
Other Camping Supplies		Refuge Stores
Total Equipment, Supplies and Postage		274
Refuge & NPS Aircraft (ALMS)	1,463	
Refuge Aircraft (Kanatak)	627	
Field Per diem & Travel Fees (ALMS)	130	
Field Per diem & Travel Fees (Kanatak)	70	
Field Food	74	
Total Transportation and Travel		2,364
Refuge Biologist, hourly		Refuge Base
Refuge Biologist (Comp Time 8 hours)	312	
Refuge Maintenance Worker		Refuge Base
Refuge Maintenance Worker (Comp Time: 19 hours)	523	
Refuge Intern (Food Allowance: field prep, data management, transport to King Salmon)	1,500	
Total Salary & Overtime		2,335
Total Costs		4,973
Regional Inventory & Monitoring Funding for ALMS	(1,847)	
TOTAL COST TO REFUGE		3,126

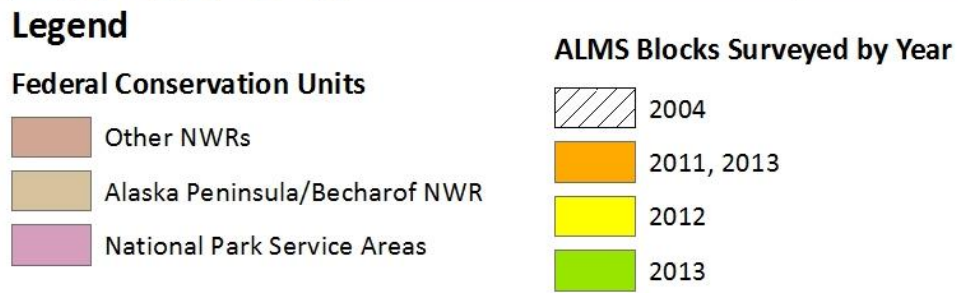
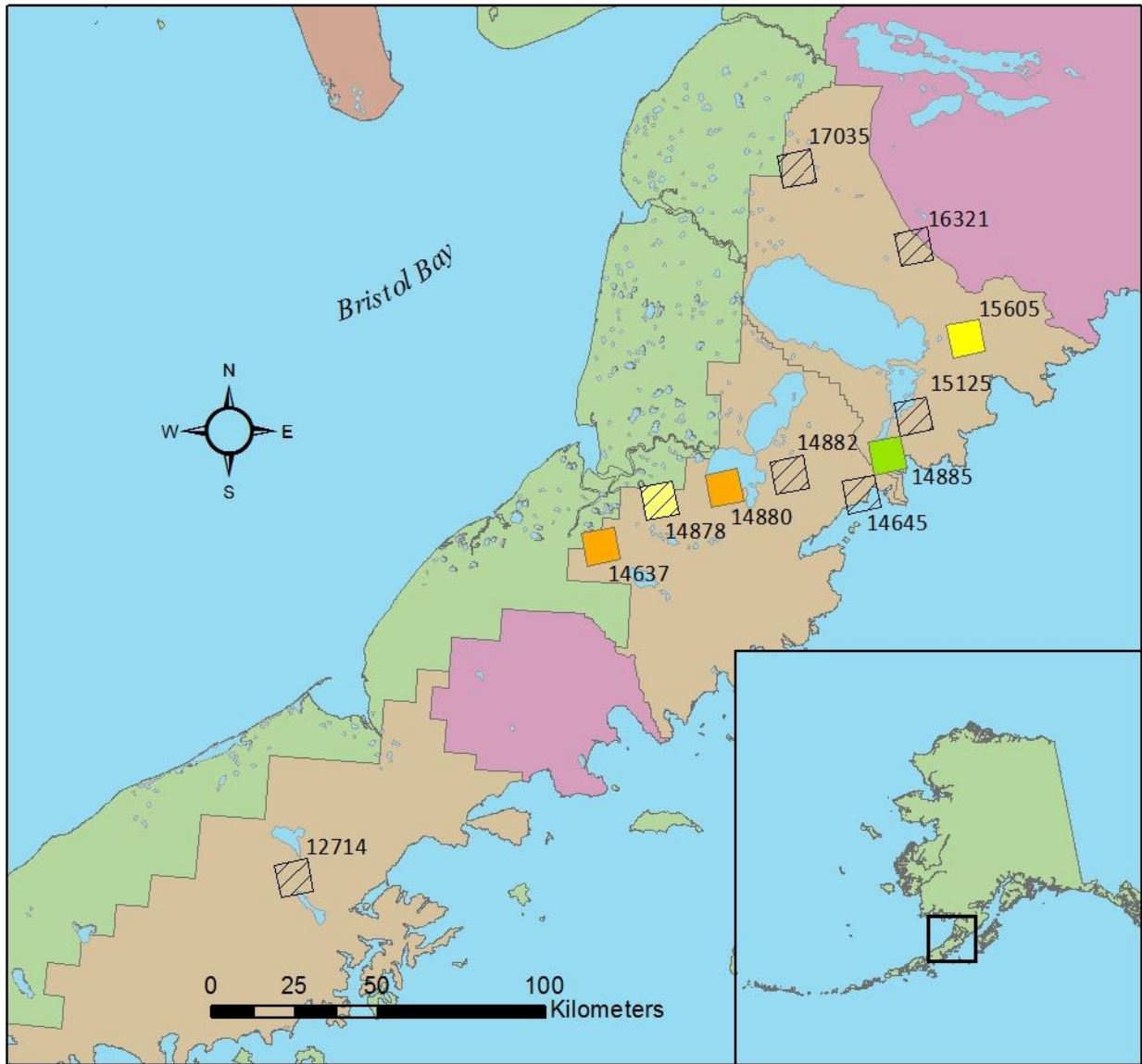


Figure 1. Map of Alaska Landbird Monitoring Survey and Off-Road Point Count Blocks completed on the Alaska Peninsula/Becharof NWR, 2004 and 2011-2013. Note: Block 14878 was also completed in 2007, 2010 and 2012.

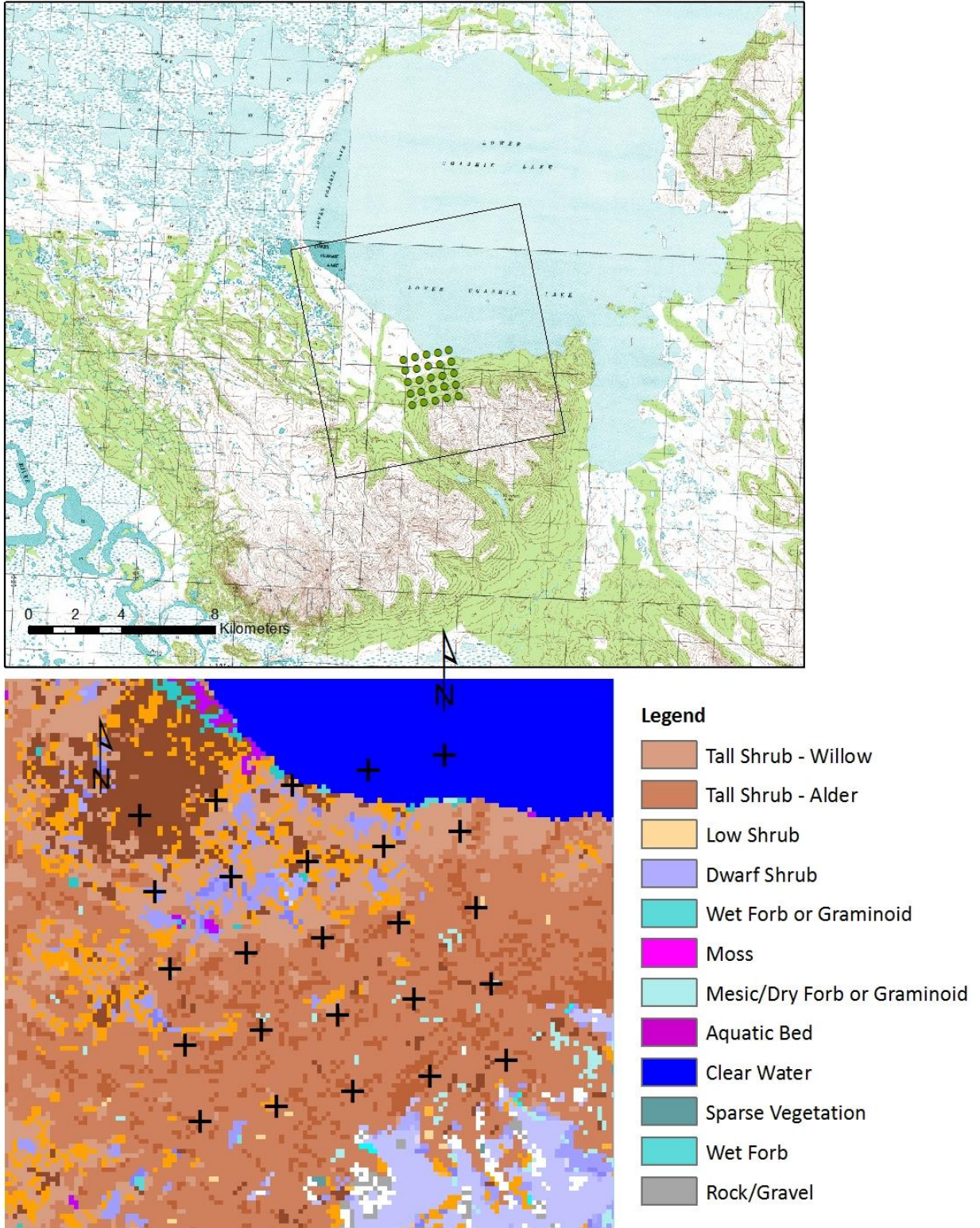


Figure 2a. Map of general location of ALMS block 14885 (Lower Ugashik) and close-up showing land cover at point count locations, ALMS and ORPC Alaska Peninsula/Becharof NWR, 2013.

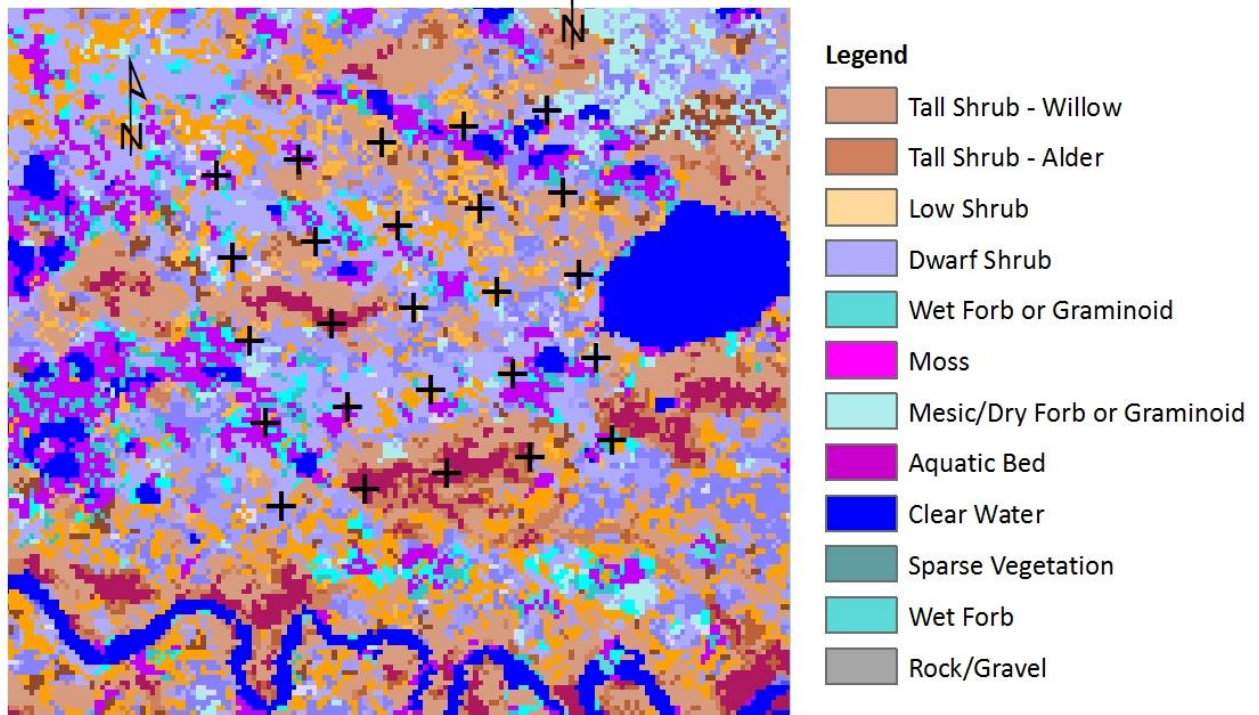
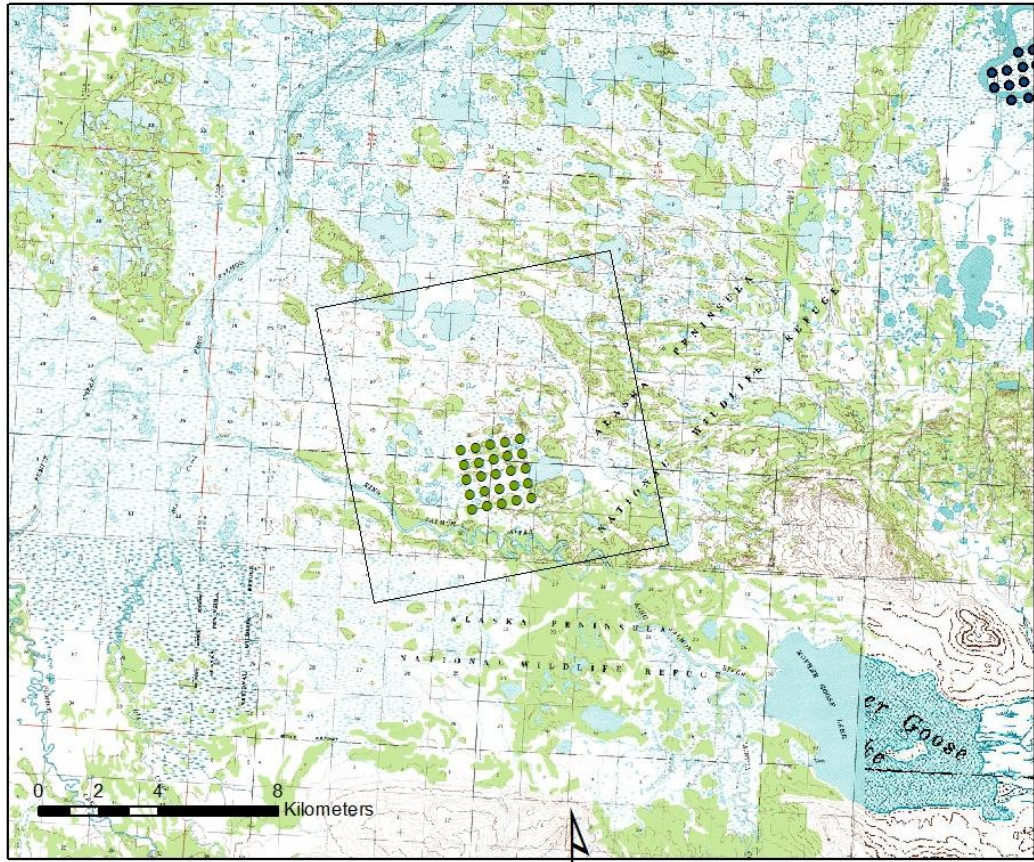


Figure 2b. Map of general location of ALMS block 14637 (King Salmon River South) and close-up showing land cover at point count locations, ALMS and ORPC Alaska Peninsula/Becharof NWR, 2013.

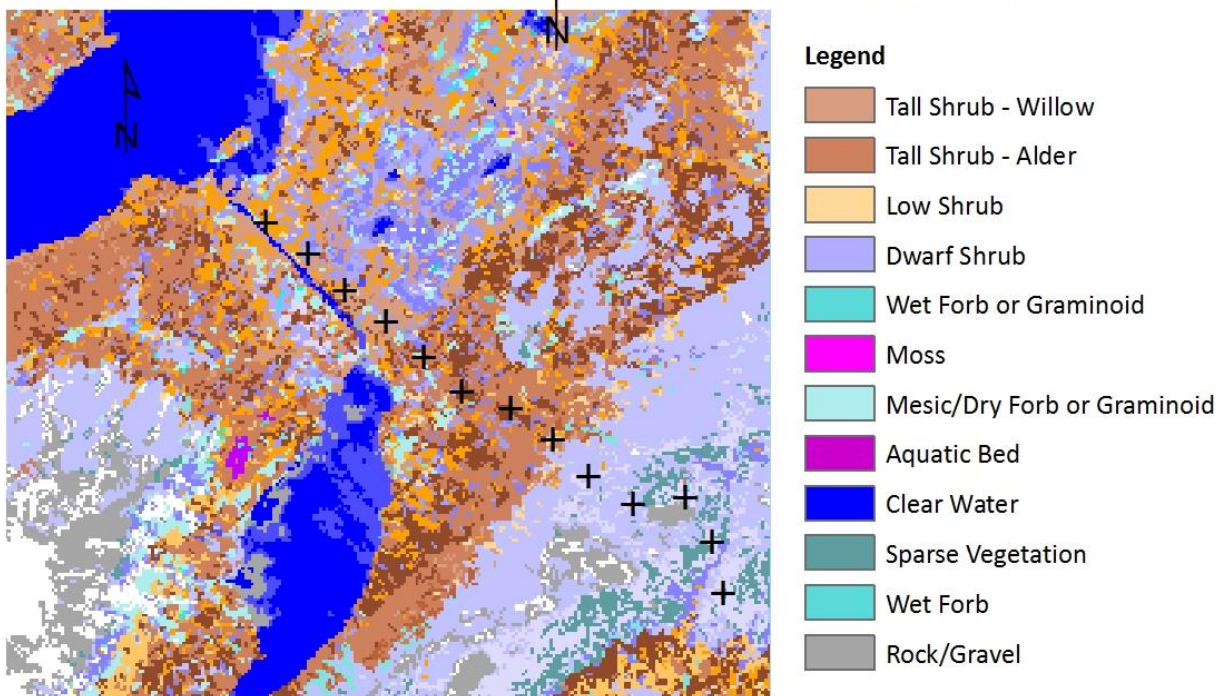
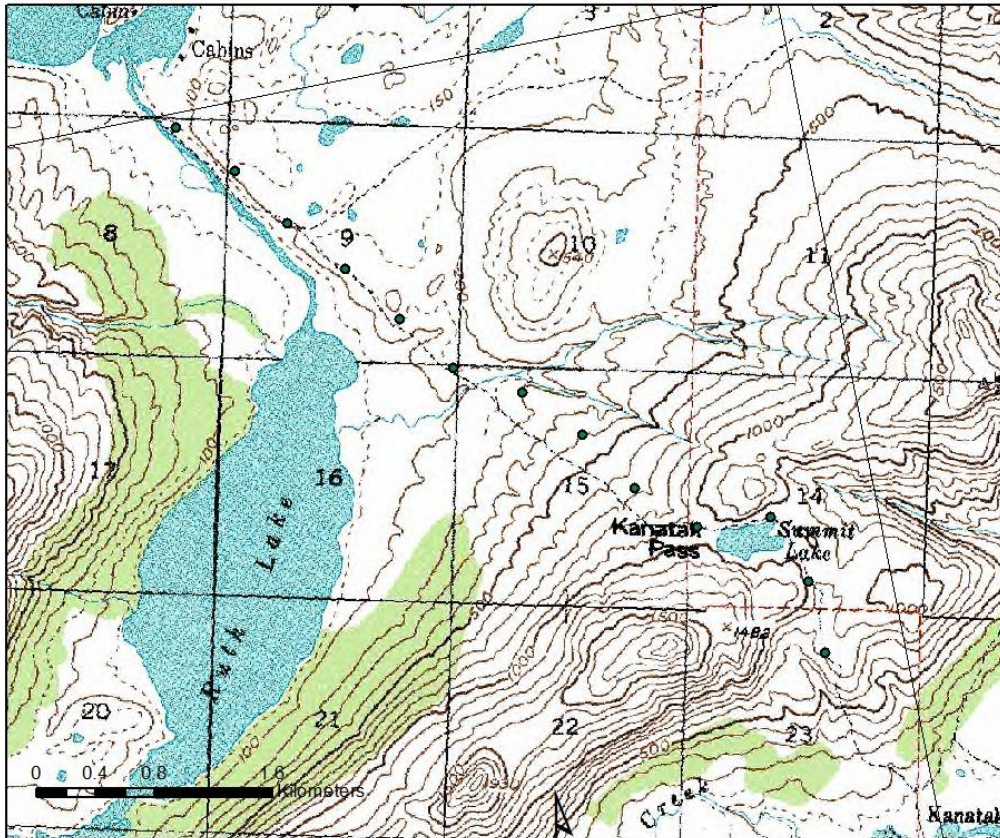


Figure 2c. Map of general location of ALMS block 14880 (Ruth Lake/Kanatak Trail) and close-up showing land cover at point count locations, ALMS and ORPC Alaska Peninsula/Becharof NWR, 2013.

Appendix I. Visit Summaries for Blocks visited in 2013.

Visit Summary for Block 14880 Lower Ugashik Lake ALMS

Land Unit: Alaska Peninsula NWR
Block Number: 14880
Block Name: Lower Ugashik Lake ALMS
Observers: Kevin Payne, Jonelle Johnson

Dates: 11-14 June 2013
Points Completed: 1-3, 5-23
Hours Worked: 24

Topography: The northeast corner (points 24 and 25) of this plot falls in Ugashik Lake. The remaining area of the plot varies from low elevation (15-40 m asl) dwarf shrub lush/wet graminoid with areas of dense willow and small cottonwood copses to higher elevation areas (maximum of 275 m asl) of dense alder. Several small creeks bisect the plot near the eastern edge and were not difficult to cross. However at higher elevations several steep alder covered ravines provide challenging traversing. Overall walking can be difficult and requires the use of hip waders. Several steep slopes require climbing through alder thickets.

Time required: On 10 June, Payne and Johnson were dropped at the south shore of Lower Ugashik Lake and established camp between points 22 and 23. During the first 5-6 hours (~0530 – 1130) of good weather days the team conducted avian surveys. No vegetative data was gathered due to collection in 2013. This plot requires four good weather survey days to complete given difficulty of traveling between points. Twenty-two avian surveys were completed over four survey days and required approximately 24 hours (including walking time).

Camp: 57.45904, -156.94433

Camp location: Camp was placed on a small patch of ericaceous dwarf shrub about 15 m from the lake and adjacent to a small creek between points 22 and 23. Although quite hummocky, we found no other available location close to the shore.

Grid Route: Points were completed as follows:

Survey 1: 11 June - 20, 15, 10, 5, 9, 14
 12 June - 19, 13, 8, 3, 2, 1
 13 June- 23, 18, 12, 7, 6, 11, 16
 14 June - 22, 21, 17

Skipped points: Points 24 and 25 fall in Ugashik Lake and could not be surveyed. Because of dense alder and difficult terrain the team did not conducted point four. While difficult to access, point four could be surveyed safely if the team did not feel pressure to move on to the next plot.

Water crossings: A few small creeks required crossing. These were not a problem to cross but heavy rain and melting snow could significantly increase the flow of these creeks.

Wildlife notes: Bear, moose and wolf sign was abundant and widespread; we had no visual sightings. In order to prevent a surprise encounter with and of these large mammals, the crew made plenty of noise while walking. Beaver, hare and red fox were sighted. We located nests of two species: willow

ptarmigan and Gambel's white-crowned sparrow. Rock ptarmigan were detected on this plot at higher elevations. Vegetative growth appeared to be delayed due to a later spring.

Access: The site is easily reached via float plane. However, high winds can cause waves on the lake which may prevent landing.

Visit Summary for Block 14637 South King Salmon River ALMS

Land Unit: Alaska Peninsula NWR

Dates: 16-18 June 2013

Block Number: 14637

Points Completed: 1-25

Block Name: South King Salmon River ALMS

Hours worked: 18

Observers: Kevin Payne, Jonelle Johnson

Topography: The southwest corner (point 1) of this plot is approximately 800 m north of the South King Salmon River. The plot is generally wet with a variety of wetland vegetation types, areas of dense willow, and a scattering of small ponds. There are a few small to medium sized higher elevation (30 - 45 m asl) areas with stands of cottonwood. Four of the survey points fell within these cottonwood stands. Quaking bog was generally not a concern, but was present in some areas. The walking can be difficult and requires the use of hip waders.

Time required: On 14 June, Payne and Johnson were dropped at the shore of Mother Goose Lake and camped overnight. On 15 June an inflatable canoe was used to float down to the plot. Crews should allow about four hours to rig the boat and paddle to the camp/survey site. The float should take place during the day in case of emergencies to allow for rescue or drying out wet gear. During the first 5-6 hours (~0530 – 1130) of good weather days the team conducted avian surveys. This plot can be completed in three good weather days. Vegetative data was not gathered since it was collected in the 2011 survey. All twenty-five points were completed over three survey days and required approximately 18 hours (including walking time).

Camp: 57.25811°, -157.54689° (NAD 83)

Camp location: The camp was placed on a small rise near the edge of the river. The low vegetation, position above the spring flood levels, and proximity to the river made this an easy camp location. Caution should be exercised because heavy rains and melting snow (both locally and anywhere in the drainage) could cause flooding of the site. River levels did fluctuate by approximately eight centimeters during our stay. An area of dwarf shrub about 200 m from the river could be used, but all other areas would involve significant vegetation management to set up tents and a fence.

Grid Route: Points were completed as follows:

Survey 1: 16 June: 2, 3, 4, 5, 10, 15, 20, 25, 24, 19

17 June: 1, 6, 11, 16, 21, 22, 23, 18, 17

18 June: 7, 12, 13, 14, 9, 8

Skipped points: All points were surveyed.

Water crossings: There are no creeks or rivers in the plot.

Wildlife notes: Bear sign was common, but only one bear was sighted. Moose sign was common, but none were sighted. On arrival to point 16 a caribou herd of eight were observed. In order to prevent a surprise encounter with any of these large mammals we were sure to make plenty of noise while walking. Beavers were also present.

Of particular interest were those species near the western edge of their normal range. Those species included: marbled godwit, downy woodpecker, and alder flycatcher.

Access: The site can only be reached by floating from Mother Goose Lake down the South King Salmon River. We used a 17 foot Incept® inflatable canoe to navigate the river. Landing at Mother Goose Lake could be difficult in high winds and paddling the canoe would also prove problematic in these conditions.

In general, the river is slow and shallow. The banks were seldom undercut and almost never had “sweepers.” “Strainers” were also very rare. One stretch of river had a Class 2 rapid about 150m long (57.23998°, -157.45766°). This rapid was not technical and the largest standing waves were about 0.5 - 0.75 m high. Since maneuverability is not one of the strengths of the canoe we decided to go straight down the middle. The canoe is quite stable and this worked well. The river was shallower than in 2011, but this did not make the rapids or other areas of the river more difficult. The rapids were followed by 2 km of occasional exposed rocks or other debris, but they did not cause problems.

After the plot was completed we floated down the South King Salmon River. We were picked up at this location (57.26746°, -157.61536°), which was found to be more suitable than the location used in 2011.

Visit Summary for Block 14885 Ruth Lake/Kanatak

Land Unit: Becharof NWR

Block Number: 14885

Block Name: Ruth Lake

Observers: Susan Savage, Robert Blush

Dates: 24-27 June 2013

Points Completed: 2-14

Hours worked: 25

Topography: The trail lies about 345m NW of camp at Ruth Lake near the crest of a ridge; cross a small ravine and creek (that can be stepped across) en route to the trail. To the southeast, follow the cleared trail (and GPS points) through medium shrub down through two vegetation lush creek valleys. The second creek is about 3 m wide and less than 35 cm deep wide and requires wading. We crossed at 57.59625°, -156.093388°. Immediately after this second creek, the climb to the pass begins. The trail meanders through dwarf shrub with thickets of alder and is not clearly marked. In fact, there are two trails at this point, a human trail and a “jeep” trail. The climb is steady, but not too steep. Another creek is crossed just before the summit and the trail enters a wet shrub mat/barren basin. Another slight climb, and the trail encounters Summit Lake. The trail skirts the north edge of the lake. There is little vegetation in this area. After the lake, the trail descends along a creek valley through barren habitat and dwarf shrub. The trail finally descends down a steep scree slope which we did not attempt on this trip. An additional point could be added at this end of the route.

To the northwest (from camp) the trail follows just below the ridge line to Ruth River. Follow the cleared areas through alder/willow patches which now are well grassed. Through dwarf shrub patches the trail is more difficult to find. The trail descends slowly to Ruth River. It does not appear that the river can be crossed in hip waders, although we didn't attempt it. An alternate route would be to follow the river to Island Arm through dense willow and alder (did not see an obvious cleared path through this route).

Time required: On 24 June, Savage and Blush were flown to Ruth Lake in the Refuge Found on floats. The survey could be completed in two good weather days, but inclement weather delayed the survey one day. Due to the nature of the pass, it is likely that poor weather could extend the time it takes to complete this survey.

Camp: 57.597516, -156.110580 (NAD 83)

Camp location: The team placed their camp at Ruth Lake so that part of the trail could be completed one day and the second part on the next day without back-tracking. A camp site at Island Arm is problematic because it would likely have to be placed on Native Corporation Land and the access would either require crossing Ruth River or landing in a very shallow bay of the lake. We camped just off the shore behind the remains of a former village site (numerous house depressions are grassed over).

Grid Route: Points were completed as follows:

Survey 1: 25 June: 10 - 2
 27 June: 11- 14

Skipped points: Points 1 and 15 were skipped due to major river crossings and poor weather.

Water crossings: Several small drainages (that can be stepped over) and one small creek (see crossing location above) that must be waded were crossed to survey from point 2 to 14. To attempt point 1, chest waders or a small boat are required. The logistics of bringing in a boat/inflatable raft for this one point are complicated. We hiked the trail in hiking boots.

Wildlife notes: Bear sign was common along the trail and we sited one bear on the peninsula at Island Arm. Caribou sign was quite common. Other mammal sign was present but less common. We were disappointed in the bird diversity observed given the elevational diversity. Many of the sparrows were feeding young; the late survey date in June may have contributed to the lower diversity observed.

Access: The plot was accessed using the Refuge Found on floats. Windy weather in the Ruth Lake area is notorious for making access difficult. Steep mountains and the proximity to the Pacific Coast create intense weather in this area.

Appendix II. List of Common and Scientific Names¹ of Species appearing in this report, ALMS and ORPC, Alaska Peninsula/Becharof NWR 2011 - 2013.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Scientific Name</u>
Tundra Swan	<i>Cygnus columbianus</i>	Hudsonian Godwit	<i>Limosa haemastica</i>
Eurasian Wigeon	<i>Anas penelope</i>	Marbled Godwit	<i>Limosa fedoa</i>
American Wigeon	<i>Anas americana</i>	Least Sandpiper	<i>Calidris minutilla</i>
Mallard	<i>Anas platyrhynchos</i>	Short-billed Dowitcher	<i>Limnodromus griseus</i>
Northern Pintail	<i>Anas acuta</i>	Wilson's Snipe	<i>Gallinago delicata</i>
Green-winged Teal	<i>Anas crecca</i>	Red-necked Phalarope	<i>Phalaropus lobatus</i>
Greater Scaup	<i>Aythya marila</i>	Mew Gull	<i>Larus canus</i>
Harlequin Duck	<i>Histrionicus histrionicus</i>	Glaucous-winged Gull	<i>Larus glaucescens</i>
White-winged Scoter	<i>Melanitta fusca</i>	Arctic Tern	<i>Sterna paradisaea</i>
Black Scoter	<i>Melanitta americana</i>	Parasitic Jaeger	<i>Stercorarius parasiticus</i>
Common Goldeneye	<i>Bucephala clangula</i>	Short-eared Owl	<i>Asio flammeus</i>
Red-breasted Merganser	<i>Mergus serrator</i>	Downy Woodpecker	<i>Picoides pubescens</i>
Willow Ptarmigan	<i>Lagopus lagopus</i>	Alder Flycatcher	<i>Empidonax alnorum</i>
Rock Ptarmigan	<i>Lagopus muta</i>	Northern Shrike	<i>Lanius excubitor</i>
Red-throated Loon	<i>Gavia stellata</i>	Black-billed Magpie	<i>Pica hudsonia</i>
Common Loon	<i>Gavia immer</i>	Common Raven	<i>Corvus corax</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Tree Swallow	<i>Tachycineta bicolor</i>
Northern Harrier	<i>Circus cyaneus</i>	Bank Swallow	<i>Riparia riparia</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Black-capped Chickadee	<i>Poecile atricapillus</i>
Northern Goshawk	<i>Accipiter gentilis</i>	Gray-cheeked Thrush	<i>Catharus minimus</i>
Golden Eagle	<i>Aquila chrysaetos</i>	Hermit Thrush	<i>Catharus guttatus</i>
Merlin	<i>Falco columbarius</i>	American Robin	<i>Turdus migratorius</i>
Gyr Falcon	<i>Falco rusticolus</i>	American Pipit	<i>Anthus rubescens</i>
Peregrin Falcon	<i>Falco peregrinus</i>	Lapland Longspur	<i>Calcarius lapponicus</i>
Sandhill Crane	<i>Grus canadensis</i>	Snow Bunting	<i>Plectrophenax nivalis</i>
Semipalmated Plover	<i>Charadrius semipalmatus</i>	Orange-crowned Warbler	<i>Oreothlypis celata</i>
Greater Yellowlegs	<i>Tringa melanoleuca</i>	Yellow Warbler	<i>Setophaga petechia</i>
Whimbrel	<i>Numenius phaeopus</i>	Wilson's Warbler	<i>Cardellina pusilla</i>

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<u>Common Name</u>	<u>Scientific Name</u>
American Tree Sparrow	<i>Spizella arborea</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Fox Sparrow	<i>Passerella iliaca</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Pine Grosbeak	<i>Pinicola enucleator</i>
Common Redpoll	<i>Acanthis flammea</i>

Mammals

Arctic Ground Squirrel	<i>Spermophilus parryii</i>
Beaver	<i>Castor canadensis</i>
Northern Red-backed Vole	<i>Myodes rutilus</i>
Snowshoe Hare	<i>Lepus americanus</i>
Wolf	<i>Canis lupus</i>
Red Fox	<i>Vulpes vulpes</i>
Brown Bear	<i>Ursus arctos</i>
Moose	<i>Alces americanus</i>
Caribou	<i>Rangifer tarandus</i>

¹ Birds ordered according to the AOU 53rd supplement (Chesser et al. 2012) and mammals according to the Checklist of Recent Alaska Mammals (MacDonald and Cook 2007).

Addendum

September 27, 2013

It came to my attention that at plot 14637 (King Salmon River South), photographs were not captured at every point. Apparently the camera battery was observed to be low after the first few points, and the surveyors decided to try to capture one photo, of the most common vegetation type, at each point. Photos include: Pt. 1 S, Pt. 2 all, Pt. 3 all, Pt. 4 all, Pt. 5 W, Pt. 6 S, Pt. 10 W, Pt. 11 S, Pt. 15 W, Pt. 16 S, Pt. 19 W, Pt. 21 S, Pt. 24 W, Pt. 25 W. The lead observer also noted that plant phenology was delayed compared to 2011 when he also had been the lead observer, and his goal was to capture this difference.