ALASKA LANDBIRD MONITORING SURVEY ACTIVITIES AT THE ALASKA PENINSULA/BECHAROF NATIONAL WILDLIFE REFUGE, ALASKA PENINSULA, ALASKA JUNE 2012

Photo: USFWS, S.E. Savage

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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) 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 State of Alaska's Wildlife Grant Program established funding for startup ALMS projects across the state. The Alaska Bird Observatory (ABO) became a major partner by training and providing crews to rove and set up new surveys when requested with comparison between the helicopter and fixed-wing sample.

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). This year we revisited the Dog Salmon block and established a new block on the Kejulik River. We now have established our complement of four blocks (Figure 1). The following is an overview of the results of the 2012 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 %"). 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 the first author used logistical challenges to determine which blocks were possible to conduct. We revisited the same points at Dog Salmon (Block 14878) that have been used since 2004 and established a block on the middle Kejulik River (Block 15605). All equipment (safety, camping, boating, and survey) was provided by the Refuge; transportation was paid for with Refuge funds using Refuge, Katmai National Park, or charter company Katmai Air aircraft.

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[1]. The daily checklists were entered into the Refuge's Access database for incidental observations[2]. Digital photographs of the surveyed habitat are also stored at USGS-ASC and the Refuge[3]. 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 per block and relative abundance score. Habitat data are summarized by Viereck (Viereck et al. 1992) class level III.

Results & Discussion

The second author and Refuge Operations Specialist Julian visited the Dog Salmon (11 – 15 June) using a Katmai Air Cessna 206 on floats for transportation to the Dog Salmon River and the Katmai National Park Beaver on floats to return. Both authors visited the Kejulik (20 – 24 June) using the Refuge Husky on wheels to arrive at Shoemaker's Upper Kejulik strip and the Refuge Bushhawk Found on floats to depart from the lower Kejulik River. Due to an old injury, Julian was unable to survey after the first day on the Dog Salmon and Payne completed the remainder of the survey solo. At the Dog Salmon 16 points were completed per the past tradition and on the Kejulik 20 points were completed (5 being in the river or across the river and unavailable, Figures 2 & 3). Logistical details for each block are given in Block Summaries (See Appendix I). Avian and vegetation data were collected at all visited points and incidental checklists were made for both blocks. Several days of inclement weather fell between the two surveys and delayed transport to Kejulik. While at the blocks, we were able to work every day.

At Dog Salmon, 30 species were observed during the visit (Table 1). Every waterfowl species seen over the last three visits was observed this year with the exception of common merganser (See Appendix II for scientific names); however no raptors were observed in 2012. Also note, yellowlegs and several species of passerines were absent, some of which were also missing in 2010 (e.g., orange-crowned and yellow warbler, golden-crowned sparrow and common redpoll). Payne found two marbled godwit nests while transiting between point counts. Note that despite concerted efforts in the past (North et al. 1996) including a season dedicated to marbled godwit research (Mehall-Niswander 1997), no active[4] nests of this species have ever been found on Dog Salmon River prior to this year[5]. We believe the late spring and the early date of this visit resulted in godwits being in incubation phase, thus increasing the probability of flushing adults from nests. In past years, young were probably hatched and dispersed from nests; adults often exhibited mobbing behavior typical of adults with hatchlings.

On the Kejulik block 42 species were observed (Table 1). At the upper Kejulik strip, 18 species were observed. American Robin was the only species observed at the upper strip and not on block 15605 probably due to the cottonwood forest found at the upper strip. Since this was the first ALMS visit to the Kejulik block, no data are available for inter-annual comparisons of bird species composition. Of particular note, vegetation along the Kejulik River supported the

[1] Savage's My Documents\Biology\Bird General\ ALMS\ALMS AKPB NWR [most recent date].mbd
[2] Savage's My Documents\Biology\Bird General\incidental avian\AccessDatabasefrom 2004 on\Incidental Observations[most recent date].mbd
[3] Savage's My Documents\My Pictures\Photos 2012\ALMS
[4] North and company found a nest containing egg fragments, i.e., evidence of nesting, but not an active nest.
[5] A USGS-Alaska Science Center team found active nests in the vicinity of Aniakchak National Monument, Lee Tibbitts p.c. in the mid 2000s.

regular occurrence of alder flycatchers and northern waterthrush. We also noted the absence of white-crowned sparrows in recent years on the Dog Salmon and along the Kejulik River. Previous visits to the Kejulik upper airstrip for Inventory and Monitoring blocks also failed to detect this species (Savage, In Prep).

The point counts on the Dog Salmon resulted in 27 species and 220 individual bird detections (Table 2). Only 70 of these detections and 9 species were of landbirds. The point counts on Kejulik River resulted in the detection of 270 individual birds of 28 species; 190 detections of 15 species were landbirds. The number of landbird detections at the Dog Salmon block was low compared with previous years. The reader is cautioned that these are relative counts and a change in actual densities can only be detected when a distance analysis correcting for observer detection is conducted. Comparison of point photos draws attention to significant phenological differences between at least 2004 and 2012. Although the 2012 team was only five days earlier in June, the vegetation was significantly less developed. Perhaps the late and cold spring may have contributed to lower landbird counts this year.

A summary of the vegetation data collected (Table 3) shows that the blocks were fairly different in their general vegetation composition. The Dog Salmon block was dominated by mesic graminoid herbaceous cover (87%, see comments below), and 9% of the block was in water with little inter-point variation in vegetation. The Kejulik block had a larger variety of vegetation types including bryoid moss, wet and mesic graminoid herbaceous, and ericaceous dwarf shrub; point 23 was dominated by open tall shrub. At Kejulik, vegetation was more varied between points.

Now that the Refuge has established its complement of fixed-wing accessible blocks we can evaluate the diversity of species being sampled by the fixed-wing sample versus the helicopter sample from 2004 (Table 4). With the new blocks, several species of waterbirds were added including: greater white-fronted goose, northern shoveler[6], red-breasted merganser and red-throated loon, but other than swans and geese each species had few detections. Non-landbird species not detected in one round of fixed-wing blocks included: green-wing teal, common merganser, black-bellied plover and semipalmated plover. With regard to landbirds, the species detected in the fixed-wing sample and not the helicopter sample (rock ptarmigan, northern goshawk, merlin, short-eared owl, downy woodpecker, northern shrike and black-capped chickadee) outnumbered the species detected in the helicopter sample but not the fixed-wing sample (alder flycatcher and American pipit). Also the total number of species was greater in the fixed-wing sample (28 vs. 22 landbird species). The detections were low for some of these species which may make little difference in the region-wide density analysis. Species with low detection counts have lower probability of occurrence and may or may not be detected in future years.

With regard to evaluating habitat differences between the helicopter sample and the fixed-wing sample, caution is advised. Examining the data from the Dog Salmon block over four years of visits separated by 8 years, significant differences occur between the percentages assigned to various vegetation classes (Table 5). This may be due to actual changes over time, but

[6] Note both these waterfowl species were observed on the Dog Salmon block which is represented in both the helicopter and the fixed wing samples.

comparison of some of the point photos indicates similarity between years; the differences are more likely due to different interpretations of some vegetation classes. Of particular note is that the vegetation class with a mix of dwarf shrub and graminoid herbaceous has been variously classed as ericaceous or willow dwarf shrub (2004 and 2007), wet graminoid herbaceous (2010) and mesic graminoid herbaceous (2012) by different observers. More training is obviously needed to obtain uniformity between observers. With this caveat in mind, there does not appear to be gross differences in the percentage of various vegetation classes represented in the helicopter sample versus the fixed-wing sample. One difference between the two sample sets however is elevation. The mean elevation of the helicopter sample is 84 m (n=133) while the mean elevation of the fixed-wing sample is 39 m (n=83).

The actual costs to the Refuge of the 2012 survey effort involved travel, staffing and minor gear expenses (Table 6). The 2012 total costs ($7,745) were intermediate between 2011 ($11,500) and 2010 ($4,600), but cost per visit (~$3800-3900) was similar to 2011[7]. Documented staffing costs were slightly lower in 2012 because we were unable to secure an intern and permanent staff (whose salary is hidden) was used instead. Travel costs were lower in 2012 because we had fewer visits and we were able to use DOI aircraft rather than charter aircraft for more of the transportation.

These data will be contributed to the statewide landbird monitoring effort Alaska. The two blocks surveyed in 2012 complete our complement set of four blocks as suggested in Handel and Matsuoka (2007).

Recommendations for the Future

Continued landbird work is outlined in the Refuge draft Wildlife Inventory Plan and in the Refuge's Comprehensive Conservation Plan albeit our actual methods have evolved over the last decade. We recommend continuing our contribution to the Breeding Bird Survey in King Salmon and continuing 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). Additions of 12 point off-road surveys with distance measurements including one along the Kanatak Trail would re-established some higher elevation points that were lost when the helicopter-accessed sample was abandoned.

Our sample is now "river" biased as our fixed-wing accessible sample frame was river biased. Discussions with Handel and Matsuoka should follow to discuss the potential problems with this issue.

Comparison of habitat data indicates that more training is needed before observers collect field data. In addition to better understanding of the Viereck class definitions, observers should be schooled on the ideas of vegetation layers, the definition of litter, and patch heterogeneity. Since no formal training exists, this should consist of supervisors and field staff reviewing the instructions in Handel and Cady (2004), discussing them, and conducting several vegetation sampling practice points together prior to the field season.

[7] In 2011 we visited the Ugashik South block with two separate teams making for three "block visits."

In 2011 we recommended accessing the Kejulik plot via a small lake located at: 57.9220719°, -155.5491417°. We were still unable to evaluate if small aircraft could access this lake, the efficacy of portaging gear to the small feeder stream, and if the feeder stream was floatable to the Kejulik River. In most years, access via the upper Kejulik/Shoemaker strip (as we did this year) seems efficient and safe, and we recommend continuing this access method as long as surveyors have some experience with canoes and sweepers. We would not recommend the float from the Upper Kejulik strip for novice canoers.

Winter work for 2012/2013 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. Other older, confusing GIS data can then be deleted.

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Table 1. Species observed during the point count surveys and incidentally during the block visits, ALMS Alaska Peninsula/Becharof NWR 2004 - 2012.

ALMS Block Name	Dog Salmon River					Kejulik River Lower		Upper Kejulik	
ALMS Block Number	14878					15605		15846	
Year Surveyed	2004	2007	2010	2012		2012		2012	
Visit Start Date	16-Jun	25-Jun	15-Jun	11-Jun		21-Jun		20-Jun	
Hours of Effort	25	30.5	20	32		24		8	
Kilometers of Effort	13	20	15	54		20.5		2	
	Breeding Status	Breeding Status	Breeding Status	Relative Abundance	Breeding Status	Relative Abundance	Breeding Status	Relative Abundance	Breeding Status
Greater White-fronted Goose	Y	Y		C	Y	U	P		
Tundra Swan	N	P	N	C	P	C	P		
American Wigeon	P	X		U	P	U	P		
Mallard	H	X	X	U	P	U	H		
Northern Shoveler		X		U	B				
Northern Pintail			N	U	P				
Green-winged Teal	H	X	X	U	H	U	H		
Greater Scaup	P		X	C	P	C	P		
White-winged Scoter	P	P		C	P				
Black Scoter	P	P	X	C	P	U	P		
Common Merganser	X								
Red-breasted Merganser				U	P	C	P		
Willow Ptarmigan	H	X	H	C	C	C	S		
Red-throated Loon	P	X				U	H		
Common Loon	H	X	X	U	S				
Red-necked Grebe	H								
Unidentified Grebe						U	X		
Double-crested Cormorant		X							
Bald Eagle	X	X				U	H	U	H
Northern Harrier	H					U	H	U	H
Rough-legged Hawk						U	H		
Sandhill Crane	P	P	P	C	P	C	H		
Pacific Golden-Plover						U	H		
Semipalmated Plover						U	H		
Spotted Sandpiper						C	H		
Greater Yellowlegs	H	S	X			C	A	U	H
Lesser Yellowlegs			H						
Marbled Godwit	P	A	H	C	N				
Least Sandpiper	S	S	H	U	C	C	A		
Dunlin	S	S	S	U	C				
Short-billed Dowitcher	S			U	C	C	C		
Wilson's Snipe	D	C	S	U	C	C	C	U	C

Table 1, con't. Species observed during the point count surveys and incidentally during the block visits, ALMS Alaska Peninsula/Becharof NWR 2004 - 2012.

ALMS Block Name	Dog Salmon River						Kejulik River Lower		Upper Kejulik	
ALMS Block Number	14878						15605		15846	
Year Surveyed	2004	2007	2010	2012			2012		2012	
Visit Start Date	16-Jun	25-Jun	15-Jun	11-Jun			21-Jun		20-Jun	
Hours of Effort	25	30.5	20	32			24		8	
Kilometers of Effort	13	20	15	54			20.5		2	
	Breeding Status	Breeding Status	Breeding Status	Relative Abundance	Breeding Status		Relative Abundance	Breeding Status	Relative Abundance	Breeding Status
Mew Gull	H	X	H	C	H		U	H		
Glaucous-winged Gull	X	X								
Arctic Tern	H	X	X	C	H					
Parasitic Jaeger	P	X		U	H		U	H		
Short-eared Owl	H	X	X	U	H					
Alder Flycatcher							C	S	U	S
Northern Shrike							U	H		
Black-billed Magpie							U	H		
Common Raven	X	X	X				U	H	U	H
Tree Swallow	X	X	X	U	H		U	H	U	H
Bank Swallow				U	N		A	N		
Gray-cheeked Thrush							U	H	U	S
Hermit Thrush							C	S	U	S
American Robin		S		U	S				C	S
Lapland Longspur	P	Y	S	C	S		C	S		
Northern Waterthrush							U	S	U	S
Orange-crowned Warbler	S	S	S				C	S	U	S
Yellow Warbler	S	S	S				U	S	U	S
Wilson's Warbler	S	S	S	U	S		A	S	C	S
American Tree Sparrow	S	S	S	C	S		A	S		
Savannah Sparrow	N	S	S	C	S		C	S	U	S
Fox Sparrow							C	S	U	S
White-crowned Sparrow	S									
Golden-crowned Sparrow		X					C	S	C	S
Common Redpoll	H	S					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 Alaska Peninsula/Becharof NWR 2004 - 2012. Landbird species in bold text.

ALMS Block name & Number	DOG SALMON 14878									KEJULIK 15605	
Year of Visit	2004		2007		2010		2012			2012	
Visit Start Date	16-Jun		25-Jun		15-Jun		11-Jun			20-Jun	
Number of points surveyed	16	16	16	16	16	16	16	16		20	20
Species - Common Name	Det.	Points	Det.	Points	Det.	Points	Det.	Points		Det.	Points
Greater White-fronted Goose			14	1			10	2		4	1
Tundra Swan	4	3	8	5	7	4	12	5		10	7
American Wigeon	2	1	1	1			2	1			
Mallard	1	1	4	2	1	1	4	2			
Northern Shoveler							1	1			
Northern Pintail							3	2			
Green-winged Teal			2	1							
Greater Scaup	1	1	12	4	4	2	13	4			
White-winged Scoter	2	1	2	1			11	4			
Black Scoter	2	1	13	2	5	2	4	2		3	2
Red-breasted Merganser										1	1
Willow Ptarmigan			1	1	2	2	3	3		20	13
Rock Ptarmigan											
Red-throated Loon			1	1						9	7
Common Loon	2	2	5	4	2	2	4	4			
Red-necked Grebe	1	1								1	1
Northern Harrier										1	1
Sandhill Crane	17	8	55	16	33	15	25	9		4	4
Pacific Golden-Plover										2	2
Semipalmated Plover											
Greater Yellowlegs	1	1			4	4				6	4
Marbled Godwit	24	13	46	15	45	16	32	12			
Least Sandpiper	12	10	17	7	3	3	2	2		17	8
Dunlin	17	12	7	6	13	10	5	2			
Short-billed Dowitcher	1	1	2	2			2	1		5	3
Wilson's Snipe	12	10	8	8	10	9	6	4		13	8
Mew Gull	7	5	2	2	17	8	11	4		4	3
Glaucous-winged Gull	1	1	19	11							
Unknown Gull											
Arctic Tern	2	1	5	3	1	1	3	1			
Parasitic Jaeger	3	3								1	1

Table 2, con't. Species observed during the point count surveys including number of birds detected and count of points where each species was observed, ALMS Alaska Peninsula/Becharof NWR 2004 - 2012. Landbird species in bold text.

ALMS Block name & Number	DOG SALMON 14878									KEJULIK 15605	
Year of Visit	2004		2007		2010		2012			2012	
Visit Start Date	16-Jun		25-Jun		15-Jun		11-Jun			20-Jun	
Number of points surveyed	16	16	16	16	16	16	16	16		20	20
Species - Common Name	Det.	Points	Det.	Points	Det.	Points	Det.	Points		Det.	Points
Short-eared Owl			3	3			1	1			
Black-billed Magpie										2	1
Common Raven	1	1								3	3
Tree Swallow	4	4	2	2	1	1					
Bank Swallow							1	1			
Gray-cheeked Thrush										1	1
Hermit Thrush										8	5
American Robin			2	1							
American Pipit											
Lapland Longspur	37	14	26	12	12	8	15	8		15	5
Orange-crowned Warbler	3	2	4	4	3	3				18	10
Yellow Warbler	4	3	1	1	1	1					
Wilson's Warbler	3	2	1	1	2	2	1	1		11	8
American Tree Sparrow	26	11	16	10	22	13	13	9		36	18
Savannah Sparrow	65	16	55	16	49	16	32	15		43	19
Fox Sparrow										1	1
White-crowned Sparrow	1	1	1	1							
Golden-crowned Sparrow										18	13
Unknown Sparrow							3	2			
Common Redpoll	14	10	1	1			1	1		13	7
Total number of birds detected on point counts	270		336		237		220			270	
Total number of landbird detections	158		113		92		70			190	
Total number of species observed per block	29		31		21		30			31	

Table 3. Viereck vegetation classes observed at the point count locations, ALMS Alaska Peninsula/Becharof NWR 2012.

Dog Salmon Point	Water	Bare Soil	Bryoid Moss	Wet Gram Herb	Mesic Gram Herb	Eric Dwarf Shub	Open Low Shrub	Closed Low Shrub	Open Tall Shrub	Closed Tall Shrub
2					65				35	
3	50				25		25			
4					100					
5					100					
6	35				65					
7					100					
8					100					
9					100					
10					100					
11	25				75					
12					100					
13					100					
14					100					
15	35				65					
18					100					
19					100					
Total %	9.1%	0.0%	0.0%	0.0%	87.2%	0.0%	1.6%	0.0%	2.2%	0.0%

Table 3, con't. Viereck vegetation classes observed at the point count locations, ALMS Alaska Peninsula/Becharof NWR 2012.

Kejulik Point	Water	Bare Soil	Bryoid Moss	Wet Gram Herb	Mesic Gram Herb	Eric Dwarf Shub	Open Low Shrub	Closed Low Shrub	Open Tall Shrub	Closed Tall Shrub
1						100				
2					100					
6					100					
7				100						
8						100				
9			100							
11					15		85			
12					100					
13						100				
14			35			65				
15				65					35	
16				100						
17					100					
18						100				
19			75						25	
20		10				90				
21	40					40				20
22	45				55					
23									100	
24					55			45		
Total %	4.3%	0.5%	10.5%	13.3%	26.3%	29.8%	4.3%	2.3%	8.0%	1.0%

Table 4. Comparison of species observed during the point count surveys including number of birds detected for the helicopter sample (2004) versus the fixed-wing sample (2011-12) during ALMS, Alaska Peninsula/Becharof NWR 2004 - 2012. Landbird species in bold text.

	Helicopter Sample (n = 7[1]) Year = 2004							Fixed-Wing Sample (n = 4) Year = 2011, 2012			
ALMS Block Name	Bearskin Creek - Chignik Lake	Dog Salmon	Gertrude Creek	North King Salmon River	Bear Creek - Becharof	Deer Mtn - Ugashik	Wide Bay	Lower Ugashik Lake	King Salmon River South	Dog Salmon	Kejulik River
ALMS Block Number	12714	14878	16321	17035	15125	14882	14645	14880	14637	14878	15605
Visit Start Date	19-Jun	16-Jun	23-Jun	9-Jun	25-Jun	19-Jun	9-Jun	13-Jun	19-Jun	11-Jun	21-Jun
Number of points surveyed	15	16	25	19	20	20	16	22	25	16	20
Greater White-fronted Goose										10	4
Tundra Swan	3	3		4						12	10
American Wigeon		1							2	2	
Mallard	1	1		1					3	4	
Northern Shoveler										1	
Northern Pintail			1						1	3	
Green-winged Teal	1										
Greater Scaup		1				1			2	13	
White-winged Scoter		1				1				11	
Black Scoter		1		3					6	4	3
Common Merganser			1		1						
Red-breasted Merganser											1
Willow Ptarmigan				2				9		3	20
Rock Ptarmigan								1			
Red-throated Loon									2		9
Common Loon		2		1						4	
Red-necked Grebe	1	1		2							1
Bald Eagle	1										
Northern Harrier			1								1
Northern Goshawk									1		
Merlin								2			
Sandhill Crane		8	12	1				4	19	25	4

Table 4, con't. Comparison of species observed during the point count surveys including number of birds detected for the plots completed primarily using helicopter access in 2004 and the plots accessed by fixed-wing in 2011 and 2012 , ALMS Alaska Peninsula/Becharof NWR 2004 - 2012. Landbird species in bold text.

	Random Plots (n = 7[1]) Year = 2004							Fixed-Wing Selected Plots (n = 4) Year = 2011, 2012			
	Bearskin Creek - Chignik Lake	Dog Salmon	Gertrude Creek	North King Salmon River	Bear Creek - Becharof	Deer Mtn - Ugashik	Wide Bay	Lower Ugashik Lake	King Salmon River South	Dog Salmon	Kejulik River
ALMS Block	12714	14878	16321	17035	15125	14882	14645	14880	14637	14878	15605
Visit Start Date	19-Jun	16-Jun	23-Jun	9-Jun	25-Jun	19-Jun	9-Jun	13-Jun	19-Jun	11-Jun	21-Jun
Number of points surveyed	15	16	25	19	20	20	16	22	25	16	20
Black-bellied Plover				2							
Pacific Golden-Plover				12							2
Semipalmated Plover						2	2				
Greater Yellowlegs	2	1	4	4	3				33		6
Marbled Godwit		13							48	32	
Least Sandpiper		10	12	11	3	4	3		13	2	17
Dunlin		12								5	
Short-billed Dowitcher		1	1	3					4	2	5
Wilson's Snipe	10	10	8	15	1	2	1	6	15	6	13
Red-necked Phalarope				1					1		
Mew Gull	4	5		2					13	11	4
Glaucous-winged Gull		1		1			1		4		
Arctic Tern		1							11	3	
Parasitic Jaeger		3		1							1
Long-tailed Jaeger			2	9							
Short-eared Owl										1	
Downy Woodpecker									1		
Alder Flycatcher						1					
Northern Shrike									1		
Black-billed Magpie	2				3	3	6				2
Common Raven	1	1			1	1	1	2	4		3
Tree Swallow		4							6		
Bank Swallow	1				2					1	
Black-capped Chickadee								3			

Table 4, con't. Comparison of species observed during the point count surveys including number of birds detected for the plots completed primarily using helicopter access in 2004 and the plots accessed by fixed-wing in 2011 and 2012 , ALMS Alaska Peninsula/Becharof NWR 2004 - 2012. Landbird species in bold text.

	Random Plots (n = 7[1]) Year = 2004							Fixed-Wing Selected Plots (n = 4) Year = 2011, 2012			
	Bearskin Creek - Chignik Lake	Dog Salmon	Gertrude Creek	North King Salmon River	Bear Creek - Becharof	Deer Mtn - Ugashik	Wide Bay	Lower Ugashik Lake	King Salmon River South	Dog Salmon	Kejulik River
ALMS Block	12714	14878	16321	17035	15125	14882	14645	14880	14637	14878	15605
Visit Start Date	19-Jun	16-Jun	23-Jun	9-Jun	25-Jun	19-Jun	9-Jun	13-Jun	19-Jun	11-Jun	21-Jun
Number of points surveyed	15	16	25	19	20	20	16	22	25	16	20
Gray-cheeked Thrush	1				7			7	7		1
Hermit Thrush	7				20	17	14	38	16		8
American Robin				5	8	3	1	6	22		
American Pipit					3	2	2				
Lapland Longspur		14	19	17	1	2				15	15
Orange-crowned Warbler	6	2	11	13	10	14	14	29	18		18
Yellow Warbler	9	3	1		13	16	7	10	10		
Wilson's Warbler	13	2	8	4	18	18	16	57	39	1	11
American Tree Sparrow	11	11	24	18				4	51	13	36
Savannah Sparrow	12	16	25	18	14	15	16	18	1	32	43
Fox Sparrow	3				10	13	10	10			1
White-crowned Sparrow		1		13				4	9		
Golden-crowned Sparrow	12		4		20	20	15	24	3		18
Unknown Sparrow										3	
Common Redpoll	11	10	21	10	13	15	13	35	25	1	13
Total Species	27	35	23	32	25	25	22	25	38	32	34

[1] Six plots were assigned, but the Refuge had the staffing, resources and time to complete a seventh plot.

Table 5. 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 (2011-12) during ALMS, Alaska Peninsula/Becharof NWR 2004 - 2012.

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	
Total			4.0	0.1	3.5	2.7	6.4		39.7	1.1	11.9		3.2	0.6	9.8	14.3	2.8

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

14878	2004		6.6			0.3	10.9		10.3		49.4	7.5	6.6		8.1	0.3	
14878	2007		7.8				20.0	0.9	8.1		43.8			14.1		5.3	
14878	2010		6.9			2.8	61.6						15.6	0.6	12.5		
14878	2012		9.1						87.2		0.0		1.6		2.2		

Table 6. Estimated expenses associated with ALMS, Alaska Peninsula/Becharof NWR 2012.

	Cost	Totals
Plot Stakes	49	
Other Camping Gear (Refuge inventory)	Not Included	
Misc. Personal Gear (waders, raingear)	Not Included	
Total Equipment, Supplies and Postage		49
Refuge Aircraft	936	
NPS Aircraft	616	
Charter Aircraft	800	
Field Per diem & Travel Fees	160	
Field Food	400	
Total Transportation and Travel		2,912
Refuge Biologist, hourly	Not Included	
Refuge Biologist, 15.5 hours comp time	605	
Refuge Seasonal employee, 4 weeks + 18 hours overtime	4,278	
Total Salary & Overtime		4,884
GRAND TOTAL		7,845

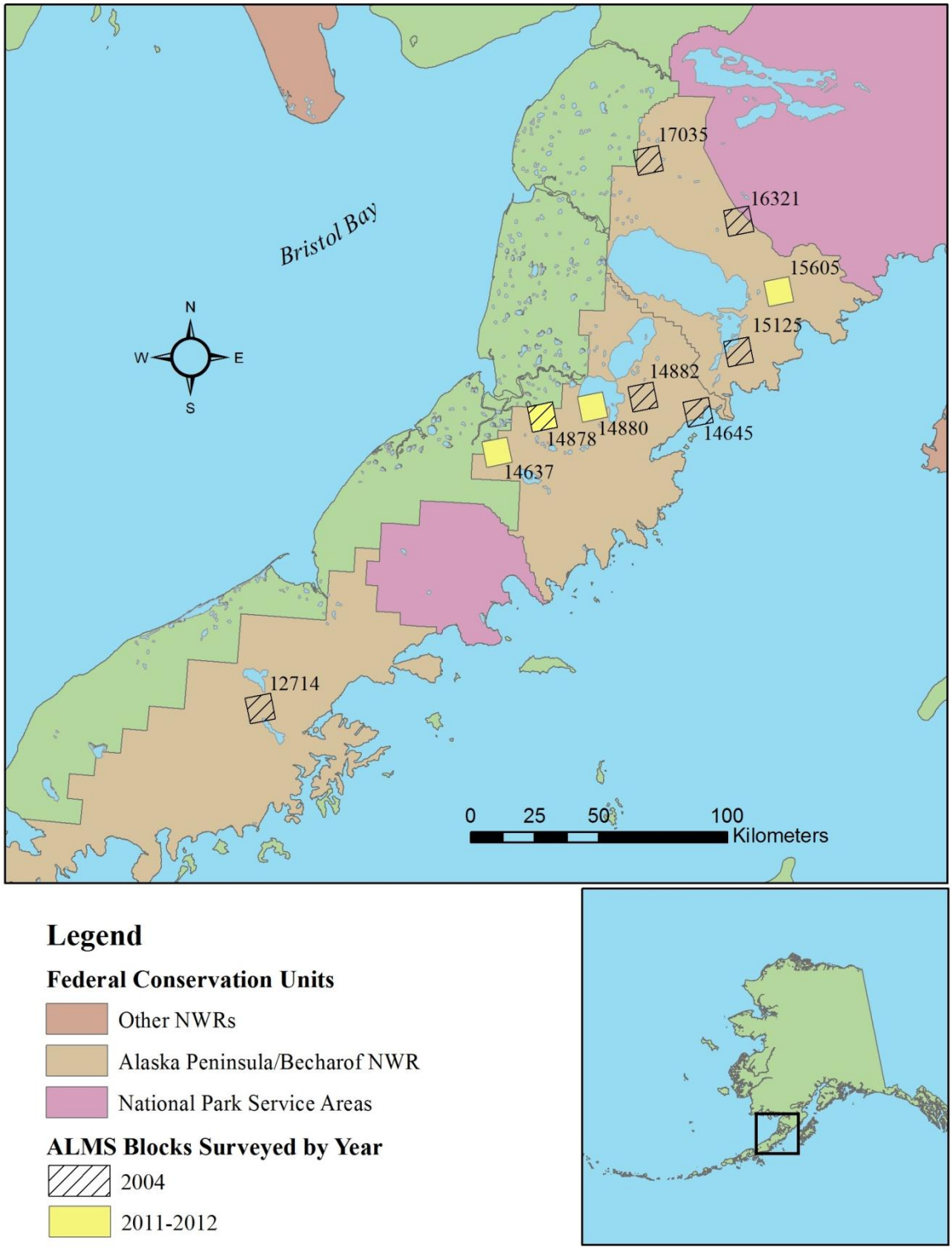


Figure 1. Map showing Alaska Landbird Monitoring Survey blocks completed on the Alaska Peninsula/Becharof NWR, 2004 and 2011-12. Note Block 14878 was also completed in 2007, 2010 and 2012.

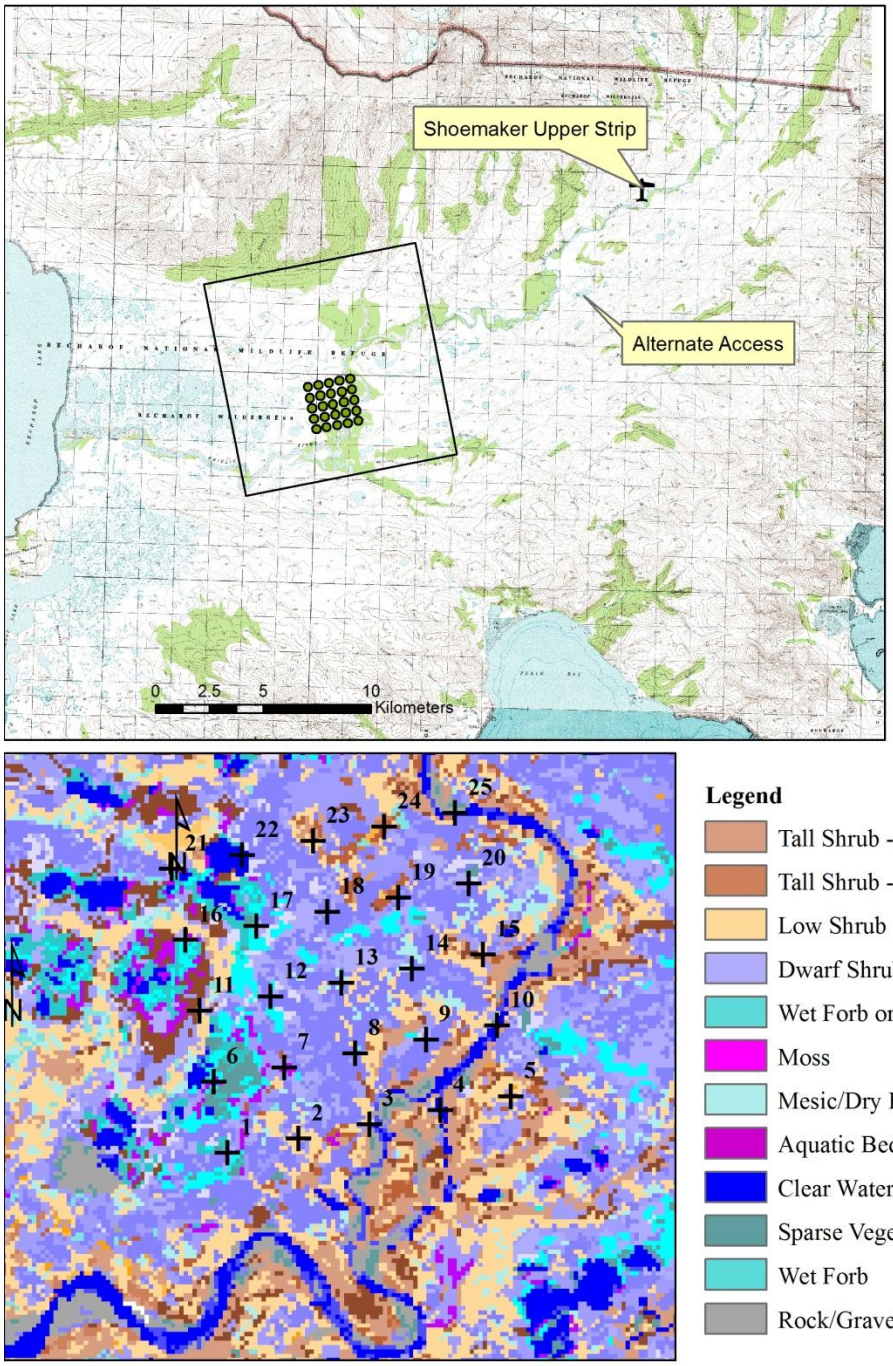
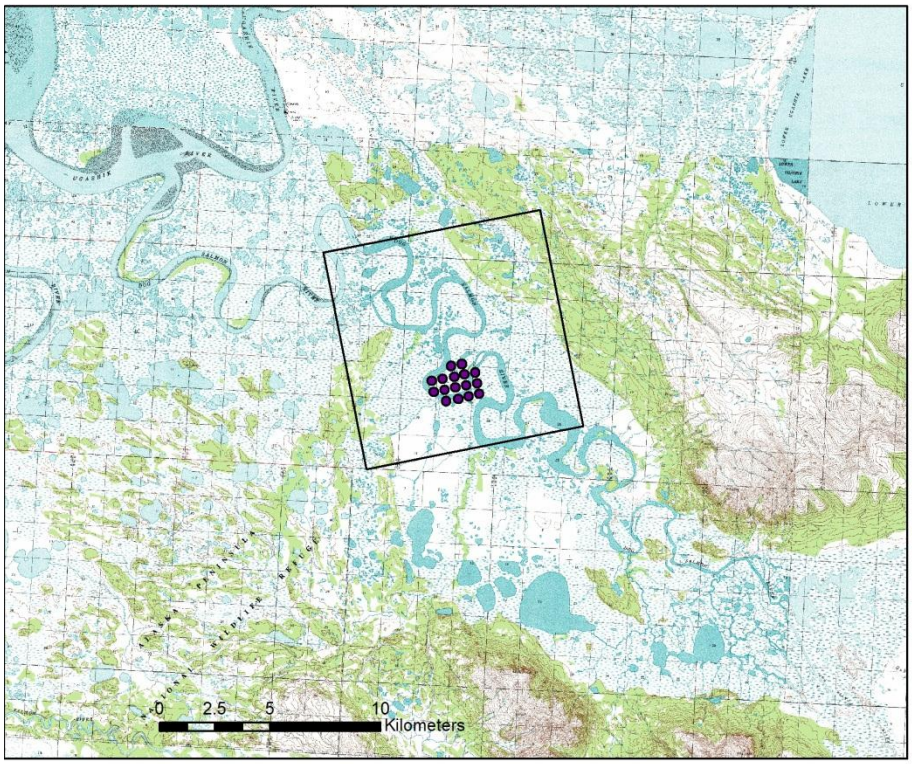
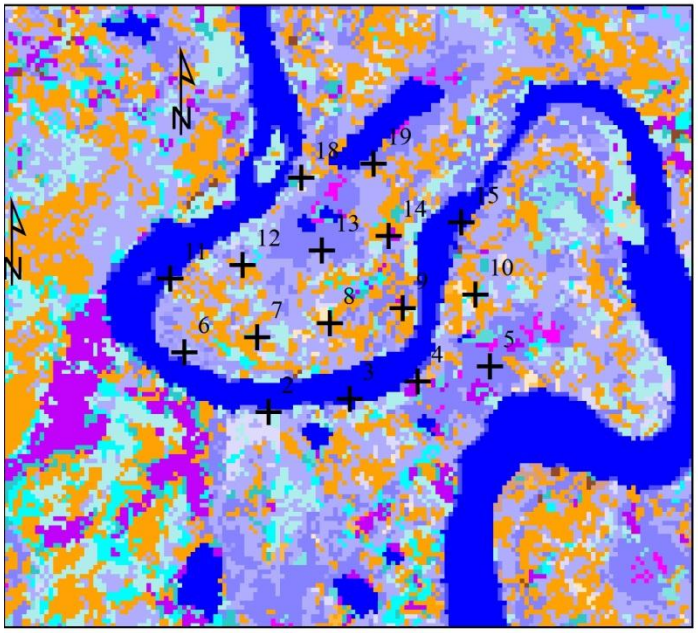


Figure 2. Maps showing general location of ALMS block 15605 (Kejulik River), and close up showing general land cover at point count locations, ALMS Alaska Peninsula/Becharof NWR, 2012.





Legend

- Tall Shrub - Willow
- Tall Shrub - Alder
- Low Shrub - Other
- Dwarf Shrub
- Wet Forb or Graminoid
- Moss
- Mesic/Dry Forb or Graminoid
- Aquatic Bed
- Clear Water
- Sparse Vegetation
- Wet Forb
- Rock/Gravel

Figure 3. Maps showing general location of ALMS block 14878 (Dog Salmon River), and close up showing general land cover at point count locations, ALMS Alaska Peninsula/Becharof NWR, 2012.

Appendix I. Visit Summaries for Blocks visited in 2012.

Visit Summary for Block 14878 Dog Salmon ALMS

Land Unit: Alaska Peninsula NWR
Block Number: 14878
Block Name: Dog Salmon ALMS
Observers: Kevin Payne, Liz Julian

Dates: 11-15 June 2012
Points Completed:
15, 10, 5, 4, 3, 2
9, 8, 7, 6, 11, 12, 13, 18, 19, 14
Hours worked: 19.0

Topography: This location is flat, open, and relatively uniform. It is soggy and requires hip boots. The vegetation consists of low dwarf birch and other dwarf shrubs, *Carex spp.*, grass, moss, and quite a number of obligate and facultative wetland species. Patches of willow shrubs 1 to 3 meters tall grow along the Dog Salmon River. There is a lot of beaver sign near the river, seasonal flooding at a few riverside points, and bank erosion that may require moving some points. The Dog Salmon River also bisects the block making a boat necessary for crossing and conducting surveys.

Time required: On 11 June contract transporter Katmai Air carried Payne and Julian to the Dog Salmon River in a C206 float plane. The team arrived, set up camp, and conducted the vegetation surveys at points 15 and 10. The weather on 12 June was not cooperative so ALMS vegetation habitat data were collected on points 9, 8, 7, 6, 11, 12, 13, and 14. The aggravation of an old personal injury prevented work on 13 June but permission was obtained from Bill Schaff (Refuge Manager) to finish all surveys with a single individual. On 14 June, after the dissipation of early morning fog, Payne conducted the avian counts on points 15, 10, 5, 4, 3, and 2. The vegetation habitat data were collected for points 2 – 5 on the return trip. On 15 June, Payne collected avian data for points 9, 8, 7, 6, 11, 12, 13, 18, 19, and 14 (north side of river). Vegetation data for points 18 and 19 were collected immediately after the avian count. On 15 June we were picked up by NPS pilot Gilliland with a Beaver on floats.

Camp: N 57.40210, W 157.24830 (NAD 83; approximate)

Camp location: The camp location was on the east side of the river between points 9 and 10. This whole block is rather wet but this location seemed to be a little higher elevation and it was protected by willow shrubs.

Grid Route: Points were completed as follows:
14 June – 15, 10, 5, 4, 3, 2.
15 June – 9, 8, 7, 6, 11, 12, 13, 18, 19, 14.

Skipped points: Again, the survey team repeated the same routes and surveyed the same points that were completed in 2004. See Appendix 8 in the Alaska Landbird Monitoring Survey June 2004 report (Sesser and Jehle 2005) for more details concerning points that were skipped.

Water crossings: The Dog Salmon River is wide and is influenced by tides. Since two point survey routes are located on both sides of the river, a canoe was used to cross the river. Hip boots are also required for wading in the river and for getting around in such a wet block.

Wildlife notes: Marbled godwits were common and two nests were located. The location of each nest was documented and notes were taken on each nest. Photographs were only taken of one of the MAGO nests. Bank swallows were also seen entering burrows along the river. In all, 29 bird species were encountered. Mammal detections included visuals of a one caribou and a brown bear. Wolf, fox, and beaver sign was also present. A bear cache was sighted near between points 5 and 10. The size and location of the cache (near a beaver trail) indicated it was a beaver. I (KP) was alone and immediately took a wide path around the cache and no incidence occurred. It is worth noting that similar circumstances were encountered in the previous survey year.

Access: Katmai Air carried Payne and Julian to the Dog Salmon River in a C206 float plane. The pilot was able to taxi the crew to shore without much difficulty and the crew was able to unload gear without getting into the water. The water was murky and difficult to tell how deep it was. Generally, the middle of the river is deeper and the tide seems to have an effect on the river level.

A two-man inflatable canoe was used to cross the river and access both sides of the block. Crossing the river is relatively easy and can be done in any conditions where a survey is possible. Wave height can reach .3 meters in high winds but surveying would be difficult. An Egegik tide table may be helpful in coordinating transportation. Previous visitors estimated that high tide at Egegik is three hours ahead of high tide at this location.

Attachment II. Visit Summary for Block 15605 Kejulik River ALMS

Land Unit: Becharof NWR
Block Number: 15605
Block Name: Kejulik ALMS
Observers: Kevin J. Payne, Susan E. Savage

Dates: 20-24 June 2012
Points Completed: 1, 2, 6,7,8,9, 11, 12, 13, 14 15,16,17,18,19,20,21,22,23,24

Hours surveying & hiking on block: 14.5

Topography: The block is primarily north of the Kejulik River at a river bend. Several of the southern or eastern points are in the river or on islands separated from the rest of the block by non-wadable channels. We did not attempt those points. Most of the block is a Pleistocene flood plain about 10 m higher than the river channel (above a pronounced cut bank). One point is on a historically abandoned river channel just above current channel level and another point is at the bottom of the cut bank bordering a very wet meadow. There is a hill on the north-central part of the block and a few points are on the slope of this hill or at the toe of the hill. The hill is not very steep and it is covered with patch tall and dwarf shrub. Dwarf shrub (often hummocky) and mesic meadow cover most of the block. A few points are in wetter meadow (successing lake beds). Along old lake rims and the river banks, taller shrub thickets generally less than 50 m in width are found. Hip boots are recommended for the block.

Time required: After waiting two days due to weather, after morning fog cleared at 1430 on 20 June Refuge Pilot Finley took Biological Technician Payne and Wildlife Biologist Savage in two flights in the Husky to Phil Shoemaker's upper Kejulik Airstrip. A small mechanical issue prevented the third trip with remaining gear and inflatable canoe until 21 June (again waiting for morning fog to clear and arriving about 1300). Bu 1400 the canoe was pumped up and packed and Payne and Savage began floating. The upper river was relatively fast (~6-8 km/hr) with some sweepers. The river slowed a bit aw we approached the block. We arrived near our designated camping spot about 1930 and had camp set up by 2100.

On 22 June we hiked toward point 3 and found it in the river, so we then hiked to point 2, 1, 6, 11, 16, 21, 22, 17. Payne counted birds while Savage completed the vegetation forms on all days. From point 17 we returned to camp (1.8 km) over the most difficult walking on the block. That afternoon the wind picked up but died down by morning. On 23 June we hiked to point 8 and found a pair of willow ptarmigan defending a brood. We marked the point, and moved 50 m west to conduct the count. Staying at the point would have compromised listening as the pair was quite vocal in attempting to distract us from the brood. We then hiked to point 7, 12, 13, 18, 23, 24, hiked toward 25 and found it in the river, 20, and 19. On this day we experienced intermittent mist during and between a few points. We returned to camp (1.4 km). Mist and drizzle developed into serious rain during the evening. Payne set his alarm for 1300 on 24 June to check the river level. In the morning of 24 June we completed points 9, 15, and 14. Point 9 was the closest to camp on a historically recovered river bend below the cut bank. We returned to camp (~ 800 m) and began packing up. We made our 0800 call in and decided to begin our float as there was a chance we could be picked up. We were packed and floating by 0930. The current had slowed to ~ 4 k/hr and with a 24 kph wind from the west, floating was slow and difficult. By 1240 we passed several sections that appeared favorable to pick up and settled at one with two options (upstream and downstream). We called in and after several contacts, and

waiting for weather in King Salmon, we were picked up at 1600. We landed in King Salmon at 1700 having to fly along lake shores and rivers to return. We had acceptable weather for surveying every morning we were on the block, so spent the minimal time there; with weather/ aircraft delay at the beginning and end of the trip, we completed the block in just over 5 days.

Camp: 57.867˚/-155.736˚ (NAD 83)

Camp location: We camped on a small island separated from the north side of the river by wadable rivulets. We were approximately between points 3 and 4 (both in the river). Under high flow conditions, this island may be underwater. It was 30 – 40 cm above river level on our visit. The river level usually fell 3-5 cm overnight to be lower in the morning. The sight was very silty with sparse grass and low shrub cover. We did little vegetation cutting to put up our electric fence.

Grid Route: On 22 June surveyed points 2, 1, 6, 11, 16, 21, 22, 17. On 23 June we surveyed points 8, 7, 12, 13, 18, 23, 24, 20, and 19. On 24 June we completed points 9, 15, and 14.

Skipped points: Points 1, 2, 3, 10, and 25 were either in the river, on an island or on the south side of the river. We did not attempt to reach island or south shore points because this would require leaving the inflatable canoe on the river shore unprotected from bears while we completed survey points.

Water crossings: The Kejulik River is less than 10 m wide at the put in place and gradually widens to > 150 m including side sandbars. Per above, we restricted our survey to the north side of the block. Once at camp, teams must cross rivulets that could vary in depth from ankle to thigh deep. Once across all river channels, no significant streams need crossing. However several points are in wetlands or wetlands must be crossed to reach points. Obviously the inflatable canoe is required to reach and leave the block. Hip waders are required for wading in the river and for getting around in the block.

Wildlife notes: We did not have any unusual birds on the block. The lack of White-crowned sparrows along the river and at the block was also noted Northern waterthrush were noted at the upper airstrip (along the river) and frequently along the river bank. Many harriers (mostly male) were noted while floating and a few were noted on the block. A rough-legged hawk was observed on a hill between the put in spot and the block.

We experienced a bear charge and aggressive behavior from the riverbank as we entered the block while floating down on 21 June. On 24 June we also heard roaring (bear) while on river right after our 1240 check in. We heard wolves at night while camping at the upper Kejulik airstrip. We saw moose along the river (21 and 24 June); one was on the block near point 3. We had a bull and cow caribou approach while counting at point 18. We watched a beaver in the river near camp on 23 June.

Access: Three loads in the Husky took us to Shoemaker's upper Kejulik airstrip. We had permission from Shoemaker to land there. The strip is located at: (57.9652˚, -155.503˚). An alternative to this put in is a lake at: 57. 921333˚, -155.554˚ on Section 20, Township 26, Range

38 We have been unable to confirm if this lake is large enough for a Found or C206 landing, and if the creek running out of it is floatable with our inflatable.

A two-man 17’ Incept inflatable canoe was used to float down from the access point to the block and to float from the block to the pick-up location. The canoe can carry 800 pounds; our body weight and gear was 700 pounds, and bulk wise, the canoe was full.

Appendix II. List of Scientific Names of Avian Species appearing in this report, ALMS Alaska Peninsula/Becharof NWR 2004 - 2012. List order and Scientific Name as given in the 2011 AOU Suplement (Chesser et al., 2011).

Common Name	Scientific Name
Greater White-fronted Goose	*Anser albifrons*
Tundra Swan	*Cygnus columbianus*
American Wigeon	*Anas americana*
Mallard	*Anas platyrhynchos*
Northern Shoveler	*Anas clypeata*
Northern Pintail	*Anas acuta*
Green-winged Teal	*Anas crecca*
Greater Scaup	*Aythya marila*
White-winged Scoter	*Melanitta fusca*
Black Scoter	*Melanitta americana*
Common Merganser	*Mergus merganser*
Red-breasted Merganser	*Mergus serrator*
Willow Ptarmigan	*Lagopus lagopus*
Red-throated Loon	*Gavia stellata*
Common Loon	*Gavia immer*
Red-necked Grebe	*Podiceps grisegena*
Unidentified Grebe	*Podiceps sp.*
Double-crested Cormorant	*Phalacrocorax auritus*
Bald Eagle	*Haliaeetus leucocephalus*
Northern Harrier	*Circus cyaneus*
Rough-legged Hawk	*Buteo lagopus*
Sandhill Crane	*Grus canadensis*
Pacific Golden-Plover	*Pluvialis fulva*
Semipalmated Plover	*Charadrius semipalmatus*
Spotted Sandpiper	*Actitis macularius*
Greater Yellowlegs	*Tringa melanoleuca*
Lesser Yellowlegs	*Tringa flavipes*
Marbled Godwit	*Limosa fedoa*
Least Sandpiper	*Calidris minutilla*
Dunlin	*Calidris alpina*
Short-billed Dowitcher	*Limnodromus griseus*
Wilson's Snipe	*Gallinago delicata*
Mew Gull	*Larus canus*
Glaucous-winged Gull	*Larus glaucescens*
Arctic Tern	*Sterna paradisaea*
Parasitic Jaeger	*Stercorarius parasiticus*
Short-eared Owl	*Asio flammeus*
Alder Flycatcher	*Empidonax alnorum*
Northern Shrike	*Lanius excubitor*
Black-billed Magpie	*Pica hudsonia*
Common Raven	*Corvus corax*
Tree Swallow	*Tachycineta bicolor*
Bank Swallow	*Riparia riparia*
Gray-cheeked Thrush	*Catharus minimus*
Hermit Thrush	*Catharus guttatus*
American Robin	*Turdus migratorius*
Lapland Longspur	*Calcarius lapponicus*
Northern Waterthrush	*Parkesia noveboracensis*
Orange-crowned Warbler	*Oreothlypis celata*
Yellow Warbler	*Setophaga petechia*
Wilson's Warbler	*Cardellina pusilla*
American Tree Sparrow	*Spizella arborea*
Savannah Sparrow	*Passerculus sandwichensis*
Fox Sparrow	*Passerella iliaca*
White-crowned Sparrow	*Zonotrichia leucophrys*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Common Redpoll	*Acanthis flammea*