Alaska Shorebird Group

Annual Summary Compilation

New or ongoing studies of Alaska shorebirds

December 2020

A Black Oystercatcher repositioning itself on a nest in Prince William Sound, Alaska. Photo courtesy of James Ianni (USFS).

EXECUTIVE SUMMARY

Welcome to the Alaska Shorebird Group (ASG) 2020 annual summary. This is the 21st annual summary to document new and ongoing studies of shorebirds in Alaska. This document includes annual summaries for 8 studies and 20 publications from ASG members in 2020. This year also marked the beginning of the novel Coronavirus pandemic; therefore, many field projects were either cancelled or postponed.

The Alaska Shorebird Group continues to be a highly collaborative organization with a large membership of productive principal investigators, early-professionals, and students both within and outside of Alaska. This annual compilation is the only written record that acknowledges the shorebird projects occurring in Alaska and provides a valuable timeline of shorebird activities for this region.

Thank you to all the principle investigators, research technicians, and amateur photographers that made this report possible. I am aware of the long hours, tricky logistics (including Covid-19 mitigation plans) and dedication that goes into the research occurring within Alaska and globally. I feel honored to be part of a group with such a strong passion for shorebird conservation and management, especially as we continue to face the challenge of population declines of arctic and sub-arctic breeders. Be sure to take care of yourself and each other as we look forward to the continuation of research and conservation of Alaska's breeding and migratory shorebirds.

Laura McDuffie
Secretary, Alaska Shorebird Group

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1 REPRODUCTIVE ECOLOGY OF SHOREBIRDS AND POST-BREEDING MOVEMENTS OF RED PHALAROPE: STUDIES AT UTQIAĠVIK, ALASKA, IN 2020

Investigators: Richard Lanctot, U.S. Fish and Wildlife Service; Sarah Saalfeld, U. S. Fish and Wildlife Service

In 2020, we conducted the 18th year of a long-term shorebird study at Utqiaġvik (formerly Barrow), Alaska. Due to Covid19 concerns, the field season was substantially abbreviated from past years, with minimal data collected by a local 2-person field crew. One of the main objectives of the 2020 field season was to collect a fifth year of data for the "Interaction Working Group" – a joint circumpolar initiative on predator-prey interactions in Arctic terrestrial ecosystems. To estimate predation pressure on shorebird nests, we deployed Tiny Tags in 15 Semipalmated Sandpiper and 17 Dunlin nests, with survival determined using the nest bowl temperature signatures recorded by the Tiny Tag devices. We also counted predators opportunistically on 19 days throughout the breeding season to determine predator composition and densities.

A second objective of the 2002 field season was to collect a third year of data for a Bird Vocalization project focused on using audio recorder units to monitor species diversity and abundance. As in past years, we deployed audio recording units on 3 plots to record avian calls throughout the breeding season. Preliminary analyses of these recordings are being done by Dr. Nicolas Lecomte at the Universitê de Moncton. This work will be expanded to rapid survey sites on PRISM plots in 2021.

A third objective in the 2020 season was to continue tracking the movements of post-breeding Red Phalaropes. To do this, we deployed 2-gram PTT Argos tags manufactured by Microwave Telemetry, Inc. on 10 male Red Phalaropes. These tags collected and transmitted location data to satellites several times per day during the post-breeding season (June–October), as birds traveled west and south through the Chukchi and Bering seas. Similar location data were collected in 2017 to 2019, providing some of the best information on post-breeding movements ever recorded for this species. Examples of movements can be found on movebank.org – use the browse tracks function and search for "Arctic Shorebird Migration Tracking study – Red Phalarope 2020". Please do not use this information without first contacting us. For each tagged individual, we also collected information on reproduction and nest survival using TinyTags that can be related to migration patterns. Additionally, we collected feather samples for each tagged individual, allowing future studies to assess stress levels from winter-grown feathers that can be related to migration patterns and productivity.

This study fulfills a variety of action items within the Alaska Shorebird Conservation Plan (Alaska Shorebird Group 2019). These include items under the Research (i.e., "identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle" and "determine migratory timing, routes, and site use of shorebirds"), Population Inventory and Monitoring (i.e., "conduct long-term population monitoring efforts"), Habitat Management and Protection (i.e., "apply abundance and distribution information to identify key shorebird habitats and sites"), and International Collaboration objectives (i.e., "foster and participate in cooperative research and monitoring efforts throughout species' ranges").

Field work was conducted by Peter Detwiler and Kayla Scheimreif. Funding to purchase and receive data from tags was provided by the Bureau of Ocean Energy Management, Neotropical Migratory Bird Conservation Act Program, Manomet, Inc., and the USFWS (Migratory Bird Management).

Location: Utqiaġvik (formerly Barrow), Alaska, North Slope, 71.29°N, 156.64°W

Contact: Richard Lanctot, Shorebird Coordinator, U.S. Fish and Wildlife Service, 1011 East Tudor Road, MS 201, Anchorage, AK 99503, Email: richard_lanctot@fws.gov, Phone: 907-786-3609

Figure 1. *Male Red Phalarope with 2-gram PTT Argos transmitter.*

2 MIGRATORY PATTERNS OF ADULT LESSER YELLOWLEGS

Investigators: Katie Christie, Alaska Department of Fish and Game; Jim Johnson and Laura McDuffie, U.S. Fish and Wildlife Service; Audrey Taylor, University of Alaska Anchorage

Shorebird hunting is a significant threat to Lesser Yellowlegs that stage and/or overwinter in Caribbean and northeastern South American countries (Clay et al. 2012). It is estimated that 7,000 to 15,000 individuals are killed in shooting swamps on Barbados annually (Burke 2008, Reed and Burke 2011). The objectives of this study include: 1) determine migration patterns of birds from Alaska and Canada breeding populations, 2) determine if genetic markers can be used to explain migratory connectivity, 3) identify the breeding origins of harvested birds, 4) determine the vital rates of breeding populations in Alaska, and 5) understand what actions can be taken to conserve the species.

Despite fieldwork restrictions due to Covid-19, biologists in Anchorage and Mingan Archipelago successfully implemented and completed the third year of this multi-year project. During the 2018-2020 capture efforts, 110 Pinpoint GPS-Argos satellite tags (Lotek Wireless Inc.) were deployed on adults (Table 1). Additionally, we placed 20 Tiny Tag data loggers in nests to remotely monitory success and refine incubation estimates.

Table. 1. *Total number of PinPoint GPS-Argos satellite tags deployed during 2018 and 2019.*

	Anchorage	Kanuti NWR	Yellowknife	Churchill	James Bay	Mingan
2018	15	0	1	0	7	0
2019	19 (2 replaced)	10	10	20	2	2
2020	12	0	0	0	0	12

Preliminary results indicate that Lesser Yellowlegs migratory movement patterns are variable among geographically discrete breeding populations. As shown by GPS track lines, birds breeding in Anchorage use the central, Mississippi and Atlantic flyway corridors of the contiguous United States during autumn migration and dispersed across Central and South America and the Caribbean Islands during the nonbreeding season. Birds migrated as far east as Suriname and as far south as Buenos Aires Province, Argentina. Additionally, birds breeding west of the Manitoba/Ontario border commonly use the prairie pothole habitat as a stopover location during autumn migration. Finally, breeding population segments generally organize migration routes to correspond with their geographic breeding distribution (i.e. birds breeding in eastern Canada migrate furthest east, while birds breeding in Alaska migrate furthest west).

This project supports conservation efforts outlined in the Alaska Shorebird Conservation Plan II, primarily by fostering cooperative research internationally to identify important stopover and nonbreeding sites across the western hemisphere. The scope of the migration study may reach beyond Alaska; however, by marking individuals breeding in Alaska, we are able to better understand the habitat associations and requirements of this boreal-breeding shorebird. Additionally, international public outreach through presentations and social media has been and will continue to be implemented to improve the understanding of boreal shorebird species of conservation concern.

Collaborators: Audrey Taylor (UAA); Christopher Harwood (USFWS); Sarah Sonsthagen, Lisa Pajot and Lee Tibbitts (USGS- Alaska Science Center); Jennie Rausch, Christian Friss, Sam Hache, Benoit Laliberte, and Eric

Reed (Environment and Climate Change Canada); Erin Bayne (University of Alberta); Ross Wood (Bird Studies Canada), Yann Rochepault, Christophe Buidin, Erica Nol (Trent University); Brad Andres (Atlantic Flyway Shorebird Initiative); and Michael Hallworth, Pete Marra and Autumn-Lynn Harrison (Smithsonian Migratory Bird Center), Kristy Rouse, Cassandra Schoofs, and Brent Koenen (673 CES/CEIS).

Funding: Alaska State Wildlife Grant (WSFR – SWG Grants T-32-1, T-33-2020), 673 CES/CEIS, U.S. Department of the Air Force (FXSB46058118 and FXSB4658119), USFWS Candidate Conservation Grant, USFWS Migratory Bird Management, Alaska Department of Fish and Game, Bird Studies Canada, Environment and Climate Change Canada, the Smithsonian Institution Migratory Bird Center.

Location: Cross-Boreal project with six study sites located at Anchorage, Alaska; Kanuti National Wildlife Refuge, Alaska; Yellowknife, Northwest Territories; Churchill, Manitoba; James Bay, Ontario; and Mingan Archipelago, Quebec.

Contact: Laura Mcduffie, Wildlife Biologist, U.S. Fish and Wildlife Service, 1011 East Tudor Road, MS 201, Anchorage, AK 99503, Email: laura_mcduffie@fws.gov, Phone: 907-786-3979.

Figure 1. *Extracting an adult Lesser Yellowlegs from a mist net on Eagle River Flats, JBER. Photo credit: Z. Pohlen/USFWS/2020.*

Figure 2. *Tarsus measurement of adult lesser yellowlegs "TY". Photo credit: Z. Pohlen/USFWS/2020.*

#3 KACHEMAK BAY SHOREBIRD MONITORING PROJECT: 2020 REPORT

Investigators: George Matz and Kachemak Bay Birders volunteers.

Long-term Objective

The long-term objective for this citizen science project is to attain a better understanding of the status of shorebird populations in Kachemak Bay as well as the intertidal areas of the Anchor and Kasilof Rivers, particularly during spring migration. Volunteer participation provides local birders with more opportunity to observe and enjoy shorebirds. Secondary objectives are: 1) to contribute information that might be useful to others assessing shorebird populations across the entire Pacific Flyway, and 2) to use the monitoring data to help protect shorebird populations and habitat on the western side of the Kenai Peninsula.

Accomplishments

This year, the Kachemak Bay Birders (based in Homer, Alaska) completed its twelfth consecutive year of shorebird monitoring. Between April 11 and May 21, we had nine monitoring sessions using a protocol that has been consistent from the start. The adjustments we made due to the Covid-19 pandemic were slight. We kept all activities outside, which meant cancelling the meeting we would normally have after each session to review observations. We also asked that scopes not be shared, since that might facilitate transmitting the virus. Also, instead of written reports from each team, we required an electronic eBird report. This was a benefit in that several volunteers became more familiar with eBird and it eliminated the need to decipher someone else's writing.

In Kachemak Bay, we had separate teams simultaneously monitor four sites on the Homer Spit as well as Beluga Slough, the islands and islets on the south side of Kachemak Bay, and Seldovia Bay. The sessions were for two hours once every five days when the outgoing tide reached 15.0 feet (or at high tide if less). These tide conditions provide consistency and optimized shorebird viewing conditions. Monitoring by boat on the south side of the Bay occurred the same day, weather permitting. This year we had a total of 36 volunteers participate in at least one Kachemak Bay monitoring session. Most of the volunteers have participated in previous years and are familiar with local shorebirds.

For the eighth consecutive year, we monitored the mouths of the Anchor Point/River and Kasilof River. To reduce duplicate sightings, the Anchor River team monitored at the same time as the Kachemak Bay teams. A total of nine volunteers participated this year at this site. Two volunteers at the Kasilof River monitored on the same day as the other teams, but at a different time due to tidal differences.

Results

This year at the Kachemak Bay sites (excluding Seldovia Bay) we observed a total of 26 species of shorebirds and counted a total of 20,229 individual shorebirds. Seldovia Bay didn't have any different shorebird species and recorded 398 individual birds. All these observations, plus other species of birds seen, were entered in eBird. Detailed shorebird monitoring data spreadsheets can be viewed at http://kachemakbaybirders.org/ . Table 1 compares this year's total count by species to previous years.

***Table 1**. 2009-2020 Kachemak Bay Shorebird Count, sorted by average abundance.*

# of Sp.	Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
1	Western Sandpiper	3,229	4,996	4,100	16,375	7,964	4,000	2,267	1,403	7,225	14,508	2,941	14,011	6,918
	LESA/WESA/SESA	104	803	3,336	844	5,305	987	306	6,269	360	404	922	1,826	1,789
2	Red-necked Phalarope	1,630	1,500	5,152	1,501	703	3,006	1,503	39	102	1,025	2,513	102	1,565
3	Surfbird	292	110	574	2,919	748	2,644	2,111	1,335	1,186	715	850	350	1,153
4	Dunlin	1,097	561	1,283	1,205	2,548	1,530	826	508	590	928	579	1,156	1,068
5	Semipalmated Plover	194	203	197	142	92	251	273	270	246	322	204	205	217
6	Least Sandpiper	136	245	219	103	128	195	168	245	102	164	66	634	200
7	Black-bellied Plover	179	315	282	354	221	114	210	107	80	135	106	82	182
8	Rock Sandpiper	141	405	482	6	4	6	6	4	47	12	3	597	143
9	Black Turnstone	81	373	121	71	21	56	352	55	122	92	22	6	114
	Dowitcher sp.	99	82	57	76	344	49	65	17	14	139	176	55	98
10	Semipalmated Sandpiper	1	5	3	34	-	13	33	3	10	10	-	613	60
11	Greater Yellowlegs	24	36	59	68	90	24	39	44	58	59	88	64	54
12	Whimbrel	10	22	27	28	65	26	28	43	51	25	27	204	46
14	Wandering Tattler	13	56	30	18	62	39	39	58	58	55	28	5	38
13	Short-billed Dowitcher	125	-	33	76	18	15	-	20	57	24	2	17	32
15	Pacific Golden Plover	5	42	5	95	96	17	4	23	13	16	13	42	31
16	Pectoral Sandpiper	-	7	-	1	146	98	11	-	15	11	40	26	30
17	Long-billed Dowitcher	-	-	15	1	22	36	-	1	37	7	3	126	21
18	Black Oystercatcher	11	11	13	8	2	8	18	15	-	7	22	7	10
19	Marbled Godwit	3	12	1	7	-	8	5	5	11	29	4	6	8
20	Lesser Yellowlegs	-	26	3	15	9	4	11	1	5	13	-	2	7
21	Red Knot	-	-	2	-	-	1	1	-	-	-	-	67	6
22	Ruddy Turnstone	1	10	1	2	9	2	6	9	7	3	5	2	5
	Yellowlegs sp.	2	18	-	2	2	-	5	-	15	1	2	4	4
23	Hudsonian Godwit	18	-	2	-	3	3	-	-	1	3	1	6	3
24	Sanderling	-	1	8	8	-	2	-	-	-	1	1	3	2
25	Wilson's Snipe	1	5	1	1	-	-	-	-	-	-	3	10	2
26	American Golden-Plover	3	1	1	1	10	-	-	-	-	-	2	-	2
27	Bar-tailed Godwit	3	-	-	4	6	-	-	1	1	1	-	-	1
28	Baird's Sandpiper	1	-	-	6	-	-	-	1	-	-	-	-	0.7
29	Spotted Sandpiper	3	-	-	1	-	-	-	1	-	-	-	1	0.5
30	Bristle-thighed Curlew	-	-	-	-	5	-	-	-	-	-	-	-	0.4
31	Red Phalarope	-	-	-	-	-	5	-	-	-	-	-	-	0.4
	Total Individuals	7,406	9,845	16,007	23,972	18,623	13,139	8,287	10,477	10,413	18,709	8,623	20,229	13,811
	Total Species	24	23	25	27	23	25	21	23	22	24	23	26	24

Notable observations this year includes:

- This year was our second highest year in terms of species and abundance. The peak of some *Calidris* pulses occurred on a count day, which contributed to a higher count.
- Since it was a late spring, our overwintering Rock Sandpipers stayed in the area longer than recent years, resulting in a higher count.
- Larger than usual flocks of Whimbrels were seen, particularly on May 1.
- We usually see a few Semipalmated Sandpipers each year. This year a flock of 612 stopped over at Beluga Slough on our May 6th count.
- Some years we will see one or two Red Knots. This year, on May 11 a flock of 67 was seen on the Homer Spit by many and photographed.
- Hundreds of Black Turnstones and Surfbirds are usually at the rocky entrance to the Homer Harbor, but none were seen there this year on any of our counts.

At the mouth of Anchor River, about 18 miles north of Homer, we saw a total of 17 species of shorebirds with and a total individual count of 1,648 (see Table 2). This is close to the eight-year average. Notable observations are a higher than average count for Rock Sandpipers (probably due to a colder spring) and Western Sandpipers (due to the count date matching the peak of a pulse).

Table 2. *Anchor River, sorted by average abundance.*

#	SPECIES	2013	2014	2015	2016	2017	2018	2019	2020	Average
1	Red-necked Phalarope	-	5,000	400	-	-	2	1	-	675
2	Western Sandpiper	606	135	204	13	219	799	80	1,322	422
	LESA/WESA/SESA	29	32	14	41	1,364	-	3	36	190
3	Greater Yellowlegs	44	39	42	50	54	64	51	62	51
4	Dunlin	67	27	24	9	47	69	41	22	38
5	Black-bellied Plover	40	48	40	16	19	16	10	19	26
6	Whimbrel	75	29	2	8	9	20	27	8	22
7	Semipalmated Plover	14	13	17	10	28	50	7	9	19
8	Rock Sandpiper	16	22	1	-	-	2	-	89	16
9	Pacific Golden Plover	10	1	8	7	16	32	21	30	16
10	Least Sandpiper	10	28	24	17	12	19	3	6	15
	Dowitcher sp.	19	8	15	4	3	4	8	22	10
11	Short-billed Dowitcher	15	27	5	4	14	4	11	2	10
12	Black Turnstone	3	20	-	18	5	24	-	3	9
13	Lesser Yellowlegs	20	20	2	1	7	5	-	1	7
	Yellowlegs sp.	45	-	-	1	-	-	-	-	6
14	Pectoral Sandpiper	3	9	-	1	6	20	3	3	6
15	Semipalmated Sandpiper	8	6	3	5	8	8	1	-	5
16	Long-billed Dowitcher	18	7	3	-	2	3	2	-	4
17	Spotted Sandpiper	-	-	6	5	1	2	2	9	3
	Plover sp.	15	-	-	-	-	-	-	-	2
18	Wandering Tattler	1	1	5	-	-	5	1	-	2
19	Ruddy Turnstone	1	-	-	-	4	3	-	-	1
20	Hudsonian Godwit	1	-	-	2	-	3	-	1	1
21	Wilson's Snipe	3	1	-	-	-	1	-	1	1
22	Sanderling						3	-	3	1
23	Red Knot	-	3	-	-	-	2	-	-	1
24	Marbled Godwit	1	-	-	-	1	1	1	-	1
25	American Golden-Plover	-	-	2	-	-	1	-	-	0.4
26	Black Oystercatcher	1	-	-	-	-	-	-	-	0.1
27	Surfbird	-	-	1	-	-	-	-	-	0.1
	Total Individuals	1,065	5,476	818	212	1,819	1,162	273	1,648	1,559
	Total Species	21	19	18	15	17	25	16	17	19

At the Kasilof River, about 60 miles north of Homer, we saw 22 species of shorebirds which is a record high for this site (see Table 3). We and had a total count of 18,483 shorebird which is our second highest count. Notable observations include the following:

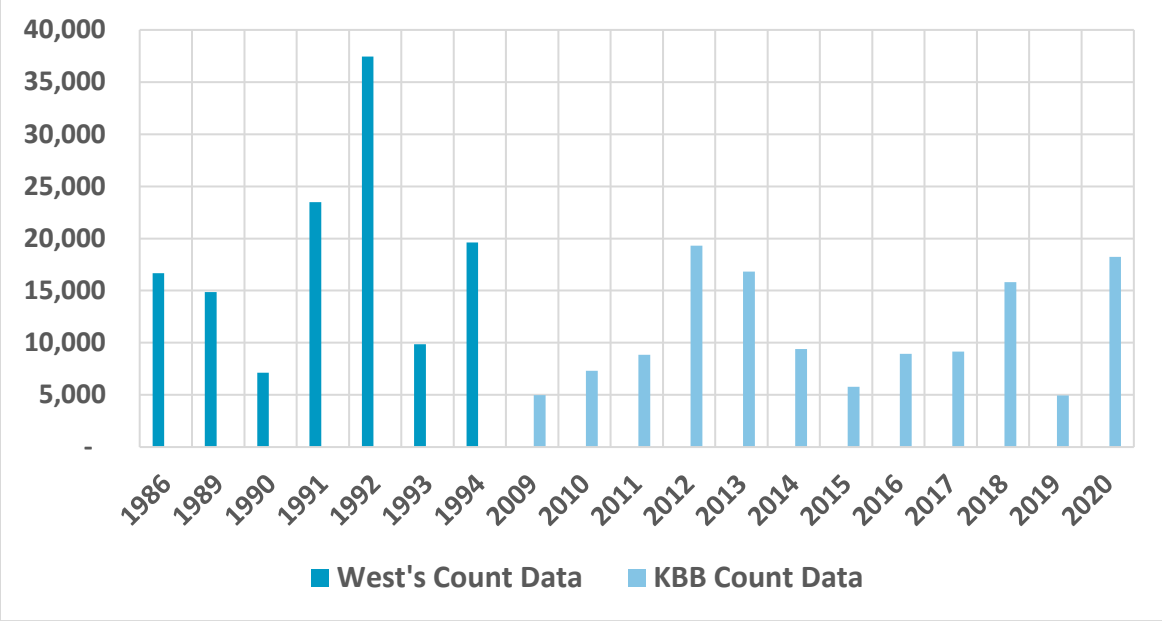
- The Western Sandpiper count (16,588) was more than twice the eight-year average (8,181). Having some pulses of WESA occur on the same day scheduled for the count contributed towards this.
- Consistent with the other areas, the Black-bellied Plover count was about half the average.
- Like Beluga Slough, the Kasilof also had a record number (71) of Semipalmated Sandpipers, but on different count dates.
- For the first time, Surfbirds (7) were seen at the Kasilof River.
- Thousands of Rock Sandpipers overwinter at the Kasilof River. Despite this, only 4 were seen during our monitoring.

Table 3. *Kasilof River, sorted by average abundance*

#	SPECIES	2013	2014	2015	2016	2017	2018	2019	2020	Average
1	Western Sandpiper	16,950	588	4,634	2,652	2,557	14,755	6,721	16,588	8,181
2	Dunlin	3,338	60	459	523	133	1,462	1,872	1,329	1,147
3	Short-billed Dowitcher	620	174	195	378	158	429	122	310	298
4	Black-bellied Plover	59	19	40	70	64	80	38	26	50
5	Least Sandpiper	209	5	-	2	4	41	4	3	34
6	Greater Yellowlegs	34	16	17	18	47	9	12	29	23
7	Whimbrel	43	58	8	6	5	18	18	7	20
8	Hudsonian Godwit	25	8	12	21	14	10	6	30	16
9	Semipalmated Sandpiper	8	-	1	14	2	4	21	71	15
10	Lesser Yellowlegs	8	16	6	13	16	2	6	34	13
11	Semipalmated Plover	6	3	10	5	5	32	7	22	11
12	Pectoral Sandpiper	7	2	2	1	-	20	26	1	7
13	Long-billed Dowitcher	42	-	-	-	-	4	-	2	6
14	Wilson's Snipe	3	3	4	5	4	4	7	6	5
15	Pacific Golden Plover	1	2	7	8	1	1	8	3	4
16	Marbled Godwit	-	2	-	1	-	6	4	2	2
17	Rock Sandpiper	-	-	-	-	2	9	-	4	2
18	Red Knot	-	-	2	5	-	-	1	4	2
19	Surfbird	-	-	-	-	-	-	-	7	1
20	Sanderling	-	-	1	2	-	-	1	2	1
21	American Golden-Plover	5	-	-	-	-	-	-	-	1
22	Ruddy Turnstone				2	1	-	-	2	1
23	Bar-tailed Godwit	1	-	-	-	-	1	-	1	0.4
	Dowitcher sp.	3	-	-	-	-	-	-	-	0.4
24	Red-necked Phalarope	-	2	-	-	-	1	-	-	0.4
25	Baird's Sandpiper	1	-	-	1	-	-	-	-	0.3
26	Killdeer	-	-	-	-	1	-	-	-	0.1
27	Black Turnstone	-	-	-	-	-	1	-	-	0.1
	LESA/WESA/SESA							1	-	0.1
	Total Individuals	21,363	958	5,398	3,727	3,014	16,889	8,875	18,483	9,838
	Total Species	19	15	15	19	16	20	17	22	18

One of our objectives each year is to compare our monitoring results with that of the late George West from 1986 through 1994. Chart 1 provides an updated version. To provide a more direct comparison, some adjustments had to be made to the data. Despite our more intensive approach, Homer Spit monitoring over the past eleven years has counts that on average are only about 59% of what George West had observed.

Figure 1. *Comparing total annual counts for Homer Spit sites.*



ASCP Objectives

Kachemak Bay is in BCR 4 Northwestern Interior Forest. The importance of Kachemak Bay to migrating shorebirds is to provide a stopover with abundant food and minimal human disturbance. With the Kachemak Bay Shorebird Monitoring Project, we have identified the important shorebird stopovers on the Cook Inlet side of the Kenai Peninsula and have been monitoring the spring migration of those sites that are accessible for the past twelve years. We have used this data to advance protection of shorebird habitat. The most significant example was when we submitted a nomination to expand the Kachemak Bay WHSRN site from 7,260 acres to about 230,900 acres, which was accepted.

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4 COPPER RIVER DELTA SHOREBIRD SURVEYS

Investigators: Robert Masolini, Erin Cooper, Melissa Gabrielson, & Nick Docken, USDA Forest Service, Cordova, Alaska

The Copper River Delta, Alaska is the largest contiguous wetland system along the West Coast of North America. (Powers et al 2002). This wetland system is a major stopover point for shorebirds migrating along the Pacific flyway. The tidal mudflats bordering the edge of the Delta are of crucial importance. These tidal flats serve as critical feeding grounds for up to 5 million migratory shorebirds (Powers et al. 2002). Each year from May 1-16 the Pacific Flyway Shorebird Survey occurs near Cordova which was conducted in conjunction with the Copper River Delta Shorebird Festival in 2020. Coordinated by Point Blue Conservation, the surveys are part of a 10-country cooperative effort to collect data on migrating shorebirds as part of the Migratory Shorebird Project (migratoryshorebirdproject.org), which researches shifts, trends, and changes of migratory shorebird populations.

In all, 106,485 shorebirds were counted during the 2020 Pacific Shorebird Survey May 1st through May 16th in Cordova, Alaska. 90,694 Western Sandpipers were surveyed, 85% of total shorebirds of the survey. 2,168 Least Sandpipers were surveyed, 2% of total shorebirds surveyed. 1,506 Dunlin were surveyed, 1.4% of total shorebirds surveyed. 11,500 Western and Least Sandpipers in mixed flocks were surveyed, a total of 10.9% of total shorebirds surveyed. Among the shorebirds surveyed, Western Sandpipers, Least Sandpipers, Dunlin, and mixed flocks of Western and Least Sandpipers together constituted 99.5%, most shorebirds surveyed, with 105,933 birds of these species combined. Other, less abundant shorebird species made up 0.5% of the shorebirds surveyed, with 552 birds of 13 species (Table 1). Peak total abundance of shorebirds in the occurred on May 3rd for 3-mile bay and Odiak Slough and on May 5th at Hartney Bay (Figure 1).

Table 1. *Species and number of shorebirds observed not including western sandpiper, dunlin and least sandpiper during spring shorebird surveys in Cordova, Alaska, May 1-16, 2020.*

Species	Number	Species	Number
Black Oystercatcher	10	Pacific Golden Plover	1
Whimbrel	234	Sanderling	12
Semipalmated Plover	37	Semipalmated Sandpiper	18
Black-bellied Plover	13	Dowitcher spp.	1
Greater Yellowlegs	6	Pectoral Sandpiper	1
Lesser Yellowlegs	5	Surfbird	175
Short-billed Dowitcher	39		

The major influx of the shorebird migration of 2020 of the Cordova, Alaska area started earlier than average, with May 3 being the peak date, with 28,560 shorebirds (Figure 1). This was eight days earlier than the 2019 peak date of May 11 with 24,166 shorebirds. The historical average peak date of the shorebird migration in the Cordova, Alaska area is May 7. Winds could have played a factor in the peak of the migration being May 3, four days earlier than the historical average. A variable direction breeze of less than 10 mph on May 1 and a light breeze of 8-12 mph on May 2 possibly could have produced a build-up of shorebirds in the habitat of the

survey areas, which on May 3 culminated in numbers of peak abundance due to relatively inclement weather with wind gusting to 22 mph, conceivably holding birds in the survey areas.

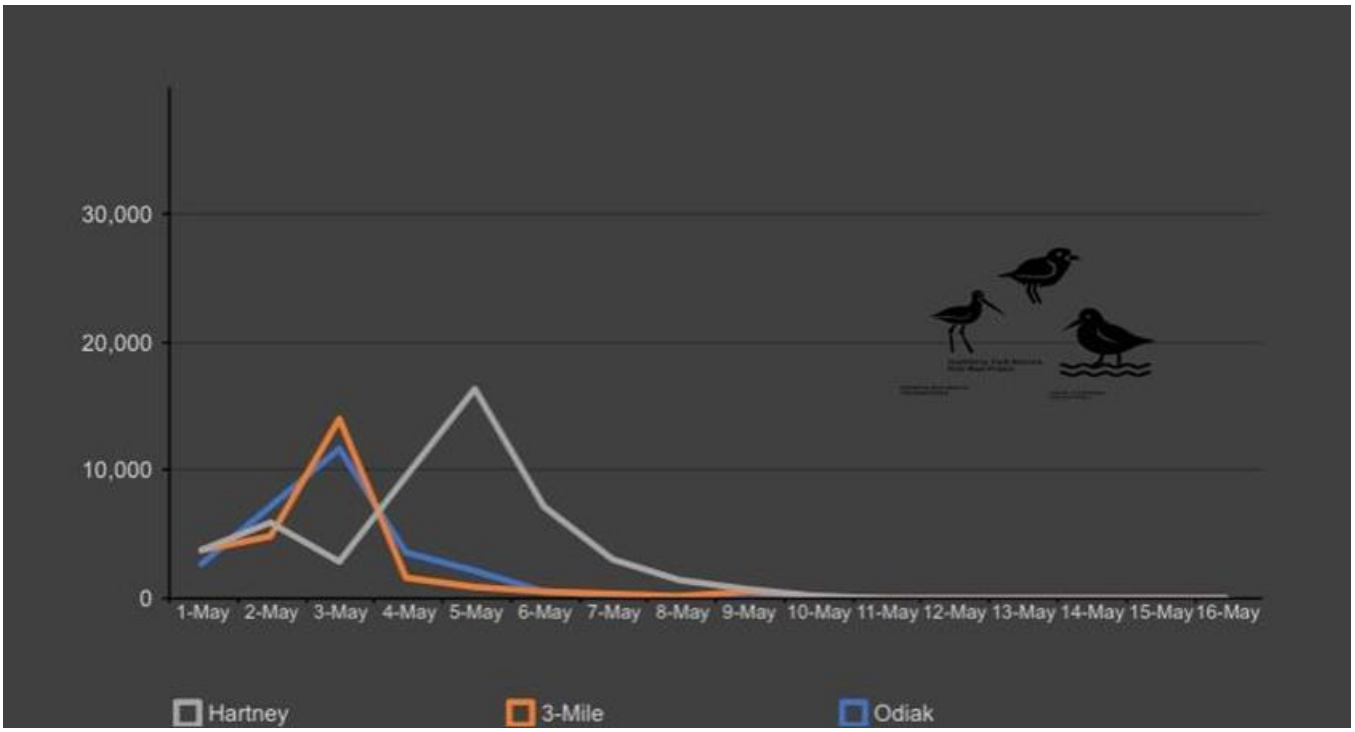

Figure 1. *Total shorebird numbers by date observed during spring shorebird surveys in Cordova, Alaska May 1-16, 2020.*

This project meets multiple primary conservation objectives under BCR 5: Northern Pacific Rainforest in the Alaska Shorebird Conservation Plan including: monitoring shorebird populations at key spring stopover sites, supporting key conservation designations for key shorebird sites and continuing to promote conservation efforts for the Copper River Delta WHSRN network site with emphasis on international cooperation and public education.

Location: Copper River Delta: 60° 22.7'N, 145° 53.6'W

Contact(s): Erin Cooper, Nick Docken, U.S. Forest Service, Chugach National Forest, Cordova Ranger District; PO Box 280, Cordova, AK 99574; Phone: (907) 424-7661 (USFS office) ; Email: erin.cooper@usda.gov, Nicholas.docken@usda.gov

Figure 2*. Technician, Robert Masolini surveying the 'flats' of the Copper River Delta during the early arrival of spring migration. Photo by Nick Docken/USFS.*

Figure 3. *An incoming flock of Western Sandpipers arriving at last light in early May near Cordova, Alaska. Photo by James Ianni/USFS.*

5 BLACK OYSTERCATCHER SURVEYS

Investigators: Erin Cooper, Melissa Gabrielson, & Nick Docken, USDA Forest Service, Cordova, Alaska

Black oystercatchers (*Haematopus bachmani*) are large, long-lived shorebirds that are dependent on marine shorelines throughout their lifecycle (Tessler et al. 2007). Approximately 65% of the world's black oystercatcher population resides in Alaska (Andres and Falxa 1995, Brown et al. 2001) along the rocky shorelines and islets of Prince William Sound (Isleib and Kessel 1973). These birds forage exclusively on marine invertebrates in the intertidal zone (Tessler et al. 2007, Andres 1994).

The Chugach National Forest has been monitoring black oystercatchers in Prince William Sound since 1999. By monitoring black oystercatcher populations and human activity in Prince William Sound, the USDA Forest Service can locate shorelines that may be sensitive to disturbance. Resource managers can than make informed decisions and require preventative management actions as needed.

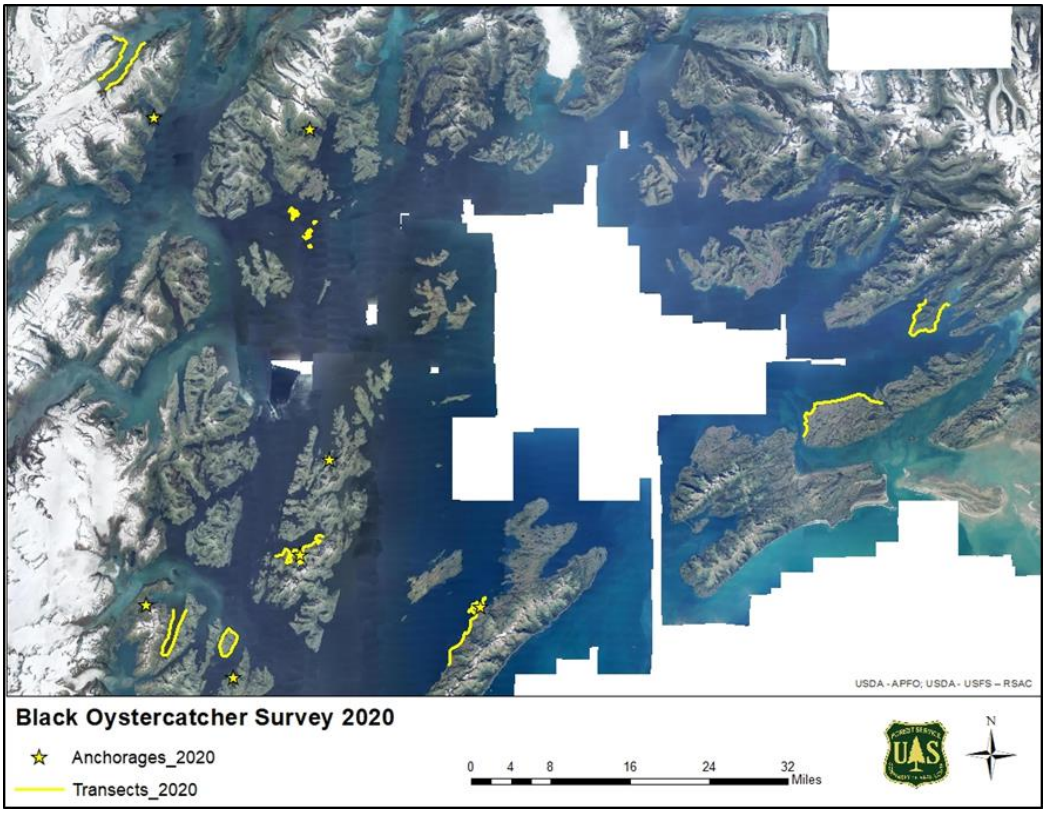

Figure 1. *Black oystercatcher transects monitored during 2020 survey in Prince William Sound.*

In June 2020, 8 survey sites were selected. This included Port Chalmers, Sheep Point, Orca Bay, Flemming Island, Whale Bay, Drier Bay, the Dutch Group, and Harriman Fjord. Unfortunately, due to a high landslide hazard, Harriman Fjord was not surveyed in 2020 (Figure 1, Table 2). A total of 55 black oystercatcher encounters (individual observation/record of either a breeding pair or non-breeding birds) were documented during the 2020 survey. The greatest number of black oystercatcher encounters (n=19) occurred at Port Chalmers (Table 2). A total of 105 adults (98 breeding and 7 non-breeding), 37 active nests, 64 total eggs, and

16 chicks were observed in 2020 (Table 2). The highest number of adult black oystercatchers were observed at Port Chalmers (n = 35). This included both breeding and non-breeding black oystercatchers. Port Chalmers also had the most active nests (n=13) and eggs (n=28). The Dutch group had the highest number of chicks (n=11). Chicks ranged in size from newly hatched to medium size and mobile.

Table 1. *Summary results for 2020 black oystercatcher surveys in Prince William Sound.*

Survey Sites	Total Encounters	Total Adults	Active Nests	Total Eggs	Total Chicks	Nesting Territories
Port Chalmers	19	35	13	0	28	13
Sheep Point	5	12	4	0	7	4
Orca Bay	5	10	5	0	9	5
Flemming Island	4	7	3	2	7	3
Whale Bay	5	9	1	3	0	1
Drier Bay	1	2	0	0	0	0
Dutch Group	16	30	11	11	13	11
Harriman Fjord*	0	0	0	0	0	0
Total	**55**	**105**	**37**	**16**	**64**	**37**
Range (Min-Max)	**(0-19)**	**(0-35)**	**(0-13)**	**(0-11)**	**(0-28)**	**(0-13)**
Mean	**6.9**	**13.1**	**4.6**	**2.0**	**8.0**	**4.6**
***Harriman Fjord not sampled in 2020 due to landslide hazard**						

One of the objectives of this survey is to monitor the density of black oystercatcher nesting territories. The term *nesting territory* indicates evidence of a breeding pair occupying a stretch of shoreline. In 2020, 37 nesting territories were observed. Data from the 2020 survey will be entered into the black oystercatcher database. Future analysis will compare the effects of human activity on black oystercatcher populations across Prince William Sound.

Table 2. *Total, mean, SD, and range for black oystercatcher adults, nests, eggs, and chicks observed during monitoring surveys between 2012 and 2020.*

Year	Total Adults	Active Nests	Total Eggs	Total Chicks
2013	71	19	42	1
2014	34	11	29	3
2015	91	19	52	6
2016	121	9	17	13
2017	101	15	29	2
2019	68	13	31	0
2020	105	37	64	16
Total	591	123	264	41
Mean	84.42857	17.57143	37.71429	5.857143
SD	29.0738	9.360505	16.01785	6.256425
Range	34-121	9-19	17-52	0-13

Black oystercatchers are considered a keystone species along the North Pacific coast (Tessler et al. 2007). They are listed as a "Species of High Concern" in the U.S. Shorebird Conservation Plan (Brown et al. 2001) and the Alaskan Shorebird Conservation Plan (Alaska Shorebird Group 2018), and a "Focal Species" for the U.S. Fish & Wildlife Service. This project meets multiple primary conservation objectives under BCR 5: Northern Pacific Rainforest in the Alaska Shorebird Conservation Plan including: Continue to monitor impacts of recreational activities on shorebirds, particularly Black Oystercatchers. Increase coordination and collaboration among the U.S. Forest Service, National Park Service, Parks Canada, Environment Canada, and others currently conducting surveys of breeding Black Oystercatchers to ensure comparability of data for determining population status and to estimate local and range-wide trends. As well as assess the nonbreeding distribution of Black Oystercatchers, identify areas of high concentrations, and determine migratory connectivity between breeding and wintering areas.

Location: Prince William Sound: multiple locations (see figure 1)

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Figure 2*. Black Oystercatcher in the Prince William Sound. Photo by James Ianni.*

6 COPPER RIVER DELTA SHOREBIRD FESTIVAL

Investigators: Erin Cooper, Melissa Gabrielson, & Nick Docken, USDA Forest Service, Cordova, Alaska

The Copper River Delta is the largest contiguous wetland on North America's Pacific Coast; and is designated as a hemispheric site by the Western Hemisphere Shorebird Reserve Network. The Copper River Delta Shorebird Festival focuses on educating the public about birds (specifically shorebirds), bird conservation, and bird life cycles and strategies through a variety of activities, classes, crafts, and workshops. The festival meets objectives listed under Environmental Education and Public Outreach of the Alaska Shorebird Conservation Plan; to raise the profile of Alaska's shorebirds by supporting shorebird festivals in Alaska and by collaborating with education programs on the Copper River Delta and elsewhere.

2020 was the 30th anniversary of the Copper River Delta Shorebird Festival and big events were planned with invited guests, special events and an anticipated record attendance. This festival was one of the first to pivot in March from a live event to a virtual event. The team used Facebook (https://www.facebook.com/CopperRiverDeltaShorebirdFestival/) and the Website (www.coppershorebird.com) for the event to connect with those that had currently registered as well as past attendees. The results of this effort surprised the committee in their magnitude and relevance.

The metrics for this event recorded over 25,000 participants reached and 11,600 engaged primarily due to the fresh content and live events. The CRD virtual festival example has been used throughout the hemisphere for USFS partners. In early September, the USFS and Chamber of Commerce met virtually with Terra Peninsular out of Mexico to discuss hosting a virtual event in the coming year. Many of the lessons learned will be folded into future events increasing the wonder and spectacle of migration and the Copper River Delta to a worldwide audience.

This project meets one primary conservation objectives under BCR 5: Northern Pacific Rainforest in the Alaska Shorebird Conservation Plan: Continue to promote conservation efforts for the Copper River Delta WHSRN network site with emphasis on international cooperation and public education (e.g., Copper River International Migratory Bird Initiative [CRIMBI], WetlandsLIVE, social media, birding festivals, and citizen science opportunities).

Location: Copper River Delta: 60° 22.7'N, 145° 53.6'W

Contact(s): Erin Cooper, Nick Docken, U.S. Forest Service, Chugach National Forest, Cordova Ranger District; PO Box 280, Cordova, AK 99574; Phone: (907) 424-7661 (USFS office) ; Email: erin.cooper@usda.gov, Nicholas.docken@usda.gov

Figure 1. *Melissa Gabrielson participates in world migratory bird day with a virtual field trip from Hartney Bay during the 30th Copper River Shorebird Festival, Cordova, AK. Photo by Erin Cooper.*

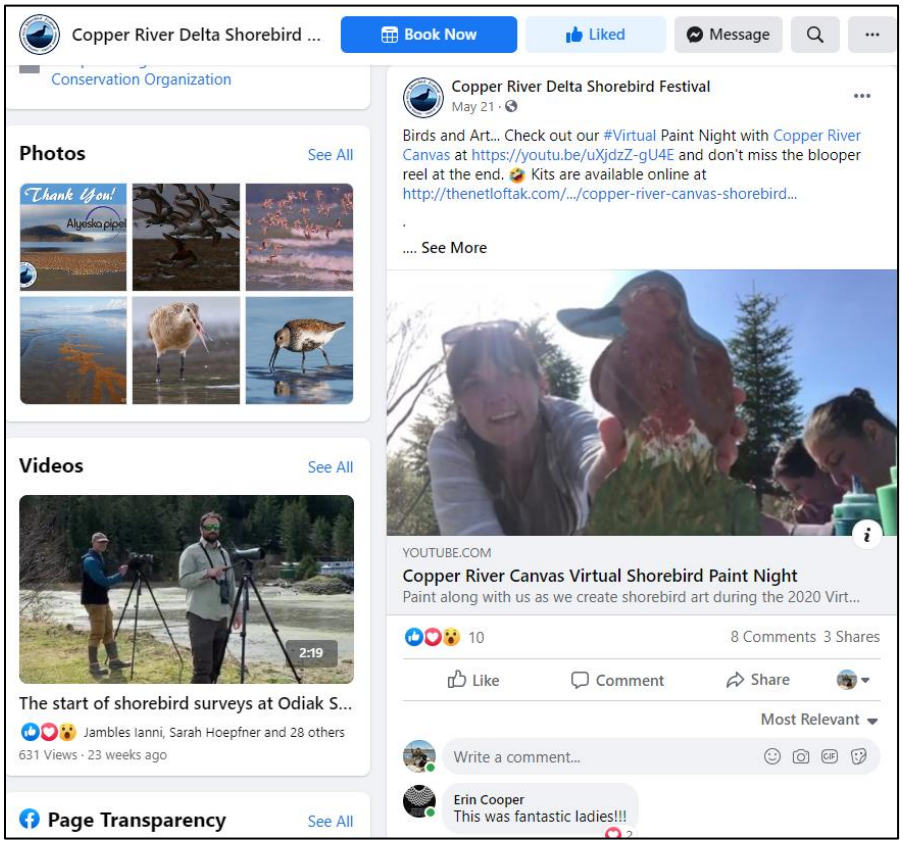

Figure 2. *Image of the Copper River Delta Shorebird Festival Facebook page keeping virtual followers up to date with participation in live videos, online classes, speakers, kids' activities, birding challenge and more.*

Figure 3. *Large flocks of shorebirds, primarily western sandpipers arrived on the Copper River Delta in the week leading to the shorebird festival. Photo by James Ianni.*

#7 MONITORING SEMIPALMATED PLOVERS BREEDING AT EGG ISLAND, COPPER RIVER DELTA

Investigators: Mary Anne Bishop, Prince William Sound Science Center

North American shorebirds have experienced population declines over the last several decades. Semipalmated Plover, however, are one shorebird species whose numbers are apparently stable. Building on research conducted in 2006 and 2008, we began a study in 2011 on a breeding population of Semipalmated Plovers at Egg Island, a barrier island on Alaska's Copper River Delta. The objectives of our study are to monitor breeding phenology and to determine survivorship based on return rates of banded breeders.

We conducted field work 3-7 June 2020. A total of 15 plover nests were located. In all, we banded 10 Semipalmated plover adults and resighted 16 birds from previous years. One of the plovers that had been sighted in the Galapagos Islands in November 2019 was resighted on the breeding grounds. Additional field work is planned for Egg Island in 2021.

Our project addresses the ASG objective to promote research, monitoring, and outreach relevant to shorebirds.
Published, In press, In review all welcome

Location: Copper River Delta 60° 22.7'N 145° 53.6'W

Contact: Mary Anne Bishop, Prince William Sound Science Center, PO Box 705, Cordova, AK 99574

Phone: 907-424-5800 x 228 email: mbishop@pwsssc.org

Figure 1. *An adult Semipalmated Plover on Egg Island, AK. Photo by A. Schaefer.*

#8 DEVELOPING A MONITORING PROGRAM FOR MIGRATORY SHOREBIRDS IN HAWAII

Investigators: Lee Tibbitts, Emily Weiser, and Ben Lagassé, U.S. Geological Survey, Alaska Science Center; Ty Spangler and Kelly Goodale, U.S. Fish and Wildlife Service, Oahu/Maui National Wildlife Refuge Complex, and Rachel Rounds, U.S. Fish and Wildlife Service, Pacific Islands and Monuments Inventory and Monitoring Program.

The goal of this project is to develop reliable survey methods to assess the status and trends of the migratory shorebirds that overwinter in Hawaii, with a focus on Pacific Golden-Plover, Bristle-thighed Curlew, Wandering Tattler, Ruddy Turnstone, and Sanderling. To reach this goal, we are working at the James Campbell and Pearl Harbor National Wildlife Refuges on Oahu to field-test bird survey techniques, assess local movement patterns of individuals, and analyze existing datasets of shorebird abundance and distribution.

This year we evaluated double-observer and repeat-sampling survey techniques and tracked individual plovers, curlews, tattlers and turnstones with either VHF tags paired with an automatic receiver or GPS Pinpoint satellite transmitters. We found that the double observer technique was unworkable as a survey technique because the birds were highly mobile within survey periods which made it difficult to map their locations accurately and that vhf tracking was not spatially-detailed enough to describe local movements. GPS tracking, however, does have potential to yield robust estimates of home range size and local movements in relation to survey extent and timing. Our focus this coming fall and winter is to analyze a 32-year data set of monthly counts on Refuge lands to assess population trends for our target species, while controlling for other variables as appropriate or as data is available (e.g., time of day, time of tide). If trends can't be effectively detected in the existing dataset, we will investigate how the monthly count design could be modified to improve trend detection for these species. In addition, we are currently assessing shorebird occurrence and behavior in over 40,000 photographs collected from field cameras deployed in 2013. Information from the photographs (e.g., time of day trends in numbers) will help interpret results from the analysis of monthly count data.

This project is addressing several Population Inventory and Monitoring objectives of the Alaska Shorebird Conservation Plan (ASG 2019): inventory some poorly studied shorebird species, set up a long-term population monitoring system, evaluate the efficacy of the existing USFWS monthly count survey to monitor local shorebird populations; assess the use of new technologies (i.e., camera traps) to determine shorebird presence and abundance. The project is also addressing one of the International Collaboration objectives, albeit not outside the U.S., but rather in the southern portion of the annual range of Alaska-breeding shorebirds: foster and participate in cooperative research and monitoring efforts throughout the species' ranges.

Figure 1. *View from coastal dunes to inland of different habitats at James Campbell NWR, Oahu. Photo credit: Lee Tibbitts.*

Figure 2. *Bristle-thighed Curlew resting on pond dike at James Campbell NWR, Oahu. Photo credit: Lee Tibbitts.*

Location: James Campbell National Wildlife Refuge, Oahu, Hawaii (21.686 -157.954)

Contact: Lee Tibbitts, Wildlife Biologist, U. S. Geological Survey, Alaska Science Center, 4210 University Drive, Anchorage, AK 99508, Email: ltibbitts@usgs.gov, Phone: 907-786-7038

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