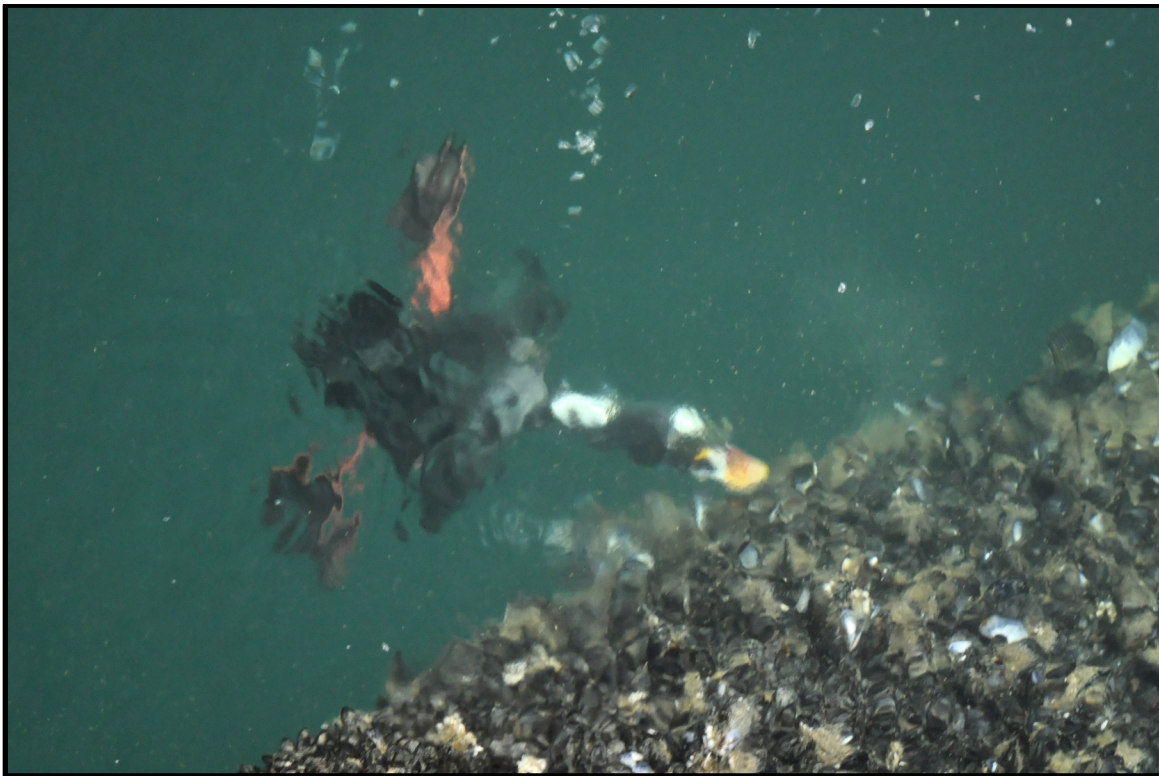




Bird Surveys at Klondike Gold Rush NHP

2019 Summary

Natural Resource Report NPS/KLGO/NRR—2020/2060





ON THIS PAGE

Pair of Gadwall, with male transitioning into non-breeding plumage, 4June2019
(ANDREW BEIERLY) identification by Cameron Eckert.

ON THE COVER

Adult male Surf Scoter picking a snack from a mussel bed, 19Oct2019
(ALEX MATSOV)

Bird Surveys at Klondike Gold Rush NHP

2019 Summary

Natural Resource Report NPS/KLGO/NRR—2020/2060

C. E. Furbish

Taiya Environmental Consulting
PO Box 1076
Skagway, AK 99840

January 2020

U.S. Department of the Interior
National Park Service
Natural Resource Stewardship and Science
Fort Collins, Colorado

The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado, publishes a range of reports that address natural resource topics. These reports are of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

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Abstract

Klondike Gold Rush National Historical Park (KLGO) conducted 4 bird monitoring programs in 2019. These programs are ongoing, multi-year efforts at continental, state, and park scales. In addition, selected notable incidental bird sightings were documented.

The Coastal Waterbird Survey (CWS) is a park-specific program designed to monitor bird use of near-shore habitats, with emphasis on migratory waterbirds. Data were collected from 13 April to 12 September, covering spring migration, mid-season, and fall migration periods. Forty-six (46) species of waterbirds and 11 species of non-waterbirds (landbirds) were recorded. A total of 17,920 individual birds were documented using the near-shore habitats on 17 survey days.

The North American Breeding Bird Survey (BBS) and Alaska Landbird Monitoring Survey (ALMS) are designed to document the presence and abundance of landbird species breeding in a local area as part of continent-wide and state-wide programs. Conducted in mid-June, the BBS survey documented 42 species of birds in 18 families, and the ALMS surveys documented 36 species of birds in 19 families.

Bald Eagle Nest Monitoring (BENM) is a park-specific program still under development. No systematic surveys were conducted, but opportunistic observations were received from park staff and community volunteers. Forty-nine (49) observations were recorded on 6 nests. One nest showed strong evidence of successful fledging of young. One nest had strong evidence of no breeding activity. Four (4) nests had varying levels of activity associated with breeding behavior by adult eagles.

Notable incidental bird sightings not associated with the 4 monitoring programs were reported from in and around KLGO, along with a summary of the Skagway Arctic Tern nesting colony activity for 2019.

Acknowledgments

The author thanks KLGO park staff, local volunteers, and regional experts who were crucial to the completion of these surveys. KLGO acting Natural Resource Manager Mary Hake coordinated and participated in all 4 bird surveys. CWS field and data activities were accomplished with the help of KLGO staff Jennifer Larsen, Katlyn Fuentes, Alex Matsov, Maura Graziano and Annie Matsov; and with Skagway Bird Club volunteer Mike Konsler. Cameron Eckert generously helped with expert identification of locally unusual birds. Deb Rudis conducted the BBS and ALMS surveys with assistance from the author, Mary Hake and Katlyn Fuentes. Field observations of Bald Eagle nests were contributed by CWS field data collectors and Bob Fink of Skagway Hike and Float, who provided many valuable observations of eagle nests on the Taiya River.

Introduction

Klondike Gold Rush National Historical Park (KLGO) is located at the northern terminus of Alaska's Inside Passage. KLGO was established in 1976 to preserve the historic structures and trails associated with the Klondike Gold Rush of 1898-99. The park also contains dynamic and diverse natural resources. The park is relatively small by Alaska standards with scattered landholdings in three separate units totaling 53 km² (13,191 acres). Despite its size, the park's unique geographic setting and climate make it one of the most biologically diverse areas in Alaska (Pojar and Mackinnon 1994, MacDonald and Cook 1999).

Although KLGO is located within the Northern Pacific Rainforest Bird Conservation Region (BCR), it also borders the Northwestern Interior Forest BCR, placing the park in a transition zone between two ecologically divergent geographic regions with distinct associations of avifauna (NABCI 2000). The Northern Pacific Rainforest BCR is characterized by a temperate maritime climate and extensive coniferous forests dominated by western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*). The predominantly steep, rocky coastline is periodically interrupted by river valleys and estuarine and freshwater wetlands that provide critically important breeding, migration, and wintering habitat for populations of both waterbirds and landbirds (NABCI 2000). The Northwestern Interior Forest BCR is an ecologically diverse region with an array of habitats, including boreal forests dominated by black spruce (*Picea mariana*), white spruce (*Picea glauca*), paper birch (*Betula papyrifera*), and poplars (*Populus* spp.). There are also extensive areas of non-forest including tall shrub, alpine dwarf scrub, and shrub-graminoid communities. This BCR supports internationally significant populations of breeding shorebirds, waterfowl, and passerines (NABCI 2000). The portion of the Northwestern Interior Forest BCR bordering KLGO is characterized by high-elevation, mountainous terrain and alpine plant communities. These areas provide breeding habitat for several landbird species that rarely breed in the coastal rainforests of Southeast Alaska.

Long-term monitoring and baseline inventories help managers to make decisions that meet the National Park Service goal to maintain intact ecosystems in their natural state (Hahr and Trapp 2004).

Four multi-year bird monitoring programs were active at KLGO during 2019:

- CWS – Coastal Waterbird Survey, a KLGO specific program,
- BBS – North American Breeding Bird Survey, a continent-wide program,
- ALMS – Alaska Landbird Monitoring Survey, an Alaska state-wide program, and
- BENM – Bald Eagle Nest Monitoring, a KLGO specific program.

Notable incidental bird sightings not associated with the 4 monitoring programs were reported from in and around KLGO, along with a summary of the Skagway Arctic Tern nesting colony activity for 2019.

Methods

CWS - Coastal Waterbird Survey

The CWS was developed by Klondike Gold Rush NHP (KLGO) as part of a comprehensive program to monitor the occurrence, distribution, abundance, and habitat associations of birds (Hahr and Trapp, 2004). A primary goal was to gather information on the status of migrant and breeding birds in the Taiya Inlet (Payne 2004).

Survey methodology is described in “Waterbird Monitoring Protocol for Klondike Gold Rush National Historical Park, Skagway, Alaska” found in the Bird Monitoring Protocol, version 1.0, July 2003 (T:\NRM\Birds\Coastal Waterbird Surveys\Protocol). Within the Bird Monitoring Protocol, there are 7 Standard Operating Procedures (SOPs) developed or revised in 2009. SOPs 1, 2, 3 and 6, covering pre-season preparations, field data collection, and post-season maintenance guided these activities in 2018. SOPs 4, 5 and 7 covering data management, reporting and protocol revision are obsolete or have fallen out of use.

The survey area consists of eight census units previously defined by Hahr and Trapp (2004). The units cover almost all of the fjord shoreline at the terminus of Taiya Inlet, including the lower reaches of rivers and streams. The reference map refined at the end of the 2018 season was used, and can be seen in Appendix A - Map A1. All units were included in each survey.

SOP 1 recommends surveys be conducted once per week during spring migration (15 April to 15 May), every two weeks mid-season (15 May to 10 August), and weekly during fall migration (10 August to 15 September). In 2019, roughly weekly surveys were carried out from 13 April to the end of May. Mid-season surveys were performed about every 2 weeks from 3 June to 14 August. Surveys were done about weekly from 14 August to 12 September.

All waterbirds and any non-waterbirds (landbirds) using near-shore resources that were detected by sight or sound within the survey area were recorded. Unit 7 - Dyea Flats, was consistently surveyed approximately 1-2 hours before high tide.

The following changes to field data collection were made in May:

- air temperature from the NOAA-NWS PAGY automated weather station at the mouth of the Skagway River replaced data collection within each unit using a metal rod handheld thermometer,
- wind direction from the NOAA-NWS PAGY automated weather station replaced data collection within each unit using a handheld anemometer and/or a compass and tell-tale ribbon,
- tide phases and movements calculated from NOAA Tide Predictions for Skagway replaced visual categorical assessment within each unit, and
- breeding status indicators (plumage, behavior) for individual birds was dropped.

Prototype data sheets developed in 2018 continued to be tested and modified over the course of the 2019 season. The versions being used at the end of the season, though still considered to be "under development", are presented in Appendix B.

Copies of the completed CWS datasheets from 2019 are digitally archived on the KLGO computer network at T:\NRM\Birds\Birds2019\CWS-Complete Data Sheets.

Data were entered into the Coastal Waterbird MSAccess database at T:\NRM\Birds\CoastalWaterbirdSurveys\Data\Coastal_Waterbird_Database. However, categorical data on tide phase and movement were only entered for about half of the survey dates, with the allowance that such information can be calculated from NOAA data if needed in the future.

After quality control checks, the data summaries, tables and charts were generated off-site using the auxiliary CWS split4report.accdb MSAccess database developed in 2018 and an MSExcel spreadsheet based on T:\NRM\Birds\Birds2017\Annual Report\2017 CWS Stats.xlsx

BBS - North American Breeding Bird Survey

The BBS is a cooperative effort between the U.S. Geological Survey's (USGS) Patuxent Wildlife Research Center and Environment Canada's Canadian Wildlife Service to monitor the status and trends of North American bird populations using standardized survey routes along existing roads. (www.pwrc.usgs.gov/BBS).

The Skagway BBS route is approximately 25 miles long with stops every half mile (Appendix A, map A2). As per the BBS Standard Procedures, a three minute point count is conducted at each of the 50 designated survey points and all birds seen and heard within a quarter mile radius are documented. The survey begins a half hour before sunrise - at our latitude of 59.5N, approximately 3:30am. This survey was performed on 20 June.

Additional information on the standardized methods for conducting this survey can be found at the Patuxent Wildlife Research Center web site above. Copies of the completed datasheets from 2019 are digitally archived on the KLGO computer network at T:\NRM\Birds\BBS\BBS Data.

ALMS - Alaska Landbird Monitoring Survey

The ALMS is coordinated by USGS Alaska Science Center.

(www.usgs.gov/centers/asc/science/alaska-landbird-monitoring-survey). It was developed by Boreal Partners in Flight, a consortium of agencies and individuals, to monitor breeding populations of Alaska landbirds in roadless areas as a complement to data collected from the roadside BBS. (www.usgs.gov/centers/asc/science/about-boreal-partners-flight)

Two ALMS routes are sponsored by KLGO (Appendix A, maps A3 and A4). The Dyea route is located on the Dyea Flats in river delta habitat of meadows transitioning to successional woodland. The Chilkoot route is located near the beginning of the Chikoot Trail in river valley forest habitat. Each route consists of 12 stops located at least 250 meters apart. Each stop is surveyed for 10 minutes and all species detected are documented. The survey begins a half hour before sunrise - approximately 3:30am at our latitude of 59.5N. These surveys were performed on 18 and 19 June.

KLGO provided a handheld GPS unit to assist finding survey points, however the points had been removed from the unit. Since field references such as trees or other landscape features have become inconsistent, it is important to have the GPS reference points entered into the GPS unit at the beginning of the season.

Additional information on the standardized methods for conducting this survey can be found at the USGS Alaska Landbird Monitoring Survey website above. Copies of the completed ALMS datasheets from 2019 are digitally archived on the KLGO computer network at T:\NRM\Birds\ORBBS&ALMS\ORBBS Data\ORBBS data 2019.

BENM - Bald Eagle Nest Monitoring

The BENM project at KLGO was initiated to monitor the presence and nesting success of Bald Eagles, and to bring consistency to the many observations of eagle nests that had been contributed by interested park staff, community members and visitors to Skagway over the years (Surdyk 2017). Bald Eagle nest locations range from the eastern hillside of Skagway to the western hillside of Dyea, around the lower reaches of the rivers and nearby saltwater bays. Eagle nests upriver and/or at higher elevations have not been included in this monitoring project. The full project map can be found in Appendix A, map A5.

The BENM project is a work in progress at KLGO. A preliminary protocol was drafted in 2015, and is presently still under development. Considerable investigative effort was required to consolidate conflicting historic reports of nest locations in 2015 (Surdyk 2017). An MSAccess database of nests and observations was created in 2016 (Surdyk and Evans 2018). Extensive work to document and map nest locations was accomplished in 2017 (Surdyk et al. 2018) culminating in GIS data and a Bald Eagle Nest Book.

During 2019, additional work on the draft protocol was not possible due to staffing shortages. Observations of known eagle nests were contributed by park staff and volunteers, with a special effort made by Mary Hake to interview an observant river guide, Bob Fink.

Data were not entered into a park database or spreadsheet, but are compiled here in Appendix C.

Results

CWS - Coastal Waterbird Surveys

Seventeen (17) surveys were conducted from 13 April to 12 September 2019. At least one of two primary field observers (Furbish and Hake) was present during each survey. They were often accompanied by one or more of 5 field assistants comprised of KLGO staff or volunteers from the Skagway Bird Club.

Forty six (46) waterbirds were identified to the species level, with 14,337 individual birds counted in this group. Eleven (11) landbirds using near-shore resources were identified to the species level, with a total of 1,705 individual birds. Ten (10) kinds of birds that were only identified to the family or genus level were recorded, with a total of 1,878 of these birds.

A grand total of 17,920 birds were recorded. These data are presented in Tables 1–3 below, following family taxonomic order of the 2019 AOS Checklist of North American Birds. (Chesser 2019).

Table 1. CWS - List of Waterbird Species, April to September 2019.

Family	Scientific name	Common name	Total number	Max # within a survey	Max # survey date	# surveys found within
Anatidae (geese, ducks)	<i>Anas acuta</i>	Northern Pintail	20	5	5/10/2019	9
	<i>Anas americana</i>	American Wigeon	214	55	5/3/2019	11
	<i>Anas clypeata</i>	Northern Shoveler	78	16	5/3/2019	7
	<i>Anas crecca</i>	Green-winged Teal	223	71	5/3/2019	12
	<i>Anas discors</i>	Blue-winged Teal	31	13	5/17/2019	5
	<i>Anas penelope</i>	Eurasian Wigeon	1	1	5/10/2019	1
	<i>Anas platyrhynchos</i>	Mallard	303	72	4/26/2019	11
	<i>Aythya affinis</i>	Lesser Scaup	4	4	4/26/2019	1
	<i>Aythya collaris</i>	Ring-necked Duck	2	2	5/10/2019	1
	<i>Aythya marila</i>	Greater Scaup	3	3	5/17/2019	1
	<i>Branta canadensis</i>	Canada Goose	16	16	4/13/2019	1
	<i>Bucephala albeola</i>	Bufflehead	148	80	4/20/2019	6
	<i>Bucephala clangula</i>	Common Goldeneye	10	4	multiple	3
	<i>Bucephala islandica</i>	Barrow's Goldeneye	71	45	4/20/2019	6
	<i>Clangula hyemalis</i>	Long-tailed Duck	24	21	5/17/2019	2
	<i>Cygnus buccinator</i>	Trumpeter Swan	5	5	5/17/2019	1
	<i>Histrionicus histrionicus</i>	Harlequin Duck	136	42	5/17/2019	11
	<i>Lophodytes cucullatus</i>	Hooded Merganser	2	2	5/10/2019	1

* name change per AOU 2019 60th supplement, or earlier (Chesser 2019)

Table 1 (continued). CWS - List of Waterbird Species, April to September 2019.

Family	Scientific name	Common name	Total number	Max # within a survey	Max # survey date	# surveys found within
Anatidae (geese, ducks) (continued)	<i>Melanitta deglandi</i> *	White-winged Scoter	2	2	5/10/2019	1
	<i>Melanitta perspicillata</i>	Surf Scoter	8375	2985	5/3/2019	9
	<i>Mergus merganser</i>	Common Merganser	138	28	5/24/2019	10
	<i>Mergus serrator</i>	Red-breasted Merganser	142	57	5/17/2019	11
Podicipedidae (grebes)	<i>Podiceps auritus</i>	Horned Grebe	43	22	5/3/2019	3
	<i>Podiceps grisegena</i>	Red-necked Grebe	3	2	6/19/2019	2
Charadriidae (plovers)	<i>Charadrius semipalmatus</i>	Semipalmated Plover	18	13	8/1/2019	3
	<i>Pluvialis dominica</i>	American Golden-Plover	1	1	4/26/2019	1
Scolopacidae (sandpipers)	<i>Actitis macularius</i>	Spotted Sandpiper	20	4	9/12/2019	9
	<i>Calidris alpina</i>	Dunlin	3	3	5/10/2019	1
	<i>Calidris minutilla</i>	Least Sandpiper	44	12	multiple	5
	<i>Gallinago delicata</i>	Wilson's Snipe	1	1	5/3/2019	1
	<i>Limnodromus scolopaceus</i>	Long-billed Dowitcher	7	6	5/10/2019	2
	<i>Tringa flavipes</i>	Lesser Yellowlegs	5	3	8/1/2019	2
	<i>Tringa incana</i>	Wandering Tattler	23	11	5/24/2019	4
	<i>Tringa melanoleuca</i>	Greater Yellowlegs	5	4	4/26/2019	2
	<i>Tringa solitaria</i>	Solitary Sandpiper	1	1	6/3/2019	1
Alcidae (alcids)	<i>Brachyramphus marmoratus</i>	Marbled Murrelet	193	36	5/3/2019	16
	<i>Cephus columba</i>	Pigeon Guillemot	6	3	4/13/2019	4
Laridae (gulls, terns)	<i>Larus argentatus</i>	Herring Gull	1000	608	5/10/2019	16
	<i>Larus canus</i>	Mew Gull	2145	813	5/10/2019	17
	<i>Larus glaucescens</i>	Glaucous-winged Gull	31	22	5/10/2019	4
	<i>Larus glaucooides, thayeri</i> *	Iceland Gull, Thayer's *	36	20	5/10/2019	3
	<i>Larus philadelphia</i>	Bonaparte's Gull	494	105	9/4/2019	13
	<i>Sterna paradisaea</i>	Arctic Tern	255	66	5/17/2019	8
Gaviidae (loons)	<i>Gavia pacifica</i>	Pacific Loon	4	2	6/19/2019	3
Ardeidae (herons)	<i>Ardea herodias</i>	Great Blue Heron	27	7	5/10/2019	9

* name change per AOU 2019 60th supplement, or earlier (Chesser 2019)

Table 1 (continued). CWS - List of Waterbird Species, April to September 2019.

Family	Scientific name	Common name	Total number	Max # within a survey	Max # survey date	# surveys found within
Alcedinidae (kingfishers)	<i>Ceryle alcyon</i>	Belted Kingfisher	24	4	Multiple	13
Sum:	–	–	14337	–	–	–

* name change per AOU 2019 60th supplement, or earlier (Chesser 2019)

Table 2. CWS - Landbird Species using Near-shore Resources, April to September 2019.

Family	Scientific name	Common name	Total number	Max # within a survey	Max # survey date	# surveys found within
Accipitridae (hawks, eagles)	<i>Circus cyaneus</i>	Northern Harrier	2	1	multiple	2
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	113	16	9/4/2019	16
Picidae (woodpeckers)	<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker	1	1	6/19/2019	1
Falconidae (falcons)	<i>Falco sparverius</i>	American Kestrel	1	1	multiple	1
Corvidae (crows, jays)	<i>Corvus caurinus</i>	Northwestern Crow	1332	327	8/29/2019	17
	<i>Corvus corax</i>	Common Raven	46	32	8/1/2019	9
Hirundinidae (swallows)	<i>Hirundo rustica</i>	Barn Swallow	4	4	5/24/2019	
	<i>Tachycineta bicolor</i>	Tree Swallow	4	4	6/19/2019	1
	<i>Tachycineta thalassina</i>	Violet-green Swallow	55	50	7/16/2019	3
Motacillidae (pipits)	<i>Anthus rubescens</i>	American Pipit	144	30	8/14/2019	8
Passerellidae (new world sparrows)	<i>Passerculus sandwichensis</i>	Savannah Sparrow	3	3	6/19/2019	1
Sum:	–	–	1705	–	–	–

Table 3. CWS - Birds Identified to Genus or Family Level, April to September 2019.

Family	type	Common name	Total number	Max # within a survey	Max # survey date	# surveys found within
Anatidae (ducks)	waterbird	Goldeneye Sp.	8	3	multiple	3
	waterbird	Merganser Sp.	25	15	5/5/2019	2
	waterbird	Scaup Sp.	18	18	5/10/2019	1
Scolopacidae (sandpipers)	waterbird	Sandpiper Sp.	27	13	5/17/2019	5
	waterbird	Yellowlegs Sp.	1	1	5/3/2019	1
Laridae (gulls)	waterbird	Gull Sp.	8	7	6/3/2019	2
	waterbird	Small Gull Sp.	366	207	5/3/2019	8
	waterbird	Large Gull Sp.	1417	563	5/10/2019	2
	waterbird	hybrid - Herring x Glaucous-winged	3	2	5/17/2019	2
Hirundinidae (swallows)	landbird	Swallow Sp.	5	3	6/3/2019	2
Sum:	—	—	1878	—	—	—

The numbers of CWS birds identified to the species level per year are represented in Figure 1. The total number of species using near-shore resources (both waterbirds and landbirds), and the number of waterbird species are shown numerically. A number of influences affect these numbers, which may or may not indicate an actual trend of increase in species over time (see Discussion). Figure 2 presents waterbird species richness and abundance in 2019 by survey date, showing peaks in richness and abundance in the first half of May.

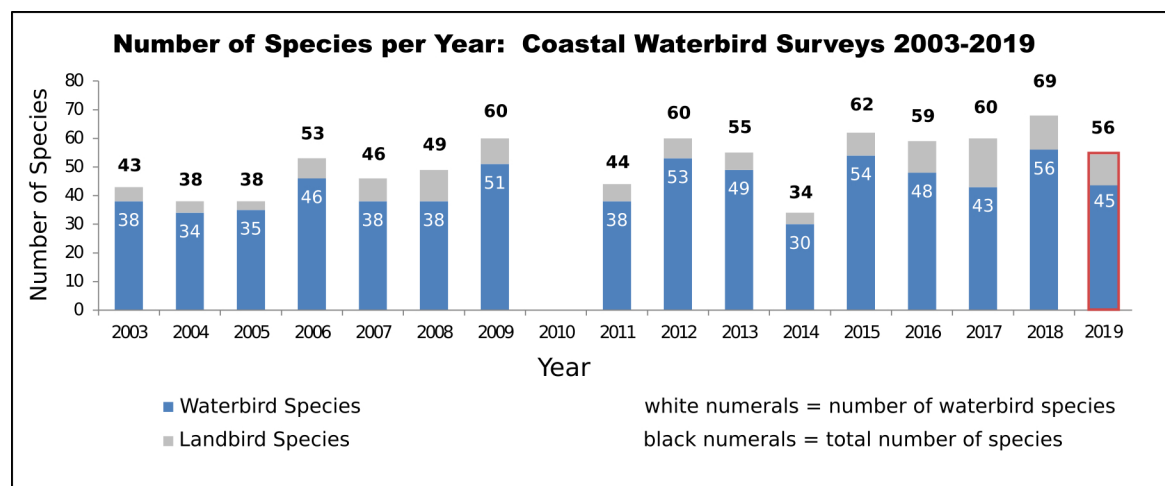


Figure 1. CWS Species by Year 2003 - 2019. Number of waterbird species, landbird species, and total bird species identified per year. Insufficient data were collected during 2010 due to staffing shortages. The data from 2014 are incomplete due to missing surveys during the peak migration period.

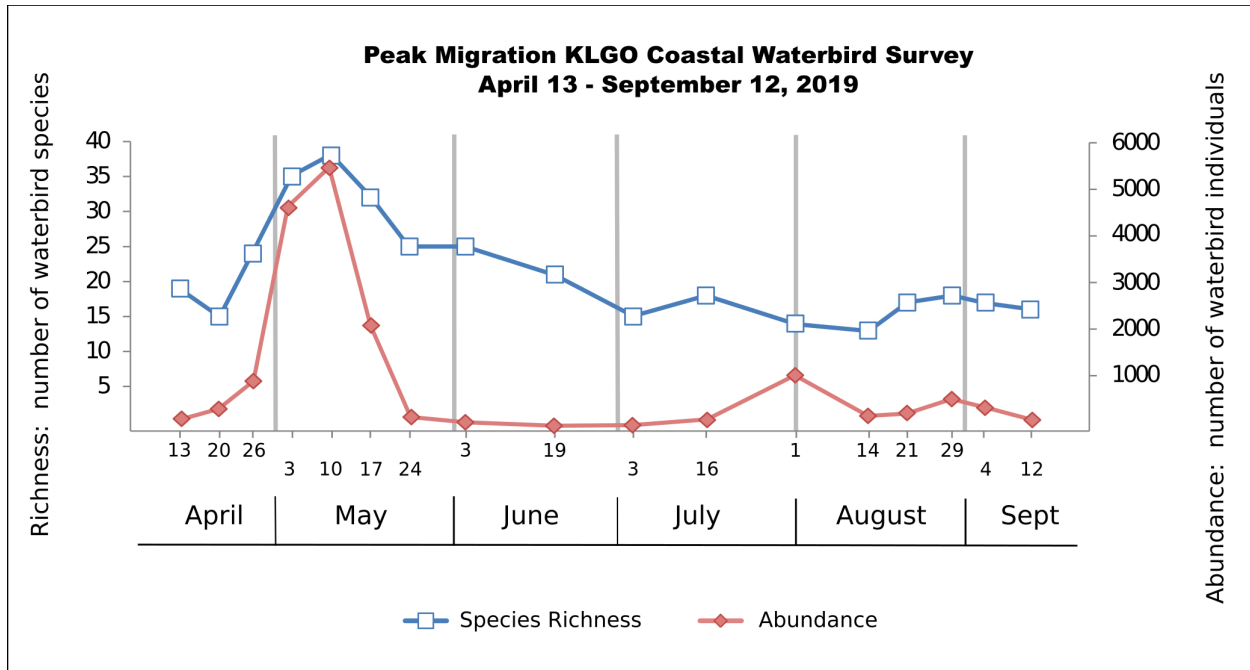


Figure 2. CWS Peak Migration 2019. Number of waterbird species identified per survey and number of individual waterbirds identified to species level per survey, 2019.

The Natural Resource Condition Assessment prepared for KLGO by Bernatz et al. (2010) provided a summary analysis of various observer biases that may have influenced trends in CWS data from 2003-2009. A linear regression of CWS data from 2003-2019, following Bernatz et al. methodology, shows a positive relationship between the number of species identified and year (Figure 3). In other words, as the years progressed, more waterbird species were identified. A number of influences likely contribute to this relationship, only one of which may be an actual increase in species richness over time (see Discussion).

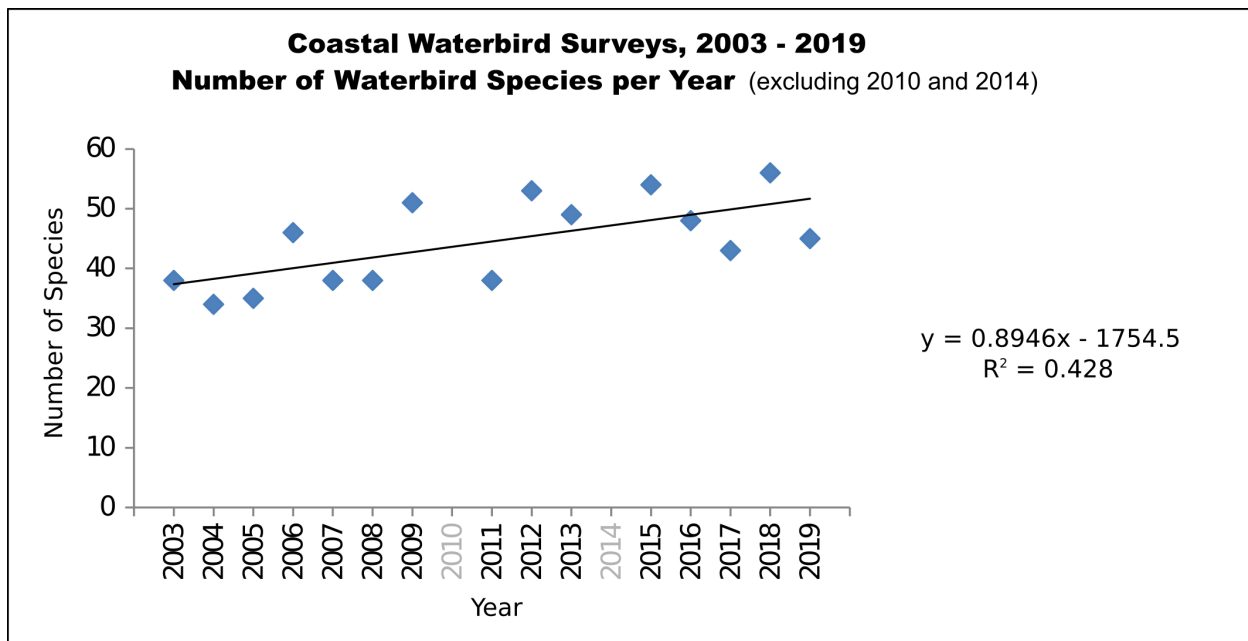


Figure 3. CWS Waterbird Species over Time 2003 - 2019. Number of waterbird species detected during each year of KLGO's CWS 2003-2019. Data from 2010 and 2014 were incomplete, thus not included.

BBS - North American Breeding Bird Survey

The BBS was conducted on 20 June 2019 by a proficient birder with many years of experience with the route, assisted by KLGO staff. The survey documented 42 species of birds in 18 families. Species are presented in Table 4, following family taxonomic order of the 2019 AOS Checklist of North American Birds. (Chesser 2019)

Table 4. BBS - Species List for Breeding Bird Survey, June 2019.

Family	Scientific Name	Common Name
Anatidae (geese, ducks)	<i>Anas platyrhynchos</i>	Mallard
	<i>Mergus merganser</i>	Common Merganser
Phasianidae (grouse, ptarmigan)	<i>Dendragapus fuliginosus</i>	Sooty Grouse
Scolopacidae (sandpipers)	<i>Actitis macularius</i>	Spotted Sandpiper
Laridae (gulls, terns)	<i>Larus canus</i>	Mew Gull
	<i>Larus argentatus</i>	Herring Gull
	<i>Larus glaucescens</i>	Glaucous-winged Gull
	<i>Sterna paradisaea</i>	Arctic Tern
Picidae (woodpeckers)	<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker
Tyrannidae (tyrant flycatchers)	<i>Empidonax difficilis</i>	Pacific-slope Flycatcher
Vireonidae (vireos)	<i>Vireo gilvus</i>	Warbling Vireo
Accipitridae (hawks, eagles)	<i>Buteo jamaicensis</i>	Red-tailed Hawk (Harlan's)

Table 4 (continued). BBS - Species List for Breeding Bird Survey, June 2019.

Family	Scientific Name	Common Name
Corvidae (jays, crows, ravens)	<i>Cyanocitta stelleri</i>	Steller's Jay
	<i>Corvus caurinus</i>	Northwestern Crow
	<i>Corvus corax</i>	Common Raven
Hirundinidae (swallows)	<i>Tachycineta thalassina</i>	Violet-green Swallow
Paridae (chickadees)	<i>Poecile rufescens</i>	Chestnut-backed Chickadee
Troglodytidae (wrens)	<i>Troglodytes pacificus</i>	Pacific Wren
Regulidae (kinglets)	<i>Regulus satrapa</i>	Golden-crowned Kinglet
	<i>Regulus calendula</i>	Ruby-crowned Kinglet
Turdidae (thrushes)	<i>Catharus ustulatus</i>	Swainson's Thrush
	<i>Catharus guttatus</i>	Hermit Thrush
	<i>Turdus migratorius</i>	American Robin
	<i>Ixoreus naevius</i>	Varied Thrush
Motacillidae (pipits)	<i>Anthus rubescens</i>	American Pipit
Fringillidae (finches)	<i>Spinus pinus</i>	Pine Siskin
Passerellidae (new world sparrows)	<i>Passerculus sandwichensis</i>	Savannah Sparrow
	<i>Melospiza lincolnii</i>	Lincoln's Sparrow
	<i>Spizella passerina</i>	Chipping Sparrow
	<i>Passerella iliaca</i>	Fox Sparrow
	<i>Spizelloides arborea</i>	American Tree Sparrow
	<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow
	<i>Junco hyemalis</i>	Dark-eyed Junco (Oregon)
Parulidae (new world warblers)	<i>Seiurus noveboracensis</i>	Northern Waterthrush
	<i>Oreothlypis celata</i>	Orange-crowned Warbler
	<i>Geothlypis trichas</i>	Common Yellowthroat
	<i>Setophaga ruticilla</i>	American Redstart
	<i>Setophaga petechia</i>	Yellow Warbler
	<i>Setophaga coronata</i>	Yellow-rumped Warbler (Myrtle)
	<i>Setophaga townsendi</i>	Townsend's Warbler
	<i>Cardellina pusilla</i>	Wilson's Warbler
	<i>Piranga ludoviciana</i>	Western Tanager

ALMS - Alaska Landbird Monitoring Survey

The ALMS routes were conducted on 18 and 19 June 2019. The surveys were performed by a proficient birder with many years of experience with the routes, assisted by KLGO staff or a volunteer. The surveys documented 36 species of birds in 19 families. The forest habitat Chilkoot route had 18 species, while the river delta habitat Dyea route produced 31 species. Thirteen (13)

species were found in both routes. Species are presented in Table 5, following family taxonomic order of the 2019 AOS Checklist of North American Birds. (Chesser 2019)

Table 5. ALMS - Species List for Alaska Landbird Monitoring Survey, June 2019.

Family	Scientific Name	Common Name	Chilkoot Route	Dyea Route
Anatidae (geese, ducks)	<i>Anas platyrhynchos</i>	Mallard	–	X
	<i>Mergus merganser</i>	Common Merganser	–	X
Phasianidae (grouse)	<i>Dendragapus fuliginosus</i>	Sooty Grouse	X	X
Trochilidae (hummingbirds)	<i>Selasphorus rufus</i>	Rufous Hummingbird	–	X
Scolopacidae (sandpipers)	<i>Actitis macularius</i>	Spotted Sandpiper	–	X
Laridae (gulls, terns)	<i>Larus canus</i>	Mew Gull	–	X
	<i>Sterna paradisaea</i>	Arctic Tern	–	X
Ardeidae (herons, egrets)	<i>Ardea herodias</i>	Great Blue Heron	–	X
Accipitridae (hawks, eagles)	<i>Haliaeetus leucocephalus</i>	Bald Eagle	–	X
Alcedinidae (kingfishers)	<i>Ceryle alcyon</i>	Belted Kingfisher	–	X
Picidae (woodpeckers)	<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker	X	X
Falconidae (falcons)	<i>Falco sparverius</i>	American Kestrel	–	X
Tyrannidae (tyrant flycatchers)	<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	X	X
	<i>Empidonax minimus</i>	Least Flycatcher	X	–
Corvidae (crows, ravens)	<i>Corvus caurinus</i>	Northwestern Crow	–	X
Paridae (chickadees)	<i>Poecile rufescens</i>	Chestnut-backed Chickadee	X	X
Troglodytidae (wrens)	<i>Troglodytes pacificus</i>	Pacific Wren	X	–
Regulidae (kinglets)	<i>Regulus satrapa</i>	Golden-crowned Kinglet	–	X
	<i>Regulus calendula</i>	Ruby-crowned Kinglet	–	X
Turdidae (thrushes)	<i>Catharus ustulatus</i>	Swainson's Thrush	X	
	<i>Catharus guttatus</i>	Hermit Thrush	X	X
	<i>Turdus migratorius</i>	American Robin	X	X
	<i>Ixoreus naevius</i>	Varied Thrush	X	X
Fringillidae (finches)	<i>Spinus pinus</i>	Pine Siskin	–	X
	<i>Loxia leucoptera</i>	White-winged Crossbill	–	X
Passerellidae) (new world sparrows	<i>Spizella passerina</i>	Chipping Sparrow	–	X
	<i>Passerculus sandwichensis</i>	Savannah Sparrow	–	X
	<i>Melospiza lincolni</i>	Lincoln's Sparrow	–	X
Parulidae (new world warblers)	<i>Seiurus noveboracensis</i>	Northern Waterthrush	X	–
	<i>Oreothlypis celata</i>	Orange-crowned Warbler	X	X
	<i>Geothlypis trichas</i>	Common Yellowthroat	X	X

Table 5 (continued). ALMS - Species List for Alaska Landbird Monitoring Survey, June 2019.

Family	Scientific Name	Common Name	Chilkoot Route	Dyea Route
Parulidae (new world warblers) (continued)	<i>Setophaga ruticilla</i>	American Redstart	X	X
	<i>Setophaga coronata</i>	Yellow-rumped Warbler (Myrtle)	X	X
	<i>Setophaga townsendi</i>	Townsend's Warbler	X	X
	<i>Cardellina pusilla</i>	Wilson's Warbler	X	—
	<i>Piranga ludoviciana</i>	Western Tanager	X	X

BENM - Bald Eagle Nest Monitoring

No systematic survey of eagle nests was made in 2019. Opportunistic reports were contributed from CWS observers, other park staff, and interested volunteers. A special effort was made to interview Bob Fink, an observant river guide on the Taiya River.

Forty-nine (49) observations were recorded on 6 nests (Table 6). One nest had strong evidence of successful fledging. One nest had strong evidence of no breeding activity. However, 4 nests had varying levels of activity associated with breeding behavior by adult eagles.

See Appendix C for detailed information on 2019 Bald Eagle nest locations and observations.

Table 6. BENM - Summary of Bald Eagle breeding activity, April to September 2019.

Nest	Breeding activity	Breeding success	Summary
CT02	high	strong	Many observations of breeding activity, direct observations of young in nest and of adults feeding young.
DY01	low	unlikely	Many observations, with one record of an adult sitting on the nest. But most observations found no eagle in or near nest.
DY02	low	unlikely	Few observations, some activity showing interest in nest, but no direct observations of adults sitting on nest, or young in nest.
SK02	low	unknown	Very few observations, one observation of adult eagle on nest.
TR02	low	unlikely	Many observations, with one strong indication of nest building, but no observations of adults sitting on nest, or young in nest.
TR03	not used	no	Almost daily observations throughout breeding period with no activity at nest.

Note: The information compiled in Appendix C in this report should be added to the KLGO database of Bald Eagle observations at T:\NRM\Birds\Eagles\Eagle_Nests.accdb

Incidental Observations

Many birds were recorded outside monitoring programs by KLGO staff, local birders and the many tourists that visit Skagway each spring, summer and fall. Selected notable observations are listed in Table 7, with other highlights below. In addition to observations presented here, numerous sightings are entered into eBird (<https://www.eBird.org>) by summer visitors to Skagway.

The Golden Eagle observation from August 2018 had been deemed credible for review by the Skagway Bird Club and forwarded to the editors of the southeast Alaska regional reports on notable bird observations (Heinl 2019) where it was determined to have insufficient evidence to definitively identify to the species level.

In late April, the local Skagway River Arctic Tern colony started nesting on a river bar near the airstrip, in the company of nesting Mew Gulls. Although subject to hazing from Alaska Dept. of Transportation staff to reduce airplane collision danger, roughly 60 terns and 30 gulls fledged young at this location. More detailed information can be found at the Skagway Bird Club web site's Arctic Tern Colony web page (Skagway Bird Club 2019).

Table 7. Selection of Notable Incidental Bird Observations, April to September 2019.

Date	Bird	Observer	Source*	Note
6 April	7 Trumpeter Swans	Jeff Brady	SBC-McD	first arrival for season
6 April	2 pairs Pigeon Guillemots	J. + A. Beierly	SBC	first arrival for season
6 April	6 Mountain Buebirds	Deb Boettcher	SBC	very early arrival for season
8 April	1 Northern Shrike chasing 2 Mountain Bluebirds	John McDermott	SBC-McD	very early arrival for season
27 April	about 25 Arctic Terns	C.E. Furbish	SBC	first arrival for season
1 May	1 Osprey	Mike Konsler	SBC	uncommon
3 May	1 male Lapland Longspur	Mike Konsler	SBC	uncommon
4 May	1 Ruffed Grouse	John McDermott	SBC-McD	uncommon
6 May	3 cackling Canada Geese	Bob Fink	SBC-McD	rare
16 May	4 Black Scoters	J. + A. Beierly	SBC	uncommon
4 June	1 pair of Gadwall	J. + A. Beierly	SBC	rare
13 June	1 female Hooded Merganser with 5-6 chicks	Jen Larsen	SBC	uncommon
14 June	1 MacGillivray's Warbler	Mike Konsler	SBC	unusual
11 July	1 Pacific Loon	Mike Konsler	SBC	uncommon
8 Sept	1 Yellow-shafted Flicker	C.E. Furbish	SBC	rare
17 Sept	several Black-billed Magpies	John McDermott	SBC-McD	first arrival for season

* SBC = Skagway local documentation (Skagway Bird Club 2019); SBC-McD = Skagway Bird Club via John McDermott Facebook page

Discussion

CWS - Coastal Waterbird Surveys

The number of species of waterbirds observed during the 2019 CWS was low compared to the previous year, but well within the variability of the multi-year data set showing a gradual increase in number of species per year (richness). The trend of increasing species richness from 2003 to 2009 was investigated by Bernatz et al. (2010) for observer effects or biases. In addition to variation among the observers and the gradual improvement of identification skills for those with multi-year experience, other factors likely contribute to the trend for increasing number of species, such as the total number of surveys accomplished within the season. However, an actual increase in species richness could be contributing to the increases recorded over the years.

As the data set for this study grows, more definitive investigation of trends in species richness will be possible. Techniques that look at some birds as groups of species or at the genus level may help eliminate some observer bias effects. Also, examination of the CWS results in conjunction with other programs that operate at a regional level could be helpful.

An obvious peak in spring waterbird migration occurred in the first half of May. Strong peaks are usually associated with a spring eulachon (*Thaleichthys pacificus*) fish run (Hahr and Trapp 2004). KLGO, in partnership with the Skagway Traditional Council, conducted a eulachon monitoring project during 2017 and 2018. There will be a valuable opportunity to examine CWS data in relation to eulachon data when results from the eulachon study are available.

BBS - Breeding Bird Survey and ALMS - Alaska Landbird Monitoring Survey

KLGO does not systematically analyze the results of the BBS or ALMS. The program coordinators periodically release analyses, publish scientific articles and make the data available to researchers. An on-line data portal for ALMS was being developed in 2017, but was not released as of this writing. Colleen Handel, ALMS program coordinator, and John Sauer, BBS program scientist, published an investigation of overall trends in population for 84 bird species monitored during BBS and 31 species recorded during ALMS, across the state of Alaska (Handel and Sauer 2017).

BENM - Bald Eagle Nest Monitoring

Systematic data collection was not performed during 2019. However, the information gathered informally showed numerous signs of nest use near the coast, with evidence of some successful fledging. Enthusiastic volunteers, increasingly refined quality of observations, and the foundational work in the past few years on nest descriptions, locations, and historic data make this project ready for improvement.

Conclusions & Recommendations

The established bird monitoring programs currently ongoing at Klondike Gold Rush NHP (KLGO) work together to provide essential information about park resources. Birds and the habitats they use are important natural resources and indicators of environmental health and change. They are also popular and interesting to park visitors and a part of the “wild Alaska” mystique that contributes to the local tourism economy.

Four multi-year bird monitoring programs were active at KLGO during 2019:

- CWS – Coastal Waterbird Survey, a KLGO specific program,
- BBS – North American Breeding Bird Survey, a continent-wide program,
- ALMS – Alaska Landbird Monitoring Survey, an Alaska state-wide program, and
- BENM – Bald Eagle Nest Monitoring, a KLGO specific program.

The BBS and ALMS are designed to produce population status information across large spatial areas. The two park-specific programs, CWS and BENM, are designed to produce more detailed local information on two very visible, ecologically important, and potentially at-risk avian resources: coastal waterbirds and the near-shore habitats they use; and Bald Eagle nests and breeding success.

BBS and ALMS

Through sponsorship of the BBS and ALMS programs, KLGO participates in efforts to understand regional and continental changes in bird populations. At the local level, these programs can help the park understand the significance of changes seen in Skagway, and to separate local effects from larger influences. KLGO gets a high return on its investment with these programs by supporting a skilled, dedicated birder for a few days each year.

CWS

The CWS monitors bird use of near-shore habitats, with focus on migratory waterbirds. Near-shore habitats are crucial for many species, not just birds, and are quite limited in Skagway. The CWS has an intensive monitoring schedule that requires trained field observers, ideally over multi-year periods. It has benefited from volunteers among park staff and the community to assist with field data collection, particularly members of the Skagway Bird Club who have developed multi-year interest in the survey. It is critical to have at least one highly trained staff, contractor or volunteer with bird identification skills to maintain the consistency of data and scientific integrity of this program, as the skills required to complete these surveys cannot be easily obtained through short-term on-the-job training.

Recognizing the CWS need for fundamental design review and updated operational procedures, KLGO requested Technical Assistance from NPS Alaska Regional Office experts for an Operational Design Review. Some preliminary results from the Review were produced in 2019.

(T:\resources\NRM\Technical Assistance Requests\Coastal Waterbird Review_FY18_TAR 6987.pdf).

BENM

The BENM project is still in early stages, but much foundational work on nest descriptions, locations, and historic records has been accomplished. Eager volunteers, particularly river guide Bob Fink, collect valuable data on their own initiative. The charisma of Bald Eagles is likely to attract other volunteers in the community if they are given the opportunity and a data collection structure to focus their efforts.

BENM operational protocols and database have not been completed. Preliminary protocols were intended to be reviewed by and made compatible with US Fish and Wildlife Service (USFWS) Standard Operating Procedures for Bald Eagle monitoring to promote data sharing between the NPS and USFWS. (Surdyk and Evans 2018) This would facilitate KLGO consultation and/or permitting with the USFWS when indicated by the Bald and Golden Eagle Protection Act.

Reliable and current information on the status of Bald Eagle nests is needed for KLGO operations and development projects. Until full protocols are completed, this project could improve through development of a minimal framework and tools for data collection, along with minimal outreach efforts to engage volunteers at the beginning of the nesting season.



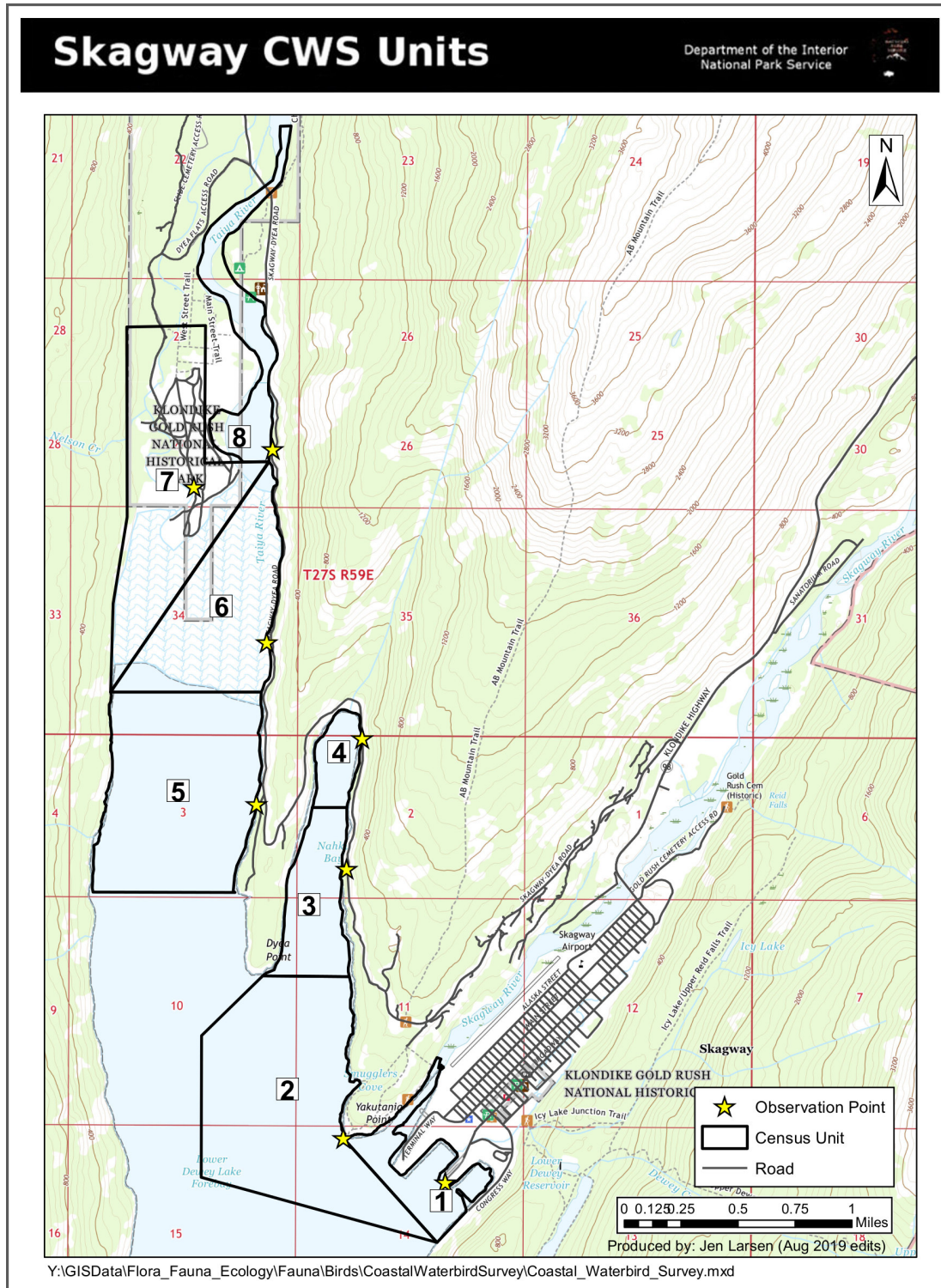
Two adult Bald Eagles on nest CT02, located near the beginning of the Chilkoot Trail, 15 August 2019 (MARY HAKE)

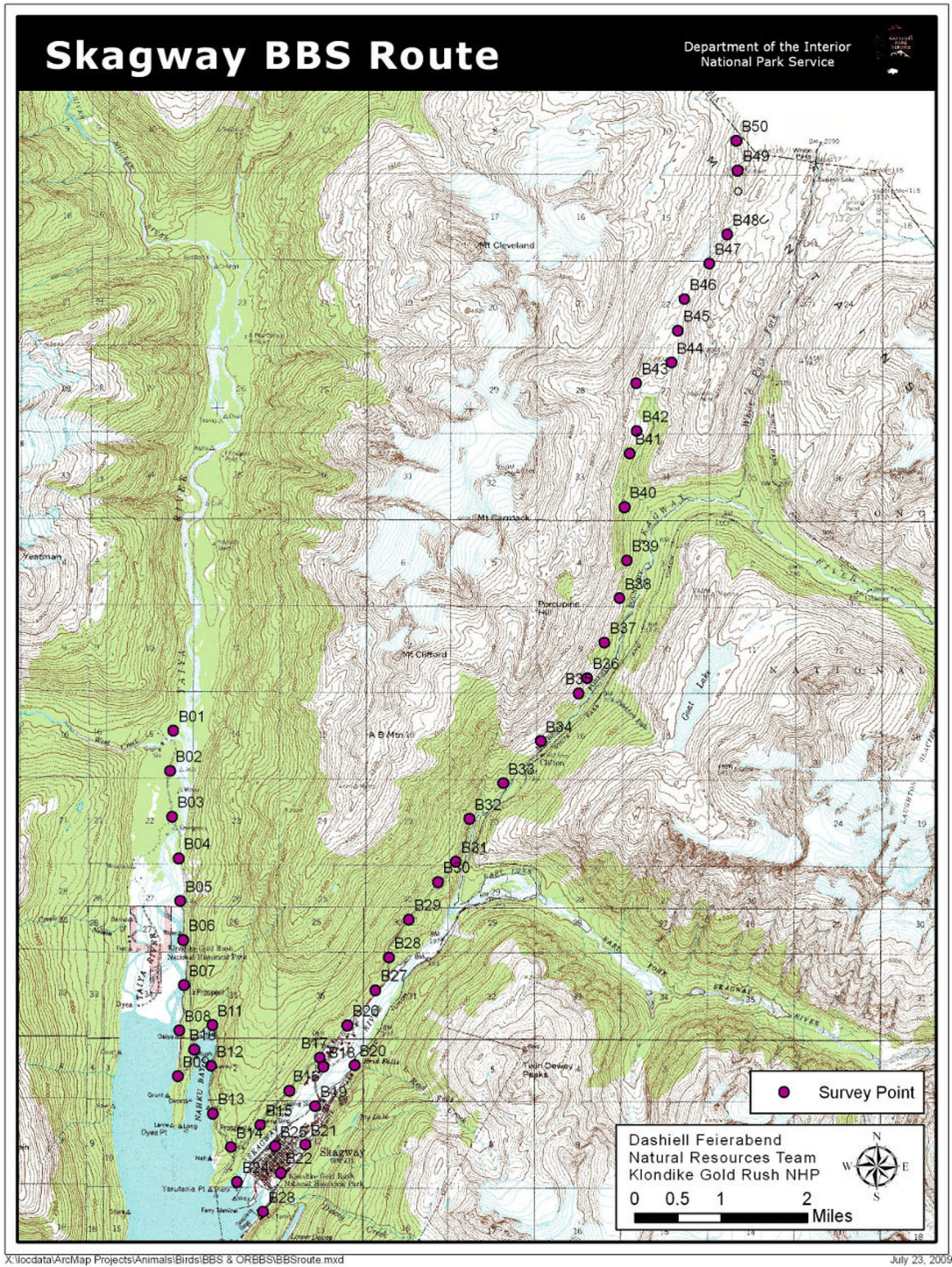
Literature Cited

- Bernatz, G. C., A. G. Robertson, and B. W. Dratzkowski. 2010. Klondike Gold Rush National Historical Park: Natural resource condition assessment. Natural Resource Report NPS/NRPC/WRD/NRR—2010/288. National Park Service, Fort Collins, Colorado.
- Chesser, R. T., K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz and K. Winker. 2019. Check-list of North American Birds (online). American Ornithological Society. <http://checklist.aou.org/taxa>.
- Hahr, M., and T.W. Trapp. 2004. Waterbird and breeding landbird inventories in Klondike Gold Rush National Historical Park, SE Alaska Inventory and Monitoring Network, National Park Service, Alaska Region. Inventory and Monitoring Program Final Report, Klondike Gold Rush National Historical Park, Skagway, Alaska. 44 pp.
- Handel, C. M. and J. R. Sauer. 2017. Combined analysis of roadside and off-road breeding bird survey data to assess population change in Alaska. *The Condor: Ornithological Applications* 119:557-575.
- Heinl, S. C. 2019. Summary of southeast Alaska bird observations, Fall: August-November 2018. 2603 4th Avenue, Ketchikan, AK 99901, posted at <http://www.juneau-audubon-society.org>.
- MacDonald, S. O. and J. A. Cook. 1999. The mammal fauna of Southeast Alaska. University of Alaska Museum, Fairbanks, AK. 141 pp.
- NABCI. 2000. North American Bird Conservation Initiative (NABCI) Bird Conservation Region Map and Descriptions. USDI, U.S. Fish and Wildlife Service, Arlington, VA.
- Payne, K. J. 2004. Waterbird Surveys and Opportunistic Bird Sightings in Klondike Gold Rush National Historical Park. Final Report, Klondike Gold Rush National Historical Park, Skagway, Alaska.
- Pojar, J. and A. MacKinnon. 1994. Plants of the Pacific Northwest Coast: Washington, Oregon and Alaska. Lone Pine Press, British Columbia, Canada. 527 pp.
- Skagway Bird Club. 2019. <https://sites.google.com/site/skagwaybirdclub>.
- Surdyk, S. L. 2017. Bird surveys at Klondike Gold Rush NHP: 2015 summary. Natural Resource Report NPS/KLGO/NRR—2017/1442. National Park Service, Fort Collins, Colorado.
- Surdyk, S. L., and S. A. Evans. 2018. Bird surveys at Klondike Gold Rush NHP: 2016 summary. Natural Resource Report NPS/KLGO/NRR—2018/1590. National Park Service, Fort Collins, Colorado.
- Surdyk, S., Larsen, J. H., and Waldo, A. 2018. DRAFT - Bird Surveys at Klondike Gold Rush NHP: 2017 Summary. Klondike Gold Rush NHP, Skagway, Alaska.

Appendix A. Maps

Maps A1 through A5 show bird survey routes and locations.

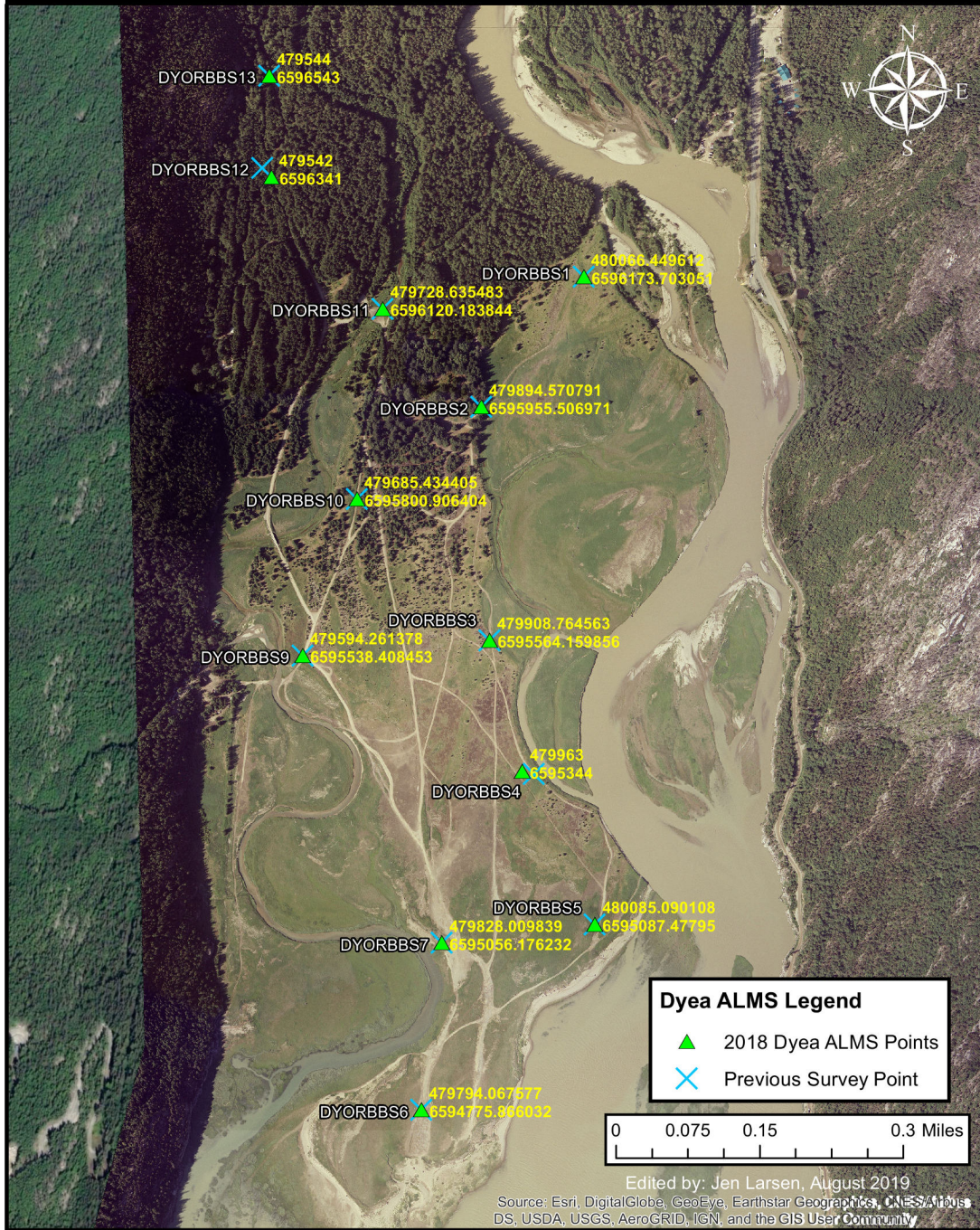




Map A2. BBS (North American Breeding Bird Survey) Route Map

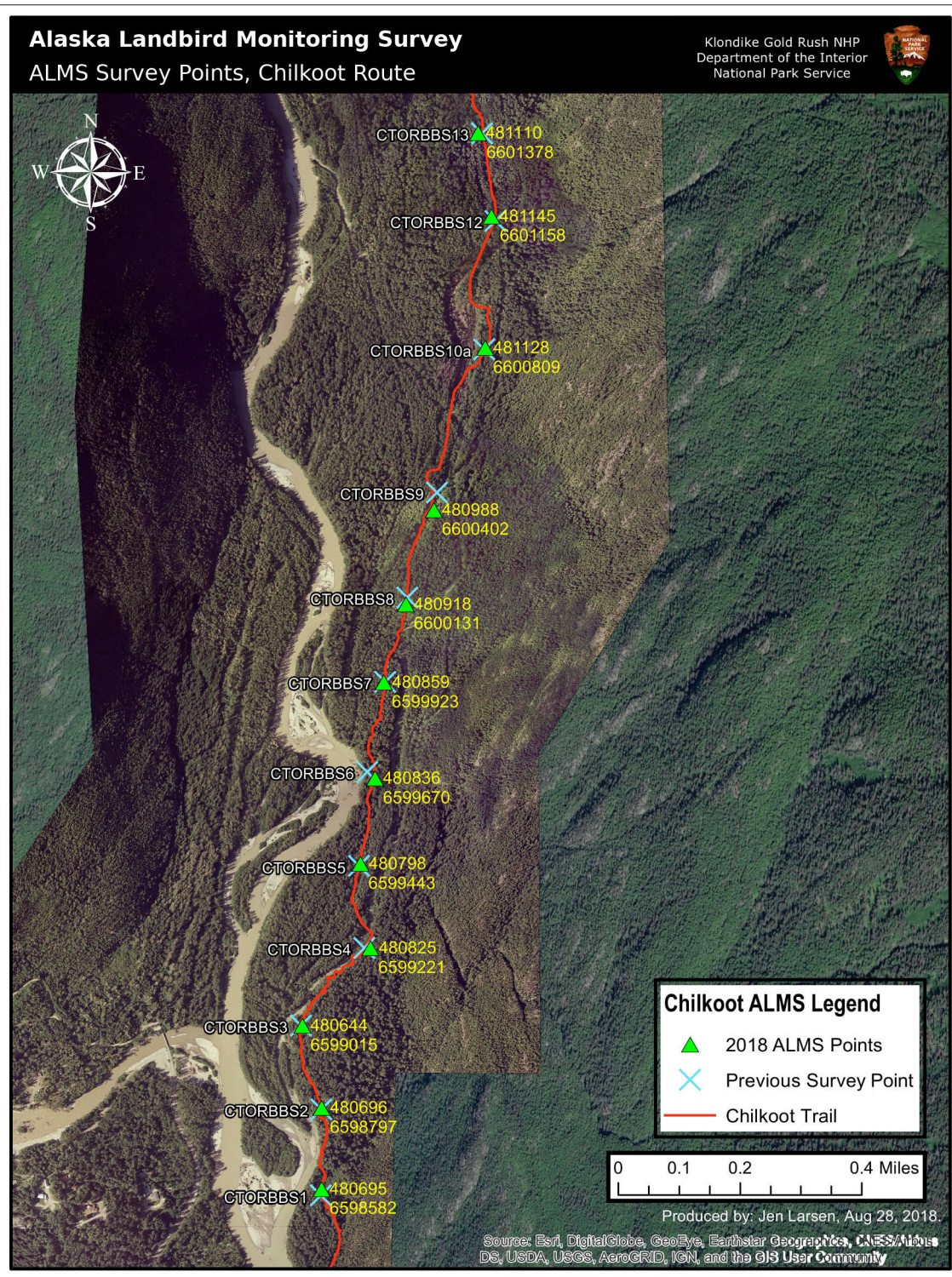
Alaska Landbird Monitoring Survey ALMS Survey Points, Dyea Route

Klondike Gold Rush NHP
Department of the Interior
National Park Service



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Map A3. ALMS (Alaska Landbird Monitoring Survey) Dyea Route Map

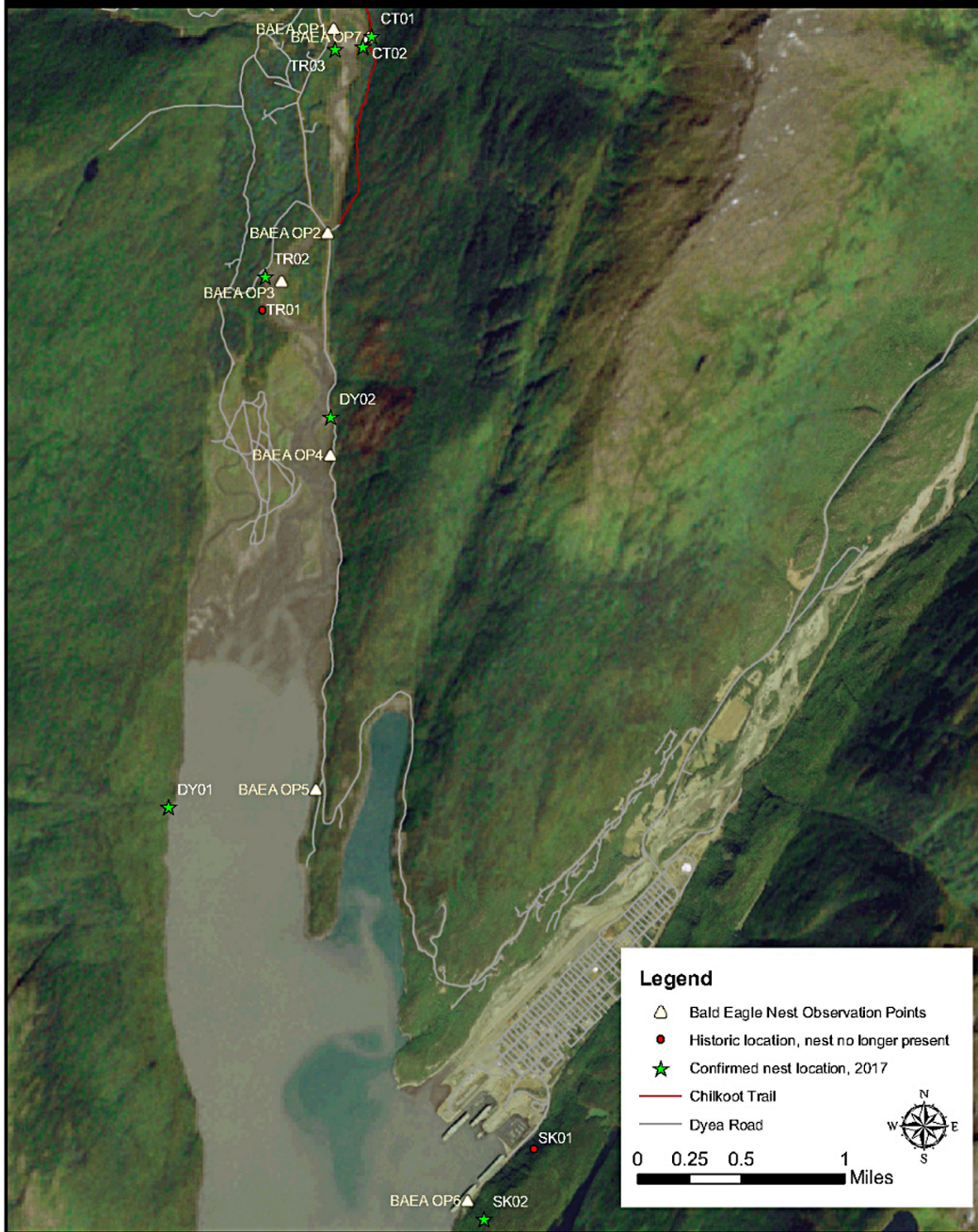


Map A4. ALMS (Alaska Landbird Monitoring Survey) Chilkoot Route Map

Bald Eagle Nests and Observation Points

Current and Historical Nests around Klondike Gold Rush NHP

Klondike Gold Rush NHP
Department of the Interior
National Park Service



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Jen Larsen, August 28, 2018

Map A5. BENM (Bald Eagle Nest Monitoring) Nests and Observation Points Map

Appendix B. 2019 CWS Field Data Sheets

KGLO CWS - environmental field data - 2019 ver.1

date:
observers:

Unit ->	1-skg shore	2-yak s+w	3-nahku s	4-nahku n	5-dyea bay s	6-dyea bay n	7-dyea flats	8-taiya r
start time (24hr time)								
stop time (24hr time)								
temp (C)								
wind dir								
wind code								
cloud code								
precip code								
wave code								
tide phase H - M - L (high-mid-low)								
tide move R - F - U (rise-fall-ukn)								

WIND SPEED CODES: (Enter Beaufort numbers, not m.p.h.)

Beaufort Number	Wind Speed (miles/hr)	Indicators of Wind Speed
0	Less than 1	Air calm; smoke rises vertically.
1	1 to 3	Direction of wind shown by smoke drift but not by wind vane.
2	4 to 7	Wind felt on face; leaves rustle; wind vanes moved by wind.
3	8 to 12	Leaves and small twigs in constant motion; wind extends light flag.
4	13 to 18	Raises dust, loose paper; small branches are moved.
5	19 to 24	Small trees in leaf begin to sway; crested wavelets form on inland waters.

CLOUD COVER CODES:

0	Clear, less than 10 percent cloud cover.
1	Scattered, 10-50 percent cloud cover.
2	Broken, 50-90 percent cloud cover.
3	Overcast, more than 90 percent cloud cover over entire sky.

PRECIPITATION CODES:

0	None.	6	Heavy rain.
1	Fog.	7	Sleet.
2	Drizzle.	8	Light snow.
3	Showers (intermittent rain).	9	Moderate snow.
4	Light rain.	10	Heavy snow.
5	Moderate (steady) rain.		

WAVE/SWELL HEIGHT CODES:

0	Calm, sea surface smooth and mirror-like.
1	0.1 m, scaly ripples, no foam crests.
2	0.1-0.5 m, small wavelets, crests glassy, no breaking.
3	0.5-1.0 m, large wavelets, crests begin to break, scattered whitecaps.
4	1.0-1.5 m, small waves, becoming longer, numerous whitecaps.
5	1.5-2.0 m, moderate waves, taking longer form, many whitecaps, some spray.

Figure B1. 2019 CWS Environmental field data sheet.

KGLO CWS - species field data - 2019 ver.2

DATE:

Maturity: A=adult, M=immature, C=chick, U=unknown

species total
bracket & sum
if more than
one row for
species in unit

comment #	species code	row total	maturity (A, M)	sub-counts										sbt = subtotal of individuals, if needed	
	[or unit change]		C, U)	pair	pair total	sbt	female ♀	sbt	male ♂	sbt	fem/juv	sbt	unknown	sbt	
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Comments

Figure B2. 2019 CWS species field data sheet.

Appendix C. 2019 Bald Eagle nests and observations

Note: The information compiled in Appendix C (Figure C1 and Tables C1 and C2) should be added to the KLGO database of Bald Eagle observations at T:\NRM\Birds\Eagles\Eagle_Nests.accdb

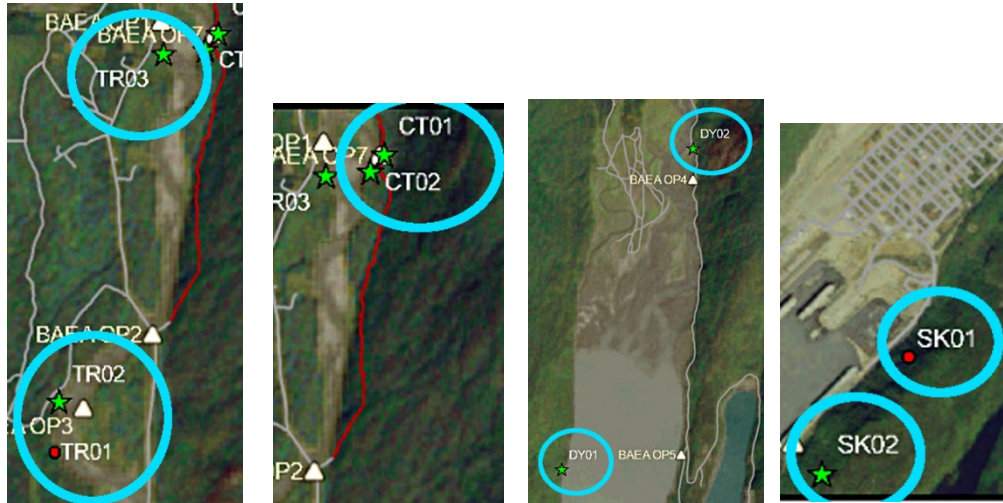


Figure C1. Excerpts from map A5 with locations highlighted. TR= tree; CT= Chilkoot Trail; SK= Skagway

Table C1. Locations of Bald Eagle nests, 2019.

nest	location from Eagle_Nests.accdb	note	note source
TR01	West side of Taiya River, across from TR01 toad site and south end of NPS campground and south of TR02.	- Previously described as Campground2 - Fell into the river in 2005	- Eagle_Nests.accdb 7 Aug B. Fink interviewed by M. Hake
TR02	West side of Taiya River, across from north end of NPS campground + north of TR01.	Previously described as Nest B or Campground	Eagle_Nests.accdb
TR03	West side of Taiya River, south of West Creek confluence and near McDermott property.	Previously described as McDermott	Eagle_Nests.accdb
CT01	East side of Taiya River just north of TR03 along Chilkoot Trail.	Previously described as Nest A	Eagle_Nests.accdb
CT02	No descriptive text	A relatively new nest that is not presently on NPS map. It is further downstream from TR-03. Bob said it was built in 2016.	7 Aug B. Fink interviewed by M. Hake

Table C1 (continued). Locations of Bald Eagle nests, 2019.

nest	location from Eagle_Nests.accdb	note	note source
CT02	–	... found nest across from John's [McDermott] house in a cottonwood. This nest is very easy to see from John's house and you could approach it from other side of the river (by Kinney Bridge/Kenneyville). [NOTE: this information confirms that location shown on map is incorrect]	M. Hake 15 August note
DY01	West side of Taiya Inlet, across from Waterbird Census Unit #5.	Previously described as Nest C	Eagle_Nests.accdb
DY02	East side of Dyea road, top of spruce tree at north end of Hackett's Hill construction	–	Eagle_Nests.accdb
SK01	East of Small Boat Harbor on lower slope of hill.	Previously described as Nest D	Eagle_Nests.accdb
SK02	East of Rail Road Dock, on hillside.	Might be the TRUE location of SK01, which was mapped based on a verbal description.	Eagle_Nests.accdb

Table C2. Bald Eagle nest observations, May to September 2019.

nest	date	eagles seen *	source	observation	interpretation
CT02	06/25/2019	1 A	7 August B. Fink interviewed by M. Hake	On several occasions, Bob observed pair incubating, feeding, and caring for young in the nest.	note: date is placeholder of approx. mid-time at nest for BAEA laying eggs in early May
CT02	07/23/2019	1 A	7 August B. Fink interviewed by M. Hake	Bob observed an adult eagle with a fish fly into the nest	[Bob thought] maybe [the eagle was] feeding young.
CT02	07/24/2019	1 A	7 August B. Fink interviewed by M. Hake	This was the last date Bob saw any activity. After 23July the nest was empty.	[Bob] speculates the chicks got predated.
CT02	08/15/2019	1 A	M. Hake 15 August note	Perched on the side of the nest was an adult Bald Eagle	–
DY01	04/13/2019	no	CWS	–	–
DY01	04/13/2019	no	CWS	–	–
DY01	04/20/2019	no	CWS	–	–
DY01	04/26/2019	no	CWS	–	–
DY01	05/03/2019	no	CWS	–	–
DY01	05/10/2019	1 A	CWS	perched near nest	–
DY01	05/17/2019	2 A	CWS	one on nest, one on nearby branch	–
DY01	05/24/2019	1 A	CWS	sitting on nest	–
DY01	06/03/2019	1 A	CWS	perched near nest	–
DY01	06/19/2019	no	CWS	–	–
DY01	07/03/2019	no	CWS	–	–
DY01	07/16/2019	1 A	CWS	near nest	–
DY01	08/01/2019	1 A	CWS	near nest	–
DY01	08/14/2019	no	CWS	–	–
DY01	08/29/2019	2 A	CWS	perched near each other next to nest tree	–
DY01	09/04/2019	no	CWS	–	–
DY01	09/12/2019	1 A	CWS	sitting a few feet below nest	–

* A= adult, Im=immature, J=juvenile, C=chick

Table C2 (continued). Bald Eagle nest observations, May to September 2019.

nest	date	eagles seen *	source	observation	interpretation
DY02	05/25/2019	1 A	SBC Bird Rescue Group (Skagway Bird Club, 2019)	An injured BAEA first observed on 8 May at West Creek had walked over the next few weeks to the west side of the Skagway River directly across from and facing the DY02. Every time it was moved away by human disturbance, it soon returned and was seen in the same place until 31May, when it presumably regained ability to fly.	The injured BAEA seemed intent on reaching the DY02 nest, when it couldn't fly across the river, it perched as close as possible and seemed to watch the nest.
DY02	08/06/2019	no	M. Hake 6 August note	The nest looked loose and unattended.	Both Elaine and I feel that if this nest was active, we would have picked up the adults flying or perching near the nest or observe adults or fledging flying around area [during the CWS]. With this, our best educated opinion is that this nest was inactive for the 2019 season.
DY02	08/21/2019	1 A	M. Hake 6 August note update	Adult BAEA perched on the side of the nest.	Maybe this nest was active in 2019? Need to keep an eye on this one in 2020.
DY02	09/04/2019	no	CWS	—	—
DY02	09/12/2019	no	CWS	—	—
SK02	07/03/2019	1 A	CWS	on nest	—
SK02	07/16/2019	no	CWS	—	—
TR02	04/13/2019	no	CWS	—	—
TR02	04/13/2019	no	CWS	—	—
TR02	04/20/2019	no	CWS	—	—
TR02	04/26/2019	3 A	CWS	sitting on river bar near nest	—
TR02	05/03/2019	no	CWS	—	—
TR02	05/10/2019	no	CWS	—	—
TR02	05/17/2019	no	CWS	—	—
TR02	05/24/2019	no	CWS	—	—
TR02	06/03/2019	no	CWS	—	—
TR02	06/19/2019	no	CWS	—	—
TR02	07/03/2019	no	CWS	—	—

* A= adult, Im=immature, J=juvenile, C=chick

Table C2 (continued). Bald Eagle nest observations, May to September 2019.

nest	date	eagles seen *	source	observation	interpretation
TR02	07/16/2019	no	CWS	–	–
TR02	07/23/2019	2 A	7 August B. Fink interviewed by M. Hake	Bob observed one adult BAEA sitting in the nest (was not sitting low like it was incubating). Soon after, another adult BAEA flew into nest with a stick in talons.	–
TR02	07/24/2019	2 A	7 August B. Fink interviewed by M. Hake	From this date on, Bob did not see any other activity at the nest.	–
TR02	08/01/2019	no	CWS	–	–
TR02	08/06/2019	1 A	M. Hake 6 August note	Nest looked tight. An adult BAEA perched in spruce close to nest.	Adults often stay close to their nest tree after nesting is over.
TR02	08/14/2019	no	CWS	–	–
TR02	08/29/2019	2 Im.	CWS	Both sitting in tree about 2 trees away from nest tree	–
TR02	09/04/2019	no	CWS	–	–
TR02	09/12/2019	1 A	CWS	perched in tree next to nest	–
TR03	07/11/1905	no	7 August B. Fink interviewed by M. Hake	Bob said nest was inactive in 2019.	Bob did not make any records, but saw the nest on a near daily schedule throughout the breeding season.

* A= adult, Im=immature, J=juvenile, C=chick

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1201 Oakridge Drive, Suite 150
Fort Collins, CO 80525