



2014 Bird Surveys at Klondike Gold Rush National Historical Park

Natural Resource Data Series NPS/KLGO/NRDS—2015/785



ON THE COVER

Boreal owl (*Aegolius funereus*) caught in White Pass.

2014 Bird Surveys at Klondike Gold Rush National Historical Park

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Abstract

Coastal waterbird (loons, grebes, cormorants, herons, ducks and geese, plovers and sandpipers, gulls, alcids, and kingfishers) surveys were conducted at Klondike Gold Rush National Historic Park in 2014. The surveys serve to document avian abundance and habitat use throughout the Park. Ten surveys were conducted from May 23 to September 2 and thirty species were detected. The North American Breeding Bird Survey (BBS) and Alaska Landbird Monitoring Survey (ALMS) were conducted as part of a continuous monitoring program to document the diversity and abundance of avian species breeding in the area. Conducted in late June, the BBS detected 42 species and the ALMS detected 30 species. Eagle nest monitoring continued with four historically active nests relocated and a newly constructed nest documented. Three of the nests had breeding activity in May and early June, but all nests appeared to fail for unknown reasons. Opportunistic bird sightings were also recorded.



Photo 1. Lincoln's sparrow (*Melospiza lincolnii*) caught in White Pass while mist-netting for bats.

Acknowledgments

Special thanks to SCA Intern Jade Cook and volunteer Matt Klostermann as this project would not have been possible without their help. I would also like to acknowledge all of the former wildlife technicians who initiated, expanded, and improved the bird monitoring program at Klondike Gold Rush NHP and whose research and data are reflected in this report.

Introduction

Klondike Gold Rush National Historical Park (KLGO) is located at the northern terminus of Alaska's Inside Passage. Although 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 cool, wet coastal rainforests of Southeast Alaska.

Base funding from KLGO was used to conduct waterbird (loons, grebes, cormorants, herons, ducks and geese, plovers and sandpipers, and alcids) surveys along the coastline from Skagway to Dyea, covering the Skagway and Taiya River mouths and Nahku Bay. Additional species were documented as opportunistic sightings when observed by NPS biologists and other knowledgeable birders. The North American Breeding Bird Survey (BBS) route and two Alaska Landbird Monitoring Survey (ALMS) routes were sampled as part of state and nation-wide efforts to collect annual data during the peak of the breeding season. Lastly, the monitoring of eagle nests in the Dyea and lower Chilkoot Trail area continued this season.

Methods

Coastal Waterbird Surveys

Eight survey areas, previously defined by Hahr and Trapp (2004) (Appendix A), were assessed during the 2014 field season. All waterbirds (loons, grebes, cormorants, herons, ducks and geese, plovers and sandpipers, gulls, alcids, and kingfishers) detected by sight or sound within the survey area were recorded. Counts were made by scanning each survey area with Bushnell Legend 8x32 binoculars and a Bausch & Lomb 20-60 x 70 mm spotting scope until all waterbirds had been

counted. Surveys were conducted once per week from May 23 to June 6, once every two weeks from June 19 to August 6, and again weekly from August 22 to September 2. All surveys were conducted in the best weather available and scheduled around a rising tide at Census Unit 7 such that the survey began two hours prior to high tide. This allowed for the maximum number of feeding shorebirds and dabblers while keeping them relatively concentrated for identification and counting. Similarly, surveys were ideally conducted early in the morning when the wind was calm and there were not yet heat waves over the water. All data were recorded on standardized forms. The methods are described in greater detail by Hahr and Trapp (2004).

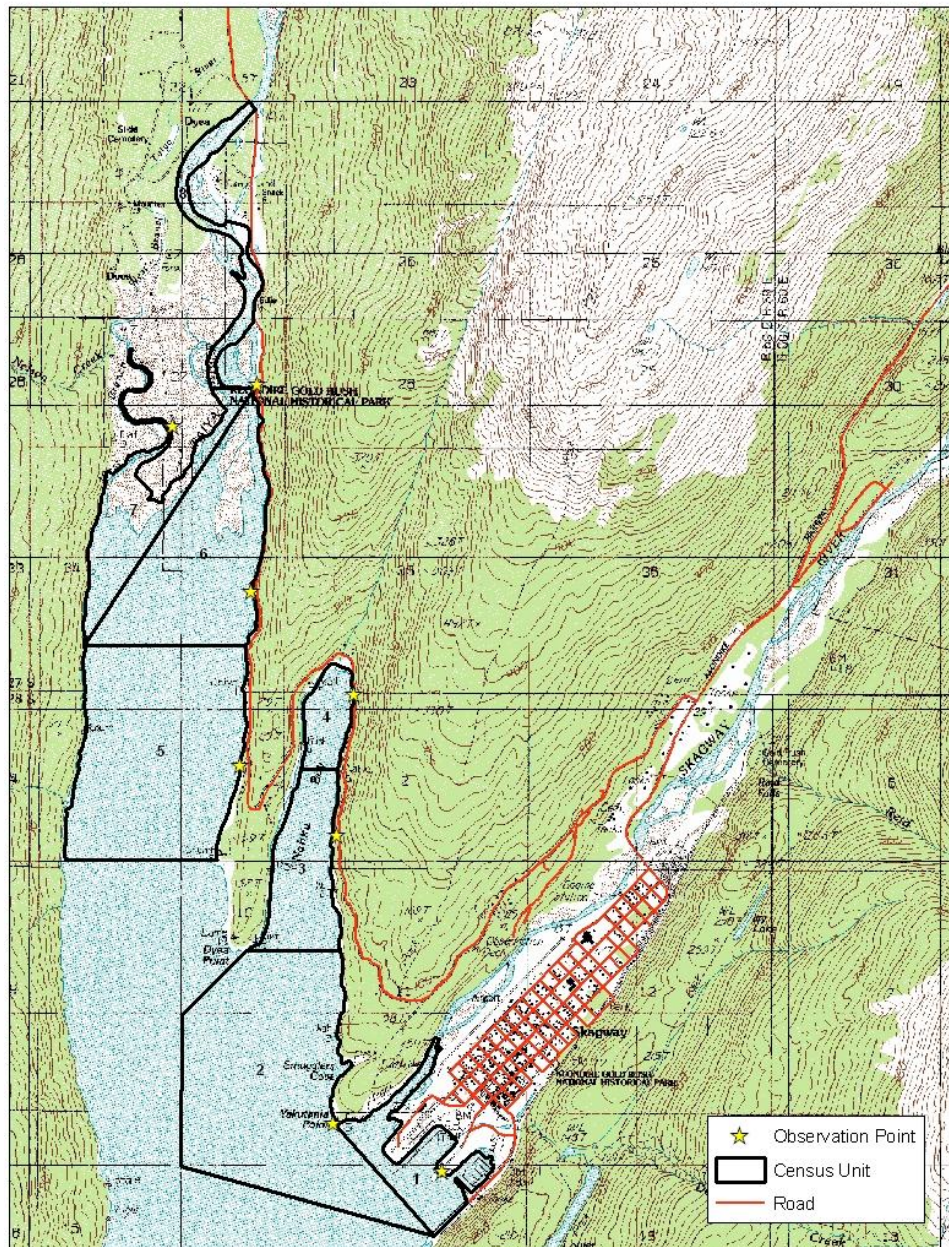


Figure 1. Taiya Inlet Waterbird Survey census units and observation points.

BBS and ALMS

The standard Breeding Bird Survey (BBS) route is approximately 25 miles long with stops at half mile intervals (Figure 2). 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 recorded. The survey begins ½ hour before sunrise. Additional information on the standardized methods for conducting this survey can be found at <http://www.pwrc.usgs.gov/BBS>. The BBS was conducted on June 26, 2014.

There are two Alaska Landbird Monitoring Survey (ALMS) routes in and around the Park (Figures 3 and 4). Each survey consists of 12 stops located at least 250 m apart. Each point is surveyed for ten minutes (divided into three, five, eight, and ten minute time intervals) and all species detected are recorded. The survey begins ½ hour before sunrise. Additional information on the standardized methods for conducting the survey can be found on the Resources drive at T:\NRM\Birds\ORBBS&ALMS. The ALMS were conducted on June 24 and 25, 2014.

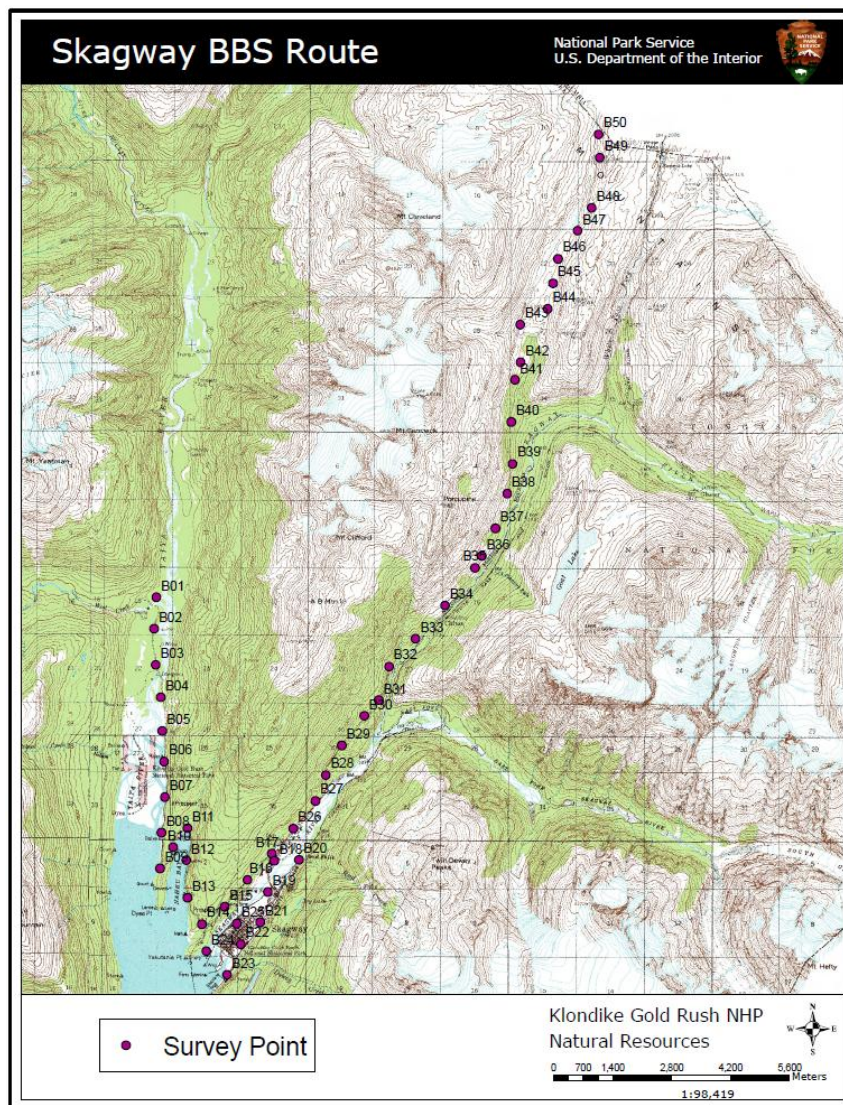


Figure 2. Breeding Bird Survey (BBS) route.



Figure 3. Alaska Landbird Monitoring Survey (ALMS) route in Dyea.

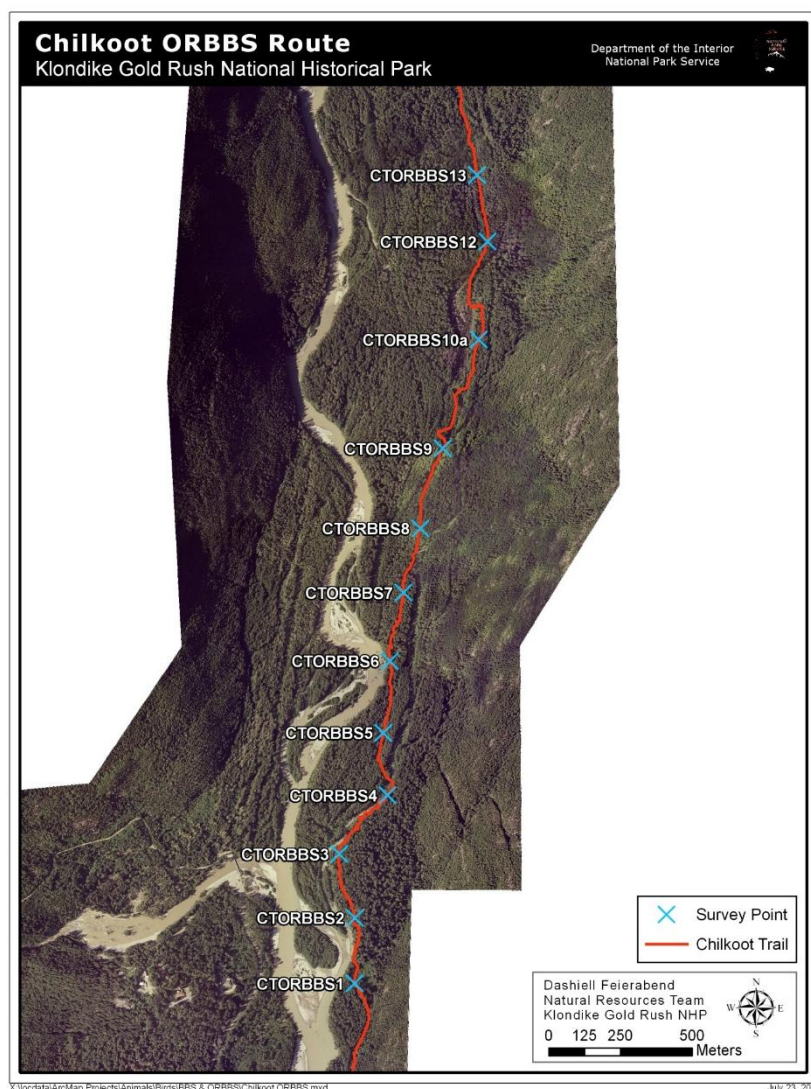


Figure 4. Alaska Landbird Monitoring Survey (ALMS) route along Chilkoot Trail.

Eagle Nest Monitoring

No standardized protocol has been established for monitoring eagle nests in the Park. As nest monitoring has taken place in the past, historically known nests were relocated (Figure 5) and observed opportunistically. Each nest was observed for a minimum of three minutes per visit. The number and age of visible birds were recorded as well as any behavioral observations. The data were then entered into a Microsoft Access Database (T:\NRM\Birds\Eagles\Eagle_Nests).

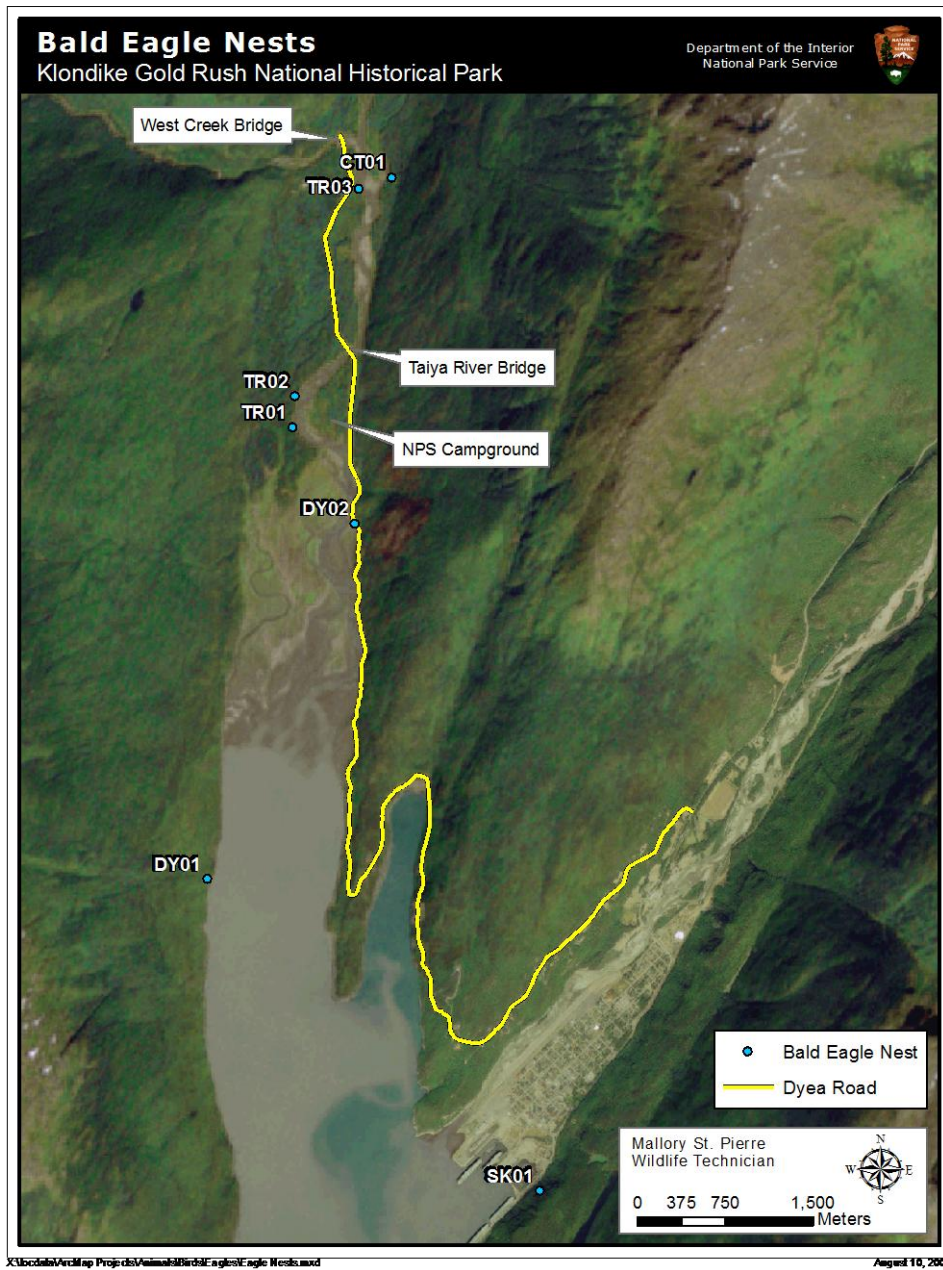


Figure 5. Bald eagle nests in Dyea.

Results

Coastal Waterbird Surveys

A total of ten surveys were conducted from May 23 to September 2, 2014. Only the Skagway River and river mouth were surveyed in census unit 1 as the view of the harbor area was obstructed by the presence of cruise ships. A total of 1,305 waterbirds, comprising thirty species from nine families, were documented (Table 1).

Table 1. Species observed during the 2014 Taiya Inlet Waterbird Surveys.

Scientific Name	Common Name	Individuals Observed	Max. Number	Date of Max	# Surveys Detected
Family Gaviidae					
<i>Gavia pacifica</i>	Pacific Loon	5	3	24 Jul	2
<i>Gavia stellata</i>	Red-throated Loon	3	3	24 Jul	1
Family Podicipedidae					
<i>Podiceps grisegena</i>	Red-necked Grebe	4	2	23 May	3
Family Ardeidae					
<i>Ardea herodias</i>	Great Blue Heron	22	5	1, 10 Jul	7
Family Anatidae					
<i>Anas americana</i>	American Wigeon	18	12	2 Sept	3
<i>Anas c. carolinensis</i>	American Green-winged Teal	27	12	2 Sept	4
<i>Anas clypeata</i>	Northern Shoveler	10	5	23, 30 May	2
<i>Anas discors</i>	Blue-winged Teal	2	2	30 May	1
<i>Anas platyrhynchos</i>	Mallard	36	10	6 Aug	5
<i>Aythya affinis</i>	Lesser Scaup	1	1	1 Jul	1
<i>Aythya marila</i>	Greater Scaup	4	4	23 May	1
<i>Bucephala clangula</i>	Common Goldeneye	1	1	24 Jul	1
<i>Bucephala islandica</i>	Barrow's Goldeneye	13	12	30 May	2
<i>Clangula hyemalis</i>	Long-tailed Duck	3	2	6 Jun	2
<i>Histrionicus histrionicus</i>	Harlequin Duck	57	32	30 May	5
<i>Melanitta perspicillata</i>	Surf Scoter	156	83	30 May	6
<i>Mergus merganser</i>	Common Merganser	54	13	24 Jul	8
Family Scolopacidae					
<i>Actitis macularius</i>	Spotted Sandpiper	16	5	10 Jul	6
<i>Calidris mauri</i>	Western Sandpiper	6	6	22 Aug	1
<i>Calidris pusilla</i>	Semipalmated Sandpiper	2	2	10 Jul	1
<i>Tringa flavipes</i>	Lesser Yellowlegs	3	2	6 Aug	2
<i>Tringa incana</i>	Wandering Tattler	2	2	30 May	1
Family Charadriidae					
<i>Charadrius semipalmatus</i>	Semipalmated Plover	5	5	22 Aug	1
Family Laridae					
<i>Chroicocephalus philadelphia</i>	Bonaparte's Gull	77	55	24 Jul	2

Table 1 (continued). Species observed during the 2014 Taiya Inlet Waterbird Surveys.

Scientific Name	Common Name	Individuals Observed	Max. Number	Date of Max	# Surveys Detected
<i>Larus sp.</i>	Larus Gull Sp.	573	194	6 Aug	10
<i>Larus argentatus</i>	Herring Gull	22	12	6 Jun	3
<i>Sterna paradisaea</i>	Arctic Tern	70	26	19 Jun	5
Family Alcidae					
<i>Brachyramphus marmoratus</i>	Marbled Murrelet	49	17	6 Jun	9
<i>Cephus columba</i>	Pigeon Guillemot	3	1	30 May, 6 Jun, 1 Jul	3
Family Alcedinidae					
<i>Megasceryle alcyon</i>	Belted Kingfisher	4	2	19 Jun	3

BBS and ALMS

The Breeding Bird Survey (BBS) documented the presence of 42 species (Table 2) and the Alaska Landbird Monitoring Survey (ALMS) documented the presence of 30 species (Table 3).

Table 2. Species detected during the Breeding Bird Survey (BBS) conducted on June 26, 2014.

Scientific Name	Common Name
<i>Empidonax alnorum</i>	Alder Flycatcher
<i>Setophaga ruticilla</i>	American Redstart
<i>Turdus migratorius</i>	American Robin
<i>Sterna paradisaea</i>	Arctic Tern
<i>Haliaeetus leucocephalus</i>	Bald Eagle
<i>Hirundo rustica</i>	Barn Swallow
<i>Poecile rufescens</i>	Chestnut-backed Chickadee
<i>Corvus corax</i>	Common Raven
<i>Geothlypis trichas</i>	Common Yellowthroat
<i>Passerella iliaca</i>	Fox Sparrow
<i>Regulus satrapa</i>	Golden-crowned Kinglet
<i>Ardea Herodias</i>	Great Blue Heron
<i>Picoides villosus</i>	Hairy Woodpecker
<i>Catharus guttatus</i>	Hermit Thrush
<i>Larus argentatus</i>	Herring Gull
<i>Melospiza lincolnii</i>	Lincoln's Sparrow
<i>Geothlypis tolmiei</i>	MacGillivray's Warbler
<i>Larus canus</i>	Mew Gull
<i>Corvus caurinus</i>	Northwestern Crow
<i>Contopus cooperi</i>	Olive-sided Flycatcher
<i>Oreothlypis celata</i>	Orange-crowned Warbler
<i>Junco h. oregonus</i>	Oregon Junco

Table 2 (continued). Species detected during the Breeding Bird Survey (BBS) conducted on June 26, 2014.

Scientific Name	Common Name
<i>Troglodytes pacificus</i>	Pacific Wren
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher
<i>Spinus pinus</i>	Pine Siskin
<i>Loxia curvirostra</i>	Red Crossbill
<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker
<i>Regulus calendula</i>	Ruby-crowned Kinglet
<i>Selasphorus rufus</i>	Rufous Hummingbird
<i>Passerculus sandwichensis</i>	Savannah Sparrow
<i>Dendragapus fuliginosus</i>	Sooty Grouse
<i>Actitis macularius</i>	Spotted Sandpiper
<i>Catharus ustulatus</i>	Swainson's Thrush
<i>Setophaga townsendi</i>	Townsend's Warbler
<i>Ixoreus naevius</i>	Varied Thrush
<i>Tachycineta thalassina</i>	Violet-green Swallow
<i>Vireo gilvus</i>	Warbling Vireo
<i>Piranga ludoviciana</i>	Western Tanager
<i>Lagopus lagopus</i>	Willow Ptarmigan
<i>Cardellina pusilla</i>	Wilson's Warbler
<i>Setophaga petechia</i>	Yellow Warbler
<i>Setophaga coronata</i>	Yellow-rumped Warbler

Table 3. Species detected during the Alaska Landbird Monitoring Survey (ALMS) conducted on June 24 and 25, 2014.

Scientific Name	Common Name
<i>Setophaga ruticilla</i>	American Redstart
<i>Turdus migratorius</i>	American Robin
<i>Certhia americana</i>	Brown Creeper
<i>Poecile rufescens</i>	Chestnut-backed Chickadee
<i>Spizella passerina</i>	Chipping Sparrow
<i>Mergus merganser</i>	Common Merganser
<i>Corvus corax</i>	Common Raven
<i>Geothlypis trichas</i>	Common Yellowthroat
<i>Regulus satrapa</i>	Golden-crowned Kinglet
<i>Picoides villosus</i>	Hairy Woodpecker
<i>Catharus guttatus</i>	Hermit Thrush
<i>Melospiza lincolni</i>	Lincoln's Sparrow
<i>Parkesia noveboracensis</i>	Northern Waterthrush

Table 3 (continued). Species detected during the Alaska Landbird Monitoring Survey (ALMS) conducted on June 24 and 25, 2014.

Scientific Name	Common Name
<i>Corvus caurinus</i>	Northwestern Crow
<i>Troglodytes pacificus</i>	Pacific Wren
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher
<i>Spinus pinus</i>	Pine Siskin
<i>Loxia curvirostra</i>	Red Crossbill
<i>Sitta canadensis</i>	Red-breasted Nuthatch
<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker
<i>Regulus calendula</i>	Ruby-crowned Kinglet
<i>Passerculus sandwichensis</i>	Savannah Sparrow
<i>Actitis macularius</i>	Spotted Sandpiper
<i>Catharus ustulatus</i>	Swainson's Thrush
<i>Setophaga townsendi</i>	Townsend's Warbler
<i>Ixoreus naevius</i>	Varied Thrush
<i>Tachycineta thalassina</i>	Violet-green Swallow
<i>Vireo gilvus</i>	Warbling Vireo
<i>Cardellina pusilla</i>	Wilson's Warbler
<i>Setophaga coronata</i>	Yellow-rumped Warbler

Eagle Nest Monitoring

Four of the six eagle nests that had been previously documented in and around the Park were relocated. The known nests are labeled TR01, TR02, TR03, CT01, DY01, and SK01 (Figure 5). SK01 and TR01 could not be located in the 2014 season; however, a new nest (DY02) was observed being built at the top of a spruce tree at the north end of Hackett's Hill during road construction.

Adult eagles were observed beginning May 27 and continued until June 5 at DY02, until June 21 at DY01, and until June 23 at TR03. After several checks suggesting a lack of activity, adults appeared again at TR03 on July 17 and at DY01 on July 24; however birds may have just been loafing as no chicks were ever observed. According to local float tour guides, these nests have failed in past years as well and the potential causes remain unknown.

Discussion

Coastal Waterbird Surveys

The waterbird surveys continue to serve as a baseline inventory with new species added almost annually and provide long-term data on species composition and population estimates. The number of individuals and diversity of species utilizing the Taiya Inlet as a corridor or stop-over site reflects its importance to migratory waterbirds. However, it should be noted that comparative analysis of the waterbird data is difficult based on the high turnover rate of observers and variation in level of experience identifying birds. Species detection tends to increase as an observer gains knowledge of local species and their habitat use. Furthermore, in 2014 the first survey was not conducted until late May, whereas in previous years surveying began almost a month earlier in late April. Fewer species and individual birds were observed this season, suggesting that the spring migration was missed.

Census Unit 1 was also never surveyed in its entirety due to the presence of cruise ships, but the Skagway River and river mouth were unobstructed and utilized by a variety of species. This area should continue to be surveyed as part of the regular census route, but possibly assigned a different census unit number to differentiate it from the entire harbor area covered in CU 1.

One of the biggest challenges encountered during waterbird surveys is the identification of gulls, which remains both difficult and inconsistent. Depending on the year, a majority of gulls are identified as either glaucous-winged or herring gulls. Consultation from Boris Dobrowsky, a local knowledgeable gull expert, suggested that a majority of the gulls are most likely hybrid glaucous-winged and herring gulls. For the past three years, large gulls have been recorded as unknown *Larus* gull species unless they could be positively identified.

Furthermore, many of the species encountered during the waterbird surveys cannot be broken down into sex and age classes in the field with the tools and time available. Gull age classes become increasingly difficult to decipher as they mature over a multi-year period. Many juvenile male ducks also remain indistinguishable from females until the fall when they begin to molt into adult plumage.

BBS and ALMS

In previous years, the BBS and ALMS were conducted by Deb Rudis, a biologist with the US Fish and Wildlife Service in Juneau. This season a new observer had to be found and Matt Klostermann, another biologist and former US Fish and Wildlife Service employee from Juneau, conducted the surveys. While it is valuable that the annual surveys continued without interruption, observer variation should be taken into consideration when comparing data across seasons. For example, the additional eight species documented during the BBS this year are likely a result of differences in observer experience and may not reflect changes in species composition.

Incidental Bird Sightings

On May 30, 2014, Skagway Bird Club member Suzanne Kennedy reported the observation of a black guillemot (*Cepphus grylle*) on the east side of the Ore Dock in the harbor. Although she was unable to get a photograph, her description was reviewed by local experts, who confirmed that she may have documented the first account of this species in the Skagway area.

On August 20, 2014, a boreal owl (*Aegolius funereus*) was caught in a mist-net while trapping for bats at a small pond just south of the Alaska Department of Transportation garage in White Pass (see cover). It appeared to be in good condition and was released shortly after being removed from the net. Also while trapping for bats, a barred owl (*Strix varia*) was heard from the West Creek bridge road in Dyea on August 29, 2014.

Conclusions

Waterbird surveys should continue for further baseline data on the occurrence, distribution, abundance, and habitat association of species. Surveys should be conducted weekly from April 15 to May 15 and from August 10 to September 15 in order to best document the spring and fall migrations. Further research should be done to resolve inconsistencies in gull identification. Intensive study and practice, as well as consultation with the Skagway Bird Club and local birders are advised to resolve this issue.

The BBS and ALMS routes surveyed by the Park continue to contribute important data to state and nation-wide programs established to monitor long-term changes in species ranges and populations. There is, however, currently no protocol established for recording passerine species detected at waterbird survey points. If observers are reliably experienced, brief point-count surveys could be conducted in conjunction with the waterbird surveys to begin establishing baseline passerine data across the entire season for the Skagway area.

Eagle nest monitoring should also continue with a more rigid schedule and defined goals. A protocol with SOPs should be written specifying the frequency of site visits, efforts to survey for new nests, and specific data categories to be recorded, etc. At a minimum, known nest sites should be revisited annually to check for activity. Immature birds were seen frequently throughout the summer, suggesting that eagles are successfully nesting somewhere in the local area.

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Appendix A Waterbird Monitoring Protocol for Klondike Gold Rush National Historical Park

Standard Operating Procedure (SOP) # 3 Conducting the Waterbird Survey Transect Version 1.00 (April 9, 2009)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #

This SOP gives step-by-step instructions for conducting waterbird surveys by census unit at Klondike Gold Rush NHP, including data collection and completion of the data form “KLGO Coastal Waterbird Survey Data Form” (Form 1).

Procedures:

1. Prior to the day of the survey, determine the times of high and low tides as well as the weather forecast. Wind is the most problematic weather variable in Skagway. Because it is typically lightest in the morning, and because convection heat waves over water increase through the day, surveys are best conducted as early as daylight and tide will allow.
2. Sampling should be scheduled around a high tide in Dyea such that the survey of Census Unit #7 begins approximately two hours before high tide. The tidal flats in Dyea can be very expansive during low tide, inhibiting the ability of the surveyor to accurately count all shorebirds in the area. By conducting the survey on a rising mid-tide, the surveyor gains the advantage of having the greatest number of shorebirds using the tidal habitat in a more concentrated area for counting. This scheduling also means that Census Unit 1 is conducted during low tide, which allows for the most expansive, yet manageable, intertidal foraging area at the Skagway River mouth.
3. Avoid conducting surveys in high winds or heavy precipitation. These conditions inhibit bird activity and impair your ability to see and hear birds. In general, counts should not be conducted if wind strength on the Beaufort Scale is a sustained 5 or greater (see Table 5.01.1), or if it is raining hard or snowing (rain code ≥ 6 in Table 5.01.2). If you encounter these conditions, wait until the weather improves or else cancel the sampling for the day and try again on another day. If conditions do not improve during the week of scheduled surveys, it may be necessary to endure such weather, especially during migration periods when the possibility of identifying rare species outweighs the cost of relatively inaccurate counts.

4. Begin the census at either CU1 (CU2 if CU1 is not being surveyed due to cruise ship interference) in Skagway or CU7 in Dyea, navigating to the starting point using the survey map (Figure 4.01.1). The order of units surveyed then is 1,2,3,4,5,6,8,7, or the inverse. CU8 is surveyed between CU6 and CU7 because of its proximity to the Dyea road. It is important that the surveys take place in this sequence in order to minimize double counting by reducing travel time between units. Take into account the tides and drive time when choosing the starting census unit.
5. Once you arrive at the starting observation point, begin the count as soon as possible. You can fill in the following location, event, and weather conditions information at the top of the form at the beginning or end of the census unit.

Observers: Record the first and last names of primary and secondary observers.

Census Unit: Record the number of the census unit being surveyed.

Tide State: Record the tide state (High/Mid/Low; Rising/Falling) at the start of the census unit survey. High and low tide are separated by approximately six hours. The high tide category extends from two hours before to two hours after high tide. Similarly, the low tide category extends from two hours before to two hours after low tide. Mid tide consists of the two hours between the high and low tide categories. A rising tide begins at the exact time of low tide and ends at the apex of high tide. A falling tide begins at the exact time of high tide and ends at the nadir of low tide. You may temporarily record “Unknown” in the field, but tides should be referenced and the appropriate categories reentered on the data sheet upon returning to the office.

Temperature: Record the temperature at the starting point of the census unit, rounded to the nearest degree Celsius.

Date (MM/DD/YY): Record the date of the survey in the form Month/Day/Year.

Start Time (24 hour HH/MM): Record the time at start of the census unit survey in 24 hour format using four digits (e.g. 9:00 AM is recorded as 09:00, and 1:00 PM is recorded as 13:00).

End Time (24 hour HH/MM): Record the time at end of the census unit survey in 24 hour format using four digits.

Cloud (0-3): Record the cloud code (0 through 3) from the following Table 4.01.1 as it applies to the cloud cover at the start of the census unit survey. If there is a considerable change in conditions (e.g. greater than two codes), describe the change in the Event Notes section.

Table 4.01.1. Codes used to record cloud cover during bird counts.

Cloud Code	Explanation
0	<i>Clear</i> , less than 10 percent cloud cover
1	<i>Scattered</i> , 10-50 percent cloud cover
2	<i>Broken</i> , 50-90 percent cloud cover
3	<i>Overcast</i> , more than 90 percent cloud cover over entire sky

Precipitation (0-10): Record the precipitation code (0 through 10) from the following Table 4.01.2 as it applies to conditions during the census unit survey. If there is a considerable change in conditions (e.g. greater than two codes), describe the change in the Event Notes section.

Table 4.01.2. Codes used to record precipitation codes during bird counts.

Precipitation Code	Explanation
0	<i>None</i>
1	<i>Fog</i>
2	<i>Drizzle</i>
3	<i>Showers</i> (intermittent rain)
4	<i>Light rain</i>
5	<i>Moderate</i> (steady) <i>rain</i>
6	<i>Heavy rain</i>
7	<i>Sleet</i>
8	<i>Light snow</i>
9	<i>Moderate snow</i>
10	<i>Heavy snow</i>

Wind Speed (0-5): Record the wind code (0 through 5) from the following Table 4.01.3 as it applies to the strength of the wind during the census unit survey. Record the average wind condition during the survey, not the maximum condition (do not worry about gusts).

Table 4.01.3. Codes (Beaufort scale) used to record wind strength during bird counts.

Wind Code	Wind Speed (miles/hour)	Explanation
0	Less than 1	Air calm; smoke rises vertically
1	1 to 3	Direction of wind shown by smoke drift
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

Wind Direction: Record the direction from which the wind is coming during the census unit survey in degrees, to the nearest 5 degrees (e.g. 353 degrees should be recorded as 355 degrees, and 352 degrees should be recorded as 350 degrees). For an exact north wind, use 0 degrees instead of 360 degrees.

Wave Height (0-5): Record the wave height code (0 through 5) from the following Table 4.01.4 that applies to the conditions during the census unit survey.

Table 4.01.4. Codes used to record wave height during bird counts.

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

Event Notes: Record any significant notes about the census unit survey, such as a considerable change in weather, visibility impediments, breaks in the survey, or cancellation of the survey.

- Both binoculars and spotting scope should be used. It is often best to do an initial scan with binoculars in order to quickly note the positions of birds before any movement occurs. If possible, scan continuously from one end of the census unit to the other before doubling back to check unsure identifications. The spotting scope is necessary for viewing the far sides of all census units, so it should be carried in all census units. Make sure to listen for bird calls and frequently scan your surroundings with a naked eye, as flyovers are often missed when using only magnified lenses. Waterbirds that are only aurally detected should be recorded as such if identifiable.
- For each bird heard or seen, record the following information on the "KLGO Coastal Waterbird Survey Data Form":

Species: Record the four letter AOU common name code of the species detected (e.g. BAEA for Bald Eagle). Codes for species known to occur in Klondike Gold Rush NHP are listed in the appendix of the protocol narrative. A full list of AOU codes can be found at T:\NRM\Birds\Misc\Alpha Codes. Several individuals of a single species can be recorded on more than one line if needed.

Number: Record the number of individuals counted for each species detected.

Age: Record the age category (Adult, Immature, Juvenile, Mixed, Unknown) of the individuals counted. "Immature" is used for species with multi-year maturation periods such as gulls and eagles, as well as male ducks in 1st winter plumage. If the year of immaturity is known, record in the notes for that individual (e.g. 1st; 2nd; 3rd; 1st winter). "Mixed" should be used only when

multiple age groups are present and individual identification is not possible, such as large feeding groups of diving ducks.

Composition (Sex): Record the sex (Male, Female, Female/Juvenile, Mixed, Unknown) of the individuals counted. “Female/Juvenile” can be used for species with juvenile males so close in appearance to adult females that distinguishing between the two is not possible. “Mixed” should be used only when multiple age groups are present and individual identification is not possible, such as large feeding groups of scoters.

Breeding Status: Record the breeding criteria code for the individuals counted. If multiple pairs are discernible within a larger group of individuals, note the number of pairs separate from the other individuals.

Observations: Record any noteworthy behavioral observations, identifying features, or general comments that seem appropriate and that might help someone interpret and analyze the data correctly.

8. If an unidentified species was seen in the field and characteristics were recorded for later identification, that process should take place in the office immediately following the survey using reference materials.

BREEDING CRITERIA CODES:

Code¹ — Evidence

OBSERVED:

O—Species (male or female) observed in a block during its breeding season, but no evidence of breeding. Not in suitable nesting habitat. Includes wide ranging species such as vultures or raptors, or a colonial nesting species not at the nesting colony.

POSSIBLE:

X—Species (male or female) observed in suitable nesting habitat during its breeding season.

XS—Singing/drumming/booming male present in suitable nesting habitat during its breeding season.

XT—Multiple singing males of a species, evenly spaced in suitable nesting habitat during their breeding season.

PROBABLE:

P—Pair observed in suitable habitat during its breeding season.

S—Permanent territory presumed through song at same location on at least two occasions 7 days or more apart.

T—Permanent territory presumed through defense of territory (chasing individuals of the same species).

C—Courtship behavior or copulation.

N—Visiting probable nest-site.

A—Agitated behavior or anxiety calls from adult.

B—Nest building by wrens or excavation of holes by woodpeckers.

CONFIRMED:

CN—Carrying nesting material, such as sticks or other material. Please submit full details including location within the block of the observation.

NB—Nest building at the actual nest-site.

PE—Physiological evidence of breeding (e.g. highly vascularized, edematous incubation [brood] patch or egg in oviduct based on bird in hand. To be used by experienced bird banders on local birds during the nesting season).

DD—Distraction display or injury feigning.

UN—Used nests or eggshells found. Caution: these must be carefully identified, if they are to be accepted.

PY—Precocial young. Flightless young of precocial species restricted to the natal area by dependence on adults or limited ability.

FL—Recently fledged young (either precocial or altricial) incapable of sustained flight, restricted to natal area by dependence on adults or limited mobility.

ON—Occupied nest: adults entering or leaving a nest site in circumstances indicating occupied nest. To be used for nests which are too high (eg the tops of trees) or enclosed (eg chimneys) for the contents to be seen.

CF—Carrying food: adult carrying food for the young.

FY—Adult feeding recently fledged young.

FS—Adult carrying fecal sac.

NE—Nest with egg(s).²

NY—Nest with young seen or heard.²

Notes:

1. The letter code is entered by the field workers in the appropriate space on the field report form. Possible and Probable categories are represented by single letters or a symbol. Confirmed by double letters. Letters have been selected as a mnemonic aid, keyed to bolded words in criteria definitions.

2. Presence of cowbird eggs or young is confirmation of both cowbird and host species.

KLGO Coastal Waterbird Survey Data Form

Observer(s) _____

Census Unit #		Tide State:	HIGH-TIDE	MID-TIDE	LOW-TIDE	R	F	U
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Date

Month	

 /

Day	

 /

Year	

 Start Time

 (24 hours)
End Time

 (24 hours) Temp

 °C

Wind: 0 1 2 3 4 5 Cloud: 0 1 2 3 Precip: 0 1 2 3 4 5 6 7 8 9 10

WDir:

--	--	--

 ° Wave Height: 0 1 2 3 4 5 Event Notes:

[illegible]

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 vanes.
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.

TIDE STATE:

R	<i>Rising</i>
F	<i>Falling</i>
U	<i>Unknown</i>

CLOUD COVER CODES:

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

PRECIPITATION CODES:

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

WAVE/SWELL HEIGHT CODES:

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

BREEDING CRITERIA CODES:Code¹ — Evidence**OBSERVED:**

O—Species (male or female) observed in a block during its breeding season, but no evidence of breeding. Not in suitable nesting habitat. Includes wide ranging species such as vultures or raptors, or a colonial nesting species not at the nesting colony.

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XT—Multiple singing males of a species, evenly spaced in suitable nesting habitat during their breeding season.

PROBABLE:

P—Pair observed in suitable habitat during its breeding season.

S—Permanent territory presumed through song at same location on at least two occasions 7 days or more apart.

T—Permanent territory presumed through defense of territory (chasing individuals of the same species).

C—Courtship behavior or copulation.

N—Visiting probable nest-site.

A—Agitated behavior or anxiety calls from adult.

B—Nest building by wrens or excavation of holes by woodpeckers.

CONFIRMED:

CN—Carrying nesting material, such as sticks or other material. Please submit full details including location within the block of the observation.

NB—Nest building at the actual nest-site.

PE—Physiological evidence of breeding (e.g. highly vascularized, edematous incubation [brood] patch or egg in oviduct based on bird in hand. To be used by experienced bird banders on local birds during the nesting season).

DD—Distraction display or injury feigning.

UN—Used nests or eggshells found. Caution: these must be carefully identified, if they are to be accepted.

PY—Precocial young. Flightless young of precocial species restricted to the natal area by dependence on adults or limited ability.

FL—Recently fledged young (either precocial or altricial) incapable of sustained flight, restricted to natal area by dependence on adults or limited mobility.

ON—Occupied nest: adults entering or leaving a nest site in circumstances indicating occupied nest. To be used for nests which are too high (eg the tops of trees) or enclosed (eg chimneys) for the contents to be seen.

CF—Carrying food: adult carrying food for the young.

FY—Adult feeding recently fledged young.

FS—Adult carrying fecal sac.

NE—Nest with egg(s).²

NY—Nest with young seen or heard.²

Notes:

1. The letter code is entered by the field workers in the appropriate space on the field report form. Possible and Probable categories are represented by single letters or a symbol. Confirmed by double letters. Letters have been selected as a mnemonic aid, keyed to bolded words in criteria definitions.

2. Presence of cowbird eggs or young is confirmation of both cowbird and host species.

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 vanes.
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.

TIDE STATE:

R Rising
F Falling
U Unknown

CLOUD COVER CODES:

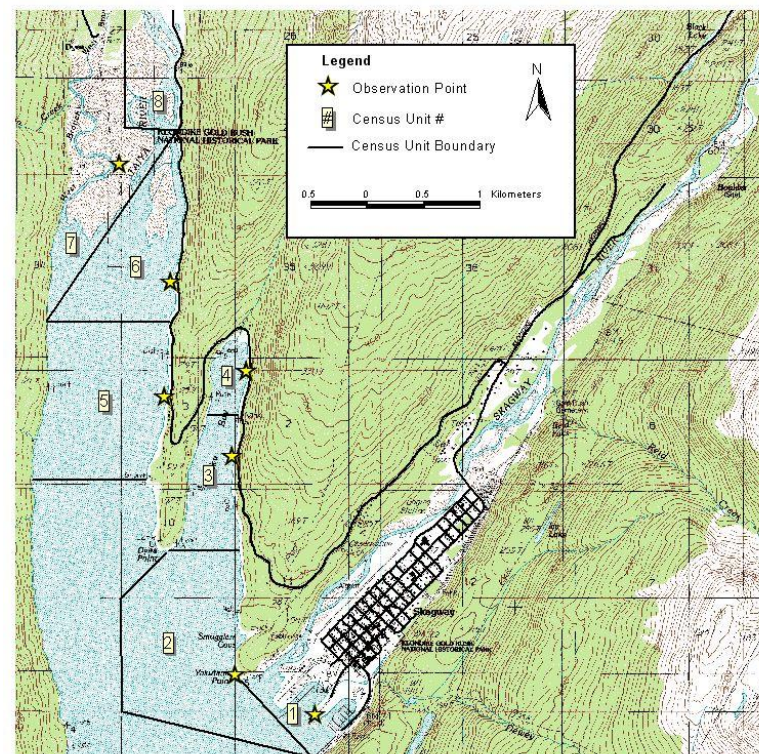
0 Clear, less than 10 percent cloud cover.
1 Scattered, 10-50 percent cloud cover.
2 Broken, 50-90 percent cloud cover.
3 Overcast, more than 90 percent cloud cover over entire sky.

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.



KLGO COASTAL WATERBIRD SURVEY

Census Unit Descriptions

CENSUS UNIT #1

Skagway Harbor Area and River Mouth.--Start the survey by walking from the Harbor Master's office down the small boat harbor access ramp south to the docks. Continue walking along the east dock to the end looking down each slip sequentially (make sure to look for gulls on the tops of poles). Turn right and continue to the end of the south dock to the small boat harbor entrance. From there, turn around and walk back up the south ramp and out onto the harbor breakwall to near the end. Scan the outer harbor area to just beyond the east ship dock where the shoreline curves inward and disappears from view (make sure to look for waterfowl beneath the dock amongst the pilings).

When finished, walk back along Congress Way around the small boat harbor to the State Ferry Terminal parking lot. From there, walk around the north end of the ship harbor scanning beneath the pilings and then back along the west sidewalk south to the northwest corner of the Ferry Terminal. Scan the rest of the outer harbor area out parallel to Yakutania Point. Then, take a quick walk around the Terminal out onto the Ferry dock.

Next, walk back up Broadway and take the sidewalk along the railroad tracks northwest to the Skagway River foot bridge that goes to Yakutania Point. Survey up river to the end of the airport runway and downstream to the river mouth (look for shorebirds on the east side of the river below Temsco Helicopters where there is a small tidal wetland area). Continue walking across the foot bridge and down the foot path toward Yakutania Point. Where the path turns right to go to Yakutania Point, continue straight ahead out onto the rocky point on the west side of the river. This gives a good view of the river mouth and the small beach area to the north. This completes this section of the survey.

Survey Tips

Surveying from the south side of the weather station beyond the airport terminal parking lot provides a wide view of the river mouth.

Watch for shorebirds (spotted sandpipers, solitary sandpipers, and wandering tattlers) in the rocks at the river mouth. They can be difficult to see.

Look carefully for mergansers upriver from the foot bridge. They are often resting on gravel bars or eddies.

CENSUS UNIT #2

Yakutania Point.--Walk out onto the end of Yakutania Point and survey the area in a line out to just beyond the end of the east ship dock where the shoreline curves inward and is not visible from the harbor area in a triangle approximately 1.6 km southwest of Yakutania Point. Continue scanning out 1.6 km west of the point in an arc to Dyea Point and across the mouth of Nahku Bay.

After surveying this section, walk across the gravel beach immediately to the north of Yakutania Point and up onto the large rock outcrop. From the top of the rocky outcrop, survey the rest of the shoreline and small cove not visible from the point. This completes this section of the survey.

Survey Tips

Survey from as far out on the rocky point as possible in order to maximize your field of vision.

Scoters, scaup, and red-necked grebes are often along the west shore of Taiya Inlet at the limit of visibility with the spotting scope.

Arctic terns and gulls frequently fly overhead across the point, so be aware of your immediate surroundings.

Spotted sandpipers are sometimes on the rocks in the small cove north of the point proper.

Marbled murrelets are usually scattered throughout the entire census unit and are difficult to see if significant waves are present.

CENSUS UNIT #3

Outer Nahku Bay.--The observation point for this section is at the northern end of the large pullout at Mile 5 of the Dyca Road. There is a rock promontory on the other side of the guard rail that provides a good overlook. Survey the outer two-thirds of the bay beginning at the entrance to the bay demarcated by Dyca Point to the large rock outcrop on the west shore directly below the black house on the ridge above. Survey the outer bay to the point where the outcrop breaks the small bench along the shore.

Survey Tips

Marbled murrelets are usually near the mouth of the bay and can be difficult to see.

Harlequin ducks are sometimes resting on the west shore of the bay.

Spotted sandpipers are sometimes feeding along the west shore of the bay – it is important to scan the entire west shoreline for these and other birds.

Bald eagles are often perched higher up in the trees on the west slope above the bay.

CENSUS UNIT #4

Inner Nahku Bay.--The observation point for this section is at the last little pullout on the west side of the road (actually just a small widening of the road) before the beach. Survey the inner one-third of the bay beginning at the large rock outcrop on the west shore directly below the black house on the ridge above.

Survey Tips

Spotted sandpipers are sometimes feeding along the west shore of the bay, and shorebirds are often on the beach at the end of the bay – it is important to scan the entire shoreline.

CENSUS UNIT #5

Upper Taiya Inlet.--This section is best surveyed when the water is calm and glassy as many waterbirds prefer the west shore. It is also best to survey this section at low tide when the birds are concentrated.

Begin by parking at the small pullout next to a rock promontory on the west side of the Dyea Road at Mile 7. Walk south along the road approximately 30 m to the side road on the west. Walk down the side road a short distance to a gate and then walk west to the edge of the ridge along the Inlet. Follow the ridge south about 20 m to a large open rock outcrop with the remains of a large old wooden tripod probably used as a boom or hoist of some kind. This is the primary observation point for this section. Begin the survey from an east-west line directly across from the southernmost visible point on the east shore (i.e., the next point north of Dyea Point). Survey the upper Inlet to an east-west line directly across from the derelict trespass cabin. This point is roughly demarcated by a rock outcrop on the west shore where a section of rock has fallen away revealing reddish-toned rock beneath.

Survey the east shore that is not visible from the tripod for this section from the rock promontory at the parking pullout. This completes this section of the survey.

Survey Tips

There are typically large numbers of marbled murrelets in this census unit. They can be difficult to see if significant waves are present.

Look for red-necked grebes, horned grebes, loons, and other divers along the very west side of the inlet at the limit of visibility with the spotting scope.

Look for spotted sandpipers, mergansers, harlequin ducks, and other birds on the rocks along the east shore, south of the observation point.

CENSUS UNIT #6

Taiya River Mouth.--Just north of the derelict trespass cabin there is a large pullout on the east side of the road at a utility pole. Directly kiddy-corner from this pullout there is a small pullout (actually just a small widening of the road) on the west side of the road approximately 30m north. Park here and walk down a fairly steep embankment to the shoreline. There is a large flat rock exposed during low tide just to the south that provides a good vantage point of the upper Inlet. The observer may also pick another suitable vantage point if the rock slab is not accessible. Survey the triangle formed by a northeast line beginning on the west shore directly across from the trespass cabin demarcated by a rock outcrop on the west shore where a section of rock has fallen away revealing reddish-toned rock beneath to the southwest corner of the Taiya River mouth. This observation point gives a good view of the head of the Inlet.

Drive north along the Inlet from the pullout, looking for birds along the shoreline below that was not visible from the last observation point. Continue past a large pullout on the west side of the road above the mouth of the river to several small pullouts (actually just small widenings of the road) on the west past the last shrubs that block the view. Survey the mouth of the river from here. The determination of the mouth of the river will depend on the tide.

The end of this section is upstream to the point where the river starts to curve to the west in a large S-curve and a vegetated cut-bank begins on the west bank. Toward the end of the S-curve, a higher-benched cut-bank begins.

Survey Tips

Another route to the first observation point is to park at the large pullout on the east side of the road as it begins to turn left at the beginning of the S-curve. Walk 20 m south to the west side of the road where there is a culvert. Descend the road bank just north of the culvert and make your way through the trees to the shoreline where there is a relatively flat rock that serves as the first observation point.

Another suggested observation point is from the north end of the pullout with an interpretive sign, on the west side of the road just before the descent to the river. This is a great place to count the gulls that gather in large groups on the southern spits of sand and gravel.

It is also suggested that the surveyor use the small knoll at the south end of Hackett Hill as the final observation point for this census unit (and as the first observation point for CU8). Use the first pullout on the west side of the road after beginning the ascent up Hackett Hill.

During lower tides, take care not to accidentally count birds that in fact are in CU7. Avoid this by drawing an imaginary line between the reddish rock face and the south end of Hackett Hill.

Look for bald eagles perched in the trees on the east side of the inlet along the roadway.

Look for spotted sandpipers, solitary sandpipers, and other shorebirds along the shorelines at the mouth of the river.

CENSUS UNIT #8

Taiya River.--Survey from where a large S-curve begins as described above in the section Taiya River Mouth. This section ends at the farthest point upstream visible from the Chilkoot Trailhead at the Taiya River Bridge. Note birds as being either below or above the bridge.

Survey Tips

While at first glance this may seem like a rather empty census unit, the seasoned surveyor will usually find a good number of birds by thoroughly searching the banks of the river.

Suggested observation points include the last point in CU6; the last pullout on the west side of the road before reaching the bottom of Hackett Hill on the north side; the east bank around the rafter's pullout; the Chilkoot Trail trailhead; and the Taiya River bridge, facing south.

Look for mallards resting on the river banks at the south end of the census unit.

Look for spotted sandpipers, solitary sandpipers, and yellowlegs along the east rockwall at the south end of the census unit, in the wetlands in the same area, and along all shorelines north to the Dyea campground area.

Look for teal and other dabblers in the wetlands mentioned above.

Look for mergansers north of the rafter's pullout and north of the Taiya River bridge.

Look for bald eagles in and around the two nests west of the Dyea campground area on the west side of the river.

Look for belted kingfishers just north of the Taiya River bridge.

CENSUS UNIT #7

Nelson Creek Mouth and Taiya Flats.--Drive along the dirt road out onto the flats and park at the point where the road goes alongside Nelson Creek, at a bend in the creek just before a sharp dip in the road. From here, walk along the east side of the creek to its mouth, surveying the creek as well as the flats. Survey the triangle at the head of the Inlet formed by a line beginning at a rock outcrop on the west shore where a section of rock has fallen away revealing reddish-toned rock beneath, directly across from the derelict trespass cabin on the eastern shore, to the southwest corner of the Taiya River mouth. If the upper Inlet was surveyed at low tide, most birds except dabblers near the creek mouth will have been counted.

Continue walking the shoreline east of the creek mouth along the beach dunes in a wide circle back to the parking area. Dabbling ducks in this section will be flighty, so it is best to get counts from a distance before birds are flushed. This completes this section.

Survey Tips

Look for spotted sandpipers, solitary sandpipers, yellowlegs, and least sandpipers along the edge of the creek near the start of the census unit. Also look well ahead for mallards, teal, and other dabblers before accidentally flushing them.

Look for belted kingfishers near the waterfall in the southwest corner of the flats.

Look for bald eagles in the trees above the southwest flats.

Look for plovers, least sandpipers, and rare shorebirds along the south and southeast shores of the flats. Many uncommon sightings were in this area.

Walk along the shore at water's edge in the southeast flats to flush any peeps and snipes that are not readily visible.

Survey Notes.--The Skagway harbor and River mouth, and Yakutania Point can be surveyed in 3-4 hours. It is best to survey this area very early in the morning before cruise ship passenger, boat, and helicopter traffic picks up. Currently, the harbor area from the railroad dock to the ore dock in Census Unit 1 should not be surveyed while cruise ships are present. However, the Skagway River and river mouth should continue to be surveyed as usual, noted as such on the data sheets.

Nahku Bay, upper Taiya Inlet, Taiya River, Nelson Creek, and Taiya Flats can be surveyed in 5-8 hours depending on the number of birds present. While it is less than desirable to complete the census over the course of two days, it is absolutely essential that the upper Inlet, Taiya River, Nelson Creek, and Taiya Flats

be surveyed on the same day. It is best to start surveying the upper Inlet on a rising mid tide when tidal habitat is abundant but birds are concentrated. The ideal time would be two hours before high tide.

These surveys are best conducted on sunny, calm days when visibility is excellent. However, Skagway is hardly known for having agreeable weather, and winds tend to pick up mid- to late morning. Therefore, it is best to start as early as possible, taking into consideration the tide and daylight, and avoiding the convection waves that form over the water in the heat of the day. It is easy to see and count birds, especially small species such as the marbled murrelet, or distant birds, when the water is glassy. It is equally easy to miss these birds when the waves have picked up and the wind is shaking the spotting scope.

Appendix B Historic Bald Eagle Nest Site Descriptions

CT01 – The nest is located in a cottonwood tree on the east side of the Chilkoot Trail, approximately 1.5 miles from the trailhead. It is very difficult to see and is best sighted before the leaves come out on the vegetation. Walk just north of the second wooden bridge on the trail, then look east-southeast to find it. It may not be observable later in the summer because of the thick vegetation.

DY01 – The nest was mapped almost directly across the Taiya Inlet from the coastal waterbird census unit 5 observation point. It could not be located in 2009 or 2011.

SK01 – The nest was mapped east of the Skagway small boat harbor but could not be located in 2009 or 2011.

TR01 – The nest is located near the top of a cottonwood tree approximately 30 m above ground level on the west bank of the Taiya River, across from the NPS Dyea Campground. The nest is approximately 4 ft in diameter (widest point at outer rim) and 3 feet deep (external base to top or rim). It can be viewed without disturbance from the east at the TR01 boreal toad monitoring site adjacent to the Taiya River. It can also be viewed at a greater distance from the river bank west of the Dyea Road, just south of the NPS Dyea Campground turnoff. Larger nestlings can be seen from these viewing points, but eggs are too low in the nest to be seen. TR01 could not be located in 2011, and appears that the nest or nest tree is no longer standing.

TR02 – The nest is located in a cottonwood tree on the west bank of the Taiya River, just north of the NPS Dyea Campground. It can be viewed from east on the Taiya River bridge. Nestlings can probably be seen from this viewing point, although eggs are too low in the nest to be seen.

TR03 – The nest is located in a cottonwood tree approximately 20 m above the ground on the west bank of the Taiya River, south of the West Creek confluence and north of the Kalvick House. The nest is approximately 6 ft in diameter and 4 ft deep. It can be viewed from the north on the west bank of the Taiya River, which is approached through the gravel quarry on the east side of the Dyea Road just south of the West Creek bridge. Nestlings can probably be seen from this viewing point, although eggs are likely too low in the nest to be seen.

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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