

NOTES ON THE BIRDS OF CHIRIKOF ISLAND, ALASKA

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ABSTRACT: Isolated in the western Gulf of Alaska 61 km from nearest land and 74 km southwest of the Kodiak archipelago, Chirikof Island has never seen a focused investigation of its avifauna. Annotated status and abundance for 89 species recorded during eight visits 2008–2014 presented here include eastern range extensions for three Beringian subspecies of the Pacific Wren (*Troglodytes pacificus semidiensis*), Song Sparrow (*Melospiza melodia sanaka*), and Gray-crowned Rosy-Finch (*Leucosticte tephrocotis griseonucha*). A paucity of breeding bird species is thought to be a result of the long history of the presence of introduced cattle and introduced foxes (*Vulpes lagopus*), both of which persist to this day.

Unique among sizable islands in southwestern Alaska, Chirikof Island (55° 50' N 155° 37' W) has escaped focused investigations of its avifauna, owing to its geographic isolation, lack of an all-weather anchorage, and absence of major seabird colonies. In contrast, nearly every other sizable island or group of islands in this region has been visited by biologists, and they or their data have added to the published literature on birds: the Aleutian Islands (Gibson and Byrd 2007), the Kodiak archipelago (Friedmann 1935), the Shumagin Islands (Bailey 1978), the Semidi Islands (Hatch and Hatch 1983a), the Sandman Reefs (Bailey and Faust 1980), and other, smaller islands off the Alaska Peninsula (Murie 1959, Bailey and Faust 1981, 1984). With the exception of most of the Kodiak archipelago these islands form part of the Alaska Maritime National Wildlife Refuge (AMNWR), and many of these publications are focused largely on seabirds. Additional, unpublished information is archived at various institutions, principally the University of Alaska Museum (UAM) in Fairbanks and the AMNWR in Homer.

Historic and recent sources, without exception focused at a larger geographic scale or directed primarily at other aspects of the island, have provided only glimpses of Chirikof's avifauna (see Dall 1874, Workman 1966, 1969, SOWLS et al. 1978, Gideon 1989, Khlebnikov 1994; see also Gabrielson and Lincoln 1959, Murie 1959). Indeed, Vitus Bering's having denied Georg Wilhelm Steller permission to go ashore at Chirikof while they lay at anchor nearby on 2 August 1741 (Golder 1925) seems to have foreshadowed the next 270 years of missed opportunities there. Chirikof's proximity to some of the most productive islands and marine waters in this region suggests that a focused inventory would provide a valuable addition to our knowledge of the avifauna of southwestern Alaska.

STUDY AREA

The geologic terminus of the Kenai Peninsula's Chugach Mountains (Nilsen and Moore 1979), Chirikof Island lies 135 km southeast of the nearest projections of the Alaska Peninsula (capes Kumlik, Kunmik, Kuyuyukak, and Providence). The Semidi Islands, hosting the largest concentration of breeding seabirds in the western Gulf of Alaska (Hatch and Hatch 1983a),

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lie 61 km to the west-northwest and are the nearest neighboring island group. Tugidak Island, designated a “critical habitat area” by the state of Alaska (ADFG 1995) and part of the Kodiak archipelago, lies 74 km to the northeast (Figure 1).

Chirikof, 17 km long and 12 km wide, encompasses nearly 132 km² with 51.5 km of coastline, 32 km of which is sandy beach, the rest rocky coast backed by cliffs (Figures 2, 3). Vegetation (see Hultén 1968) is predominantly grasses and shrubs, with heath at some higher elevations. Lupine (*Lupinus nootkatensis*) and cow parsnip (*Heracleum lanatum*) dominate the lowlands in summer, probably because of the reluctance of feral domestic cattle (see MacDonald and Cook 2009) to eat these species. Salmonberry (*Rubus spectabilis*) and willows (*Salix* spp.) grow on a few protected slopes and valleys. Nearly everywhere the vegetation is heavily grazed by cattle, including the steep slopes along the southern and eastern coasts, which are heavily terraced from many years of cattle traffic and hold only a few areas inaccessible to cattle (Figure 3). Many areas of sandy, denuded soil pocket the perimeter of the island, where vegetation has been unable to take hold or persist. Three lakes, of 51, 34, and 21 hectares, and about a dozen smaller ponds are present. There are several marshy areas, one of which (Southwest Marsh), was a lake as recently as 1874 (Lindenkohl 1875).

Over time Chirikof has supported and continues to support several species of introduced mammals. Human presence on the island goes back at least 4000 years (Workman 1966, Saltonstall and Steffian 2005). Feral domestic cattle, the most conspicuous aspect of the island’s fauna, are common and

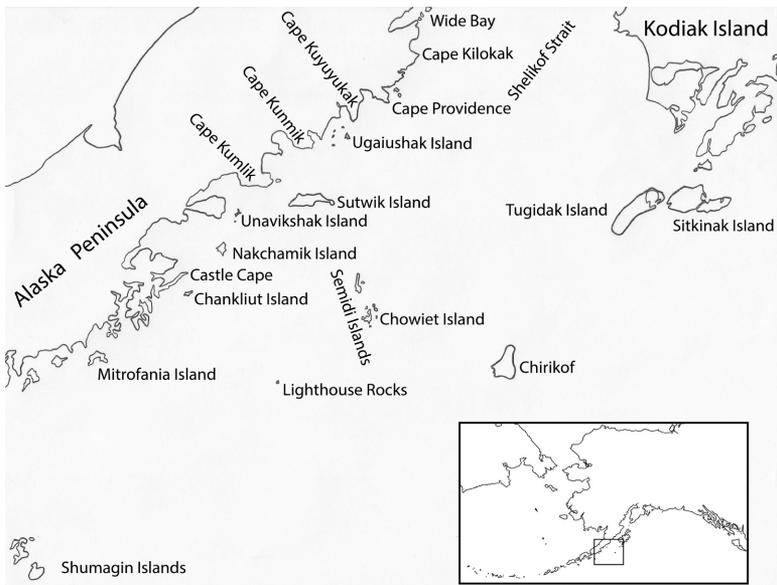


Figure 1. Chirikof Island and vicinity in the western Gulf of Alaska.

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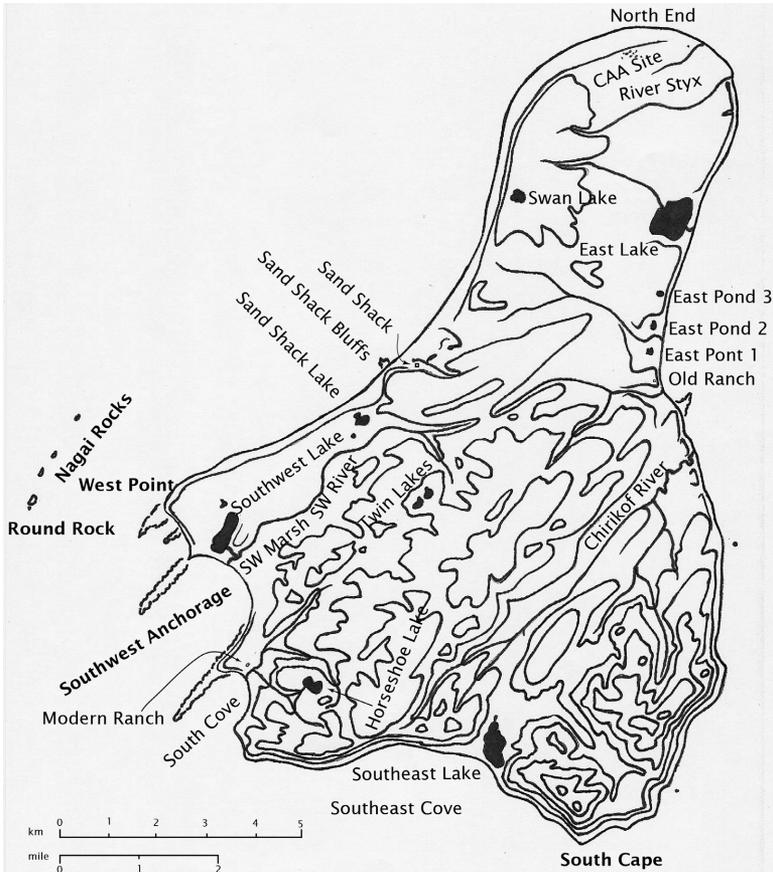


Figure 2. Map of Chirikof Island with place names used in text. Bold names are those appearing on USGS topographical maps, the others are mostly my own uninventive neologisms. Complete contour lines are 200 feet apart, open-ended lines are an approximate 75-foot contour representing coastal bluffs.

widespread. Sources vary on when exactly cattle were introduced, but it was likely in the late 1880s or early 1890s (see Fields 2000). Estimates of recent and historic cattle numbers vary considerably but it is likely that there have been hundreds of cattle for over a century, degrading the local vegetation significantly. Arctic foxes (*Vulpes lagopus*) are common around the island, also having been introduced in the late 1880s or early 1890s (see Keithahn 1962, Bailey 1993, Fields 2000). Likely because of historical introduction by humans, Chirikof supports a thriving population of arctic ground squirrels (*Spermophilus parryii*), which are common and widespread (Clark 2010; see also MacDonald and Cook 2009, Cook et al. 2010, Galbreath et al. 2011) and have been present for thousands of years (Saltonstall and

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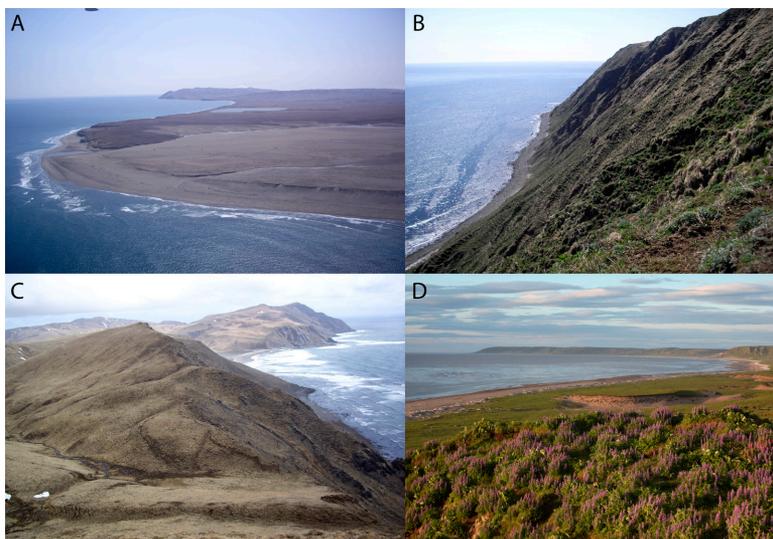


Figure 3. Landscape photographs of Chirikof Island. A, view south down east side over denuded North End, 8 May 2009. B, 600-foot cliffs of western Southeast Cove. Notice terracing by cattle, one of which is barely visible in center of photo, 3 June 2012. C, view east over Southeast Cove toward Southeast Lake and South Cape, cattle trails again in evidence, 13 May 2008. D, view northeast along west side, Sand Shack Bluffs in background right, 7 July 2013.

All photos by Jack J. Withrow, except D, by Patrick G. Saltonstall

Steffian 2005; Samantha Dunning, Univ. Alaska, in litt. 2014). Besides the introduced ground squirrels, I observed no small mammals (e.g., shrews or voles), nor have they been recorded from the island (MacDonald and Cook 2009). Various other domestic animals (e.g., dogs and feral horses) have been present in association with humans, often persisting after their departure, although neither is currently extant. These introductions have had important effects on the island's avifauna. Pink salmon (*Oncorhynchus gorbuscha*), silver salmon (*O. kisutch*), and char (*Salvelinus* sp., probably Dolly Varden [*S. malma*]) occur in the Southwest River, and probably in the Chirikof River as well. Several smaller streams may also support runs of anadromous fish at times (Johnson and Blanche 2011; pers. obs.).

METHODS

My observations were made during the course of eight trips to Chirikof: 12–17 May 2008, 3–8 May 2009, 1–6 May 2010, 24–25 August 2010, 13–18 May 2011, 30 May–4 June 2012, 4–12 July 2013, and 10–15 May 2014. On most trips I covered 30–50 km by walking, generally along beaches, although I transited various upland areas at least once each trip and checked most large lakes each year. I noted relative abundance and distribu-

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tion but did not conduct censuses. These observations were supplemented by collection of birds deposited at UAM. I directed little attention to waters more than 100 m from shore. Round Rock and Nagai Rocks lie ~2.5 km from West Point (Figure 2), and although I scanned these rocks with a 40× spotting scope in 2013 and 2014, the numbers and diversity of birds breeding there was difficult to assess, although they held the greatest abundance and diversity of seabirds on the island, while Chirikof Island proper generally lacked such activity. Unpublished reports I cite are on file at UAM, at ARLIS (Alaska Resources and Information Services Library) in Anchorage, and/or the responsible institution.

Conventions Used in Species Accounts

Subspecies of polytypic species, following Gibson and Withrow (in press), are given parenthetically when a specimen is lacking or when despite a specimen the subspecies is only inferred. The brevity of most trips, and their limited seasonal scope, made determining the status and relative abundance of many taxa problematic; hence I generally assess only status. For a few regularly encountered species I qualify abundance and give examples of normal and/or high counts. Species are denoted as breeders only when I found definite evidence (e.g., nest, shelled egg in oviduct, passerines in juvenal plumage). Species with less than conclusive evidence are qualified with “probable” or “possible.” “Probable” means I observed circumstantial evidence of breeding such as seabirds approaching or perched on cliffs, defensive behavior, copulation, strong site fidelity, etc. “Possible” means that the species was present during the breeding season and part of the known breeding assemblage of the surrounding region, but I saw no other evidence of breeding. A few taxa are given this qualifier on the basis of historical reports.

Comments on a species' status in the broader area of southwestern Alaska, where useful, are given in NOTES. Unattributed statements about status in the Kodiak archipelago are from my own observations, unpublished data at UAM, and discussions and correspondence with Richard A. MacIntosh; information on Tugidak Island (MacIntosh, in litt., 1995; see also ADFG 1995) was particularly useful. Observations are generally arranged by calendar date. A “pair” denotes a male and a female. Capitalized place names appear in Figure 2.

SPECIES ACCOUNTS

Anser albifrons (sponsa). Greater White-fronted Goose. Spring migrant. Representative counts: eight on 1 May 2010 with Brant and Cackling Geese; six on 3–4 May 2009 with Brant; four on 11–13 May 2014; and 20 on 15–16 May 2008. SPECIMENS (2): UAM 35427, second-year ♂, 11 May 2014; UAM 35428, adult ♀, 13 May 2014. The specimens are small (exposed culmen 50.8 and 47.1 mm, respectively), fitting the description of this recently described subspecies (Banks 2011), the closest nesting form.

Chen canagica. Emperor Goose. Spring migrant. Representative counts: 55+, 35, and 35+ on 1 May, 2 May, and 4–5 May 2010, respectively; 20 on 3 May 2009; 17 on 12 May 2008; a few on 13 May, and two on 14 May 2011. Not recorded in 2012, 2013, or 2014.

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Branta bernicla nigricans. Brant. Spring migrant. Maximum counts: 100 on 16 May 2011; 100+ with similar numbers of Cackling Geese on 1 May and 3–4 May 2009. Present every year except 2013. SPECIMENS (2): UAM 28235, sex?, 13 May 2008; UAM 35429, [adult ♀], 1 May 2010 (banded July 2009 near Chevak, Yukon River delta). NOTES: Brant are common spring migrants in the Kodiak archipelago.

Branta hutchinsii leucopareia. Cackling Goose. Spring migrant. Maximum counts: ~125 with a like number of Brant on 1 May 2010; 30–40 on 12–13 May 2008; 29 on 17 May 2011. One was seen 8 July 2013. SPECIMEN (1): UAM 24724, ♂, 13 May 2008. NOTES: Most birds had white neck rings. A small population nests at Kiliktagik and Anowik islands, in the Semidi Islands (Hatch and Hatch 1983b; Kaliktagik = Kiliktagik), but the numbers of birds at Chirikof and their association with other migrants suggested that most of these birds were on their way to the Aleutians and not part of the Semidi population. A lone pale-breasted white-cheeked goose, lacking a neck ring and appearing larger than *leucopareia*, at Southeast Lake on 5 May 2010 was likely *B. h. parvipes* or *B. canadensis taverneri*.

Cygnus columbianus (columbianus). Tundra Swan. Spring migrant and breeder. Largest aggregations were 10 on 31 May 2013, eight on 2 May 2010, and seven on 2 June 2012. Usually three or four pairs present on the island. Nest sites included Swan Lake (nest with 5 eggs on small island, 31 May 2012), East Lake (pair with four cygnets, 4 July 2013), Southwest Marsh (pair with three cygnets, 7 July 2013; nest with 4 eggs, 11 May 2014), and Sand Shack Lake (nest with 2 eggs, 11 May 2014). At least 12 swans present on the island on 24 August 2010 included a family of five on Southwest Lake. NOTES: Tundra Swans nest in the southern Kodiak archipelago, including Tugidak, and on the Alaska Peninsula (Murie 1959, Gill et al. 1981), and they have nested elsewhere south of the Alaska Peninsula on Sutwik and Chankliut islands (Bailey and Faust 1981). Their ability to defend nests and young from foxes probably explains their status as the most frequent nesting species of waterfowl at Chirikof.

Anas strepera. Gadwall. Spring migrant. Only records are of a pair on 4–6 May 2010, one male on 5 May 2009, and three on 14 May and 16 May 2011. NOTES: The Gadwall is a fairly common breeder on the Alaska Peninsula (Murie 1959, Kessel and Gibson 1978, Gill et al. 1981) and has nested in the Sandman Reefs (Bailey and Faust 1980), the Shumagins (Bailey 1978, Byrd 2001), and on Tugidak.

Anas penelope. Eurasian Wigeon. Spring migrant. Only records are of five with a male American Wigeon on 1 May 2010, a pair still present 4–6 May, and one male on 12 May 2014. SPECIMEN (1): UAM 27023, adult ♂, 1 May 2010. NOTES: The Eurasian Wigeon is a rare but regular migrant on Kodiak and in the eastern Aleutians (Gibson and Byrd 2007).

Anas americana. American Wigeon. Spring and fall migrant in pairs or small flocks (maximum was nine on 12 May 2008 and six on 3 May 2009, both at Southwest Lake). Not recorded in 2012 or 2013. Present on 24 August 2010 at Southwest Lake. NOTES: The American Wigeon nests regularly on the Alaska Peninsula (Gill et al. 1981) and in the Kodiak archipelago, including Tugidak.

Anas platyrhynchos (platyrhynchos). Mallard. Spring migrant and possible breeder. Seen irregularly and in small numbers (maximum eight on 1 May 2008 and 10–14 May 2014; at least six on 1 June 2012). NOTES: Pairs and lone males late in spring suggested local nesting of this common breeder throughout the Aleutians (Gibson and Byrd 2007), the Alaska Peninsula (Murie 1959, Gill et al. 1981), and the Kodiak archipelago (Friedmann 1935).

Anas discors. Blue-winged Teal. One male with Green-winged Teal and pintails on 12 May 2014 at East Lake. SPECIMEN (1): UAM 35396, adult ♂. NOTES: Blue-winged

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Teal are casual at Kodiak and, to the west, there is only one Aleutian record (Gibson and Byrd 2007).

Anas clypeata. Northern Shoveler. Spring migrant. Maximum was at least seven on 15 and 16 May 2008 and at least six on 4 May 2009. A pair on 1 May 2010 and a lone male on 3 June 2012 were the earliest and latest, respectively. SPECIMEN (1): UAM 28973, adult ♂, 15 May 2008, wing only. NOTES: The shoveler is at best a very rare nester on the Alaska Peninsula (Murie 1959, Gill et al. 1981, Bailey and Faust 1984) and is unknown as a breeding bird in the Aleutians (Gibson and Byrd 2007) or Kodiak.

Anas acuta. Northern Pintail. Spring and fall migrant, probable breeder. Maximum counts were of at least 30 on 4 May 2009, at least 15 on 1 May 2010, and 10 on 7 July 2013. Pairs were seen regularly in May. One agitated female in Southwest Marsh on 8 July 2013 was the only indication of breeding. Present on 24 August 2010. NOTES: Pintails breed on the Alaska Peninsula (Gill et al. 1981) and adjacent islands off the Pacific coast (Bailey and Faust 1984), sparingly in the Aleutians (Gibson and Byrd 2007), on Tugidak, and probably on Sutwik (Bailey and Faust 1981).

Anas crecca carolinensis. Green-winged Teal. Spring migrant, has nested. Maximum counts: at least seven on 4 May 2009, at least six on 31 May 2012, and five adults on 8 July 2013. A female with a brood of eight young in Southwest Marsh on 8 July 2013 represents the only nesting record. SPECIMENS (2): UAM 28444, adult ♂, 16 May 2008; UAM 31807, downy ♂, 8 July 2013.

A. c. crecca. One male on 16 May 2011 at East Pond One. SPECIMEN (1): UAM 28498, adult ♂. NOTES: Except for this one, all male Green-winged Teal seen well were *carolinensis*, and Chirikof is probably east of any regular breeding of *A. c. crecca*, although both taxa have been recorded in summer in the Shumagins (R. H. Day in litt. 2014) and at Unimak (Gibson and Byrd 2007; see also Murie 1959). In the Kodiak archipelago *A. c. crecca* is a regular but rare spring migrant; *A. c. carolinensis* is a common breeder, including (presumably) the Green-winged Teal breeding on Tugidak.

Aythya collaris. Ring-necked Duck. Spring migrant. Two males on both 4 May 2009 and 16 May 2011 (one of the two on 16 May was remains of predation), and one male on 16 May 2008. SPECIMENS (3): UAM 26104, adult ♂, 4 May 2009; UAM 28499, adult ♂, 16 May 2011; UAM 29531, [adult ♂], 16 May 2011, wing only. NOTES: Small numbers winter at Kodiak, but the species is only a casual visitant farther west, in the Aleutians (Gibson and Byrd 2007).

Aythya marila nearctica. Greater Scaup. Spring migrant, possible breeder. Scaup were nearly always present on the three largest lakes (maximum counts: at least 30 on 6 May 2009; 35 on 12 May 2014) and only rarely on smaller ponds (pair on 5 July 2013 at Swan Lake). SPECIMENS (2): UAM 29987, adult ♀, ovary 32 × 9 mm, ova to 5 mm; UAM 30915, adult ♂, testes 20 × 11 mm; both 17 May 2011. NOTES: Both Murie (1959:85) and Gabrielson and Lincoln (1959:183) cited a report of nesting at Chirikof by Chase Littlejohn in 1887 or 1888. Greater Scaup breed commonly on the Alaska Peninsula (Murie 1959, Gill et al. 1981), in parts of the Aleutians (Gibson and Byrd 2007), in the Shumagins (Kenyon 1964, Bailey 1978), and in at least the southern parts of the Kodiak archipelago, including Tugidak. See notes under following species.

Aythya affinis. Lesser Scaup. Spring migrant. One on 16 May 2008; three on 16 May 2011; five from 10 to 15 May 2014. SPECIMEN (1): UAM 35397, second-year ♂, 13 May 2014. NOTES: Like the Ring-necked Duck, this species is only a casual visitant farther west, in the Aleutians (Gibson and Byrd 2007). Small numbers winter at Kodiak in most years. I presumed scaup to be *A. marila* unless otherwise noted.

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Somateria spectabilis. King Eider. Probably a winter resident. I found the remains of a male on 4 May 2010 (no phenology inferred). NOTES: King Eiders regularly winter as far east as the Kodiak archipelago (Friedmann 1935) and probably around Chirikof as well, as suggested by one seen 21 January 1985 "off Chirikof" (R. H. Day, UAM unpubl.) and by two birds that wintered 2002–2003 after having been fitted with satellite transmitters in spring 2002 near the Kuparuk River, on Alaska's North Slope (Powell et al. 2005, Phillips et al. 2006).

Histrionicus histrionicus. Harlequin Duck. Common. Encountered in nearshore marine waters each trip. Most numerous in early to mid-May, when maximum was 100+ in a feeding flock on 16 May 2011 near Old Ranch. Probably present year round.

Melanitta perspicillata. Surf Scoter. Flock of at least 30 on 11 May 2014. NOTES: Like the White-winged Scoter (q.v.), probably present in winter.

Melanitta americana. Black Scoter. At least three on 2 May 2010 and two on 14 May 2011. SPECIMEN (1): UAM 30008, [♂], found dead 30 May 2012, wing only (no phenology inferred). NOTES: Like the White-winged Scoter (q.v.), probably present in winter.

Melanitta fusca (deglandi). White-winged Scoter. Observed both off shore and on larger lakes, where maximum counts were seven on 12 May 2014 and at least 15 on 1 June 2012, both at East Lake. NOTES: Murie (1959; Murie's Ukanuk = Ukamuk, the name for Chirikof in the Alutiiq language) reported observations by Chase Littlejohn in the summer of 1887 or 1888. The White-winged Scoter nests regularly only in interior Alaska (Brown and Fredrickson 1997), although breeding has been suspected on the Alaska Peninsula in the Caribou River drainage (Gill et al. 1981) and isolated nests have been reported once each in the Sanak Islands (Bailey and Faust 1980) and at Chankliut Island (Bailey and Faust 1981). All scoters probably winter regularly at Chirikof, as they do in the Kodiak archipelago (Friedmann 1935), nearby Alaska Peninsula (Murie 1959), and Aleutians (Gibson and Byrd 2007).

Bucephala albeola. Bufflehead. Spring migrant. High counts were at least 12 on 1 May 2010, 41 on 4 May 2009, and eight on 14 May 2011. NOTES: Bufflehead winter regularly in southwest Alaska (Gabrielson and Lincoln 1959, Gibson and Byrd 2007) but are not known to nest in the region.

Bucephala clangula (americana). Common Goldeneye. One female present 11–14 May 2014. NOTES: The Common Goldeneye winters regularly in southwest Alaska (Gabrielson and Lincoln 1959, Gibson and Byrd 2007) but is not known to nest in the region.

Mergus serrator. Red-breasted Merganser. Spring migrant. Maximum at least five on 1 May 2010 and 6 May 2009. NOTES: The Red-breasted Merganser nests commonly on the Alaska Peninsula (Gill et al. 1981), the Kodiak archipelago including Tugidak, the Shumagins (Bailey 1978, Byrd 2001), and islands off the Alaska Peninsula (Bailey and Faust 1981, 1984).

Gavia immer. Common Loon. One on 15 May 2011 and two adults on 11 and 12 May 2014. SPECIMEN (1): UAM 31361, 1 June 2012, a skull from a beached carcass (no phenology inferred). NOTES: The Common Loon is a breeding resident in southwest Alaska (Gill et al. 1981, Gibson and Byrd 2007)

Fulmarus glacialis (rodgersii). Northern Fulmar. I saw several a few miles north of Chirikof on 4 July 2013 and found the remains of one in an eagle nest on 1 June 2012. NOTES: Breeds by the hundreds of thousands in the Semidis (Hatch and Hatch 1983a).

Puffinus griseus. Sooty Shearwater. I assumed dozens of shearwaters north of Chirikof on 4 July 2013 to be this species and occasionally encountered remains at

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eagle nests and on beaches. SPECIMEN (1): UAM 31805, 7 July 2013, wing only. NOTES: Short-tailed Shearwaters (*P. tenuirostris*) are also no doubt present at times, as they are elsewhere in the western Gulf of Alaska (Gabrielson and Lincoln 1959). Hoffman et al. (1981) reported shearwaters (*P. griseus/tenuirostris*) in the vicinity of Chirikof in September of 1975 or 1976.

Phalacrocorax auritus (cincinatus). Double-crested Cormorant. Two on 7 May 2009 and three on 13 May 2011 at Southwest Lake. At least three on 10 May 2014 on Nagai Rocks. NOTES: Breeds sparingly in the Kodiak archipelago (Friedmann 1935), the Shumagins (Bailey 1978), and along parts of the Alaska Peninsula (Sowls et al. 1978, Wehle 1978). See notes under the Pelagic Cormorant.

Phalacrocorax urile. Red-faced Cormorant. At least six on 10 May 2014 on Round Rock. See notes under following species.

Phalacrocorax pelagicus. Pelagic Cormorant. Common. Counts of cormorants on Round and Nagai rocks were >300 on 10 May 2014 and >100 on 7 July 2013, of which most were Pelagics. Sowls et al. (1978) indicated similar numbers there in June 1977. NOTES: Both the Pelagic and Red-faced cormorants breed in the Semidis (e.g., Hatch and Hatch 1983a), and it is possible that all three cormorant species may breed on Round and Nagai rocks at times.

Haliaeetus leucocephalus. Bald Eagle. Common breeder. At least 14 nest locations; hatching usually occurred from early to mid-May. Largest concentration was of eight, mostly immature birds, on a dead whale on 11 May 2014. NOTES: Historically Dall (1874), Workman (1969), and Sowls et al. (1978) all mentioned the presence of eagles.

Circus cyaneus (hudsonius). Northern Harrier. One male on 8 May 2009 and 1 May 2010. NOTES: Harriers are sporadic mostly as migrants and occasionally wintering birds in southwest Alaska, where they probably do not nest (Kessel and Gibson 1978, Gill et al. 1981, Gibson and Byrd 2007).

Buteo lagopus (sanctijohannis). Rough-legged Hawk. One light-morph bird on 9 July 2013 over the upper Chirikof River valley. NOTES: This species nests regularly on the Alaska Peninsula (Murie 1959), eastern Aleutians (Gibson and Byrd 2007), and the southern and mountainous portions of Kodiak Island and Tugidak; it has nested at Chowiet Island in the Semidis (Andersen et al. 2013).

Grus canadensis canadensis. Sandhill Crane. Spring migrant. Three on 5 May 2009 and 30 May 2012; one on 14 May 2014. SPECIMEN (1): UAM 30001, adult ♂, 30 May 2012. NOTES: Cranes are rare migrants in the Kodiak archipelago and Semidis (Andersen et al. 2013), and they nest as close as the Alaska Peninsula (Gill et al. 1981).

Haematopus bachmani. Black Oystercatcher. Possible breeder. Nine on 16 May 2011 near the Old Ranch and six on Round Rock and at Southwest Anchorage on 10 and 15 May 2014, respectively, are the only records. SPECIMEN (1): UAM 35395, adult ♀, ovary 20 × 11 mm, 15 May 2014. NOTES: Oystercatchers breed commonly in the Kodiak archipelago (including the north end of Tugidak), the Semidis (Andersen et al. 2013), and on islands off the nearby Alaska Peninsula (Bailey and Faust 1981), and it is conceivable that they nest on Nagai and Round rocks.

Pluvialis fulva. Pacific Golden Plover. Spring migrant. Maximum at least 30 on 8 May 2009; four on 2 May 2010. SPECIMENS (5): UAM 26907-26910, 3 ♂♂, 1 ♀, 8 May 2009; and UAM 30011, ♀, 3 June 2012.

Charadrius semipalmatus. Semipalmated Plover. Common breeder. High counts in early May, when many birds were presumably migrants, were 15 on 10 May 2014 and at least 30 on 14 May 2014. Breeding evidence included nests (nest with 1 egg

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and 2 young on 4 July 2013; two nests with 3 and 4 eggs on 9 July 2013) and family groups with downy young on 5, 6, and 10 July 2013. SPECIMENS (3): UAM 26975, ♂, 15 May 2011; UAM 26974, ♂, 17 May 2008; and UAM 31806, chick, 4 July 2013. NOTES: The Semipalmated Plover breeds regularly in southwestern Alaska (Gabrielson and Lincoln 1959).

Tringa incana. Wandering Tattler. Spring and fall migrant. Maximum counts: four on 4 May 2010 and 30 May 2012; five on 10 May 2014. Two on 10 July 2013 and at least one on 24 August 2010 represent the only fall records. SPECIMENS (2): UAM 30009, ♂, and UAM 30010, [♀], both 30 May 2012.

Tringa melanoleuca. Greater Yellowlegs. Spring and fall migrant. Two on 8 May 2009 and one on 5 May 2010 are the only spring records. Seven birds were in Southwest Marsh 7–11 July 2013, and a few were present on 24 August 2010. NOTES: Greater Yellowlegs nest southwest to at least the base of the Alaska Peninsula (Murie 1959) and probably the northern parts of Kodiak Island. Casual farther west in the Aleutians (Gibson and Byrd 2007).

Numenius phaeopus (hudsonicus). Whimbrel. Spring and fall migrant. Single curlews on 4 and 8 May 2009, 15 May 2011, 18 May 2011, and 4 and 8 July 2013 were probably this species.

Arenaria interpres interpres. Ruddy Turnstone. Spring and fall migrant. Four on 15 May 2008, one on 14 May 2011, and ≥ 3 on 24 August 2010 were the only records. SPECIMENS (2): UAM 26977, ♂, and UAM 28200, ♀, both 15 May 2008.

Calidris alba. Sanderling. Spring migrant. Maxima 100+ on 3 May 2010 and 150+ on 6 May 2009 and 15 May 2011, all at the north end. SPECIMENS (11): UAM 28506–516, all 15 May 2011.

Calidris alpina (pacific). Dunlin. Spring migrant. Four on 6 May 2010, ten on 10 May 2014, and single individuals on 15 May 2011 and 12 May 2014 were the only ones recorded. SPECIMEN (1): UAM 27576, ♂, 6 May 2010.

Calidris ptilocnemis couesi. Rock Sandpiper. Common breeder. On all trips I regularly encountered pairs and small groups away from the coast, where there were often small flocks, e.g., 20 on 2 May 2010. Breeding evidence included a territorial bird in wing-lift display on 13 May 2008 near Horseshoe Lake, a pair with a fledgling on 4 July 2013 at East Lake, and a pair with two fledglings and another with downy young on 5 July 2013 at Swan Lake. Post-breeding high counts of adults were of 45 and 60+ on 10 and 11 July 2013. Small flocks of juvenile birds were present on 24 August 2010. SPECIMENS (19): UAM 26964, 27468–474, 30316–319, 31878, 35409–414, all 5 May–4 July.

NOTES: Rock Sandpipers breed as far east as the southern part of Kodiak Island, including Tugidak, and also nest along most of the Alaska Peninsula (Murie 1959, Gabrielson and Lincoln 1959, Bailey and Faust 1984, Gill et al. 2002). However, the subspecies of the Rock Sandpipers between the end of the Alaska Peninsula and Bristol Bay is not clear, and the region probably represents a zone of intergradation between *couesi* (breeding to the west) and *tschuktschorum* (breeding to the north; Conover 1944; see also Gill et al. 2002, Pruett and Winker 2005, Johnson et al. 2009). Chirikof specimens are marginally more similar to a recent May–June series from Attu, Shemya, and Kiska islands (*couesi*) than to a June series from the Seward Peninsula (*tschuktschorum*; UAM specimens). In the Chirikof birds, white never reaches the rachis on primary 1, auricular patches are not well defined, and the plumage is generally dark and diffusely marked. However, their bellies are darker than on Attu birds, but on average not as heavily marked as on Seward Peninsula birds.

Calidris minutilla. Least Sandpiper. Common, probable breeder. Found around the island on each trip, usually in association with water bodies and marshes (maxi-

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mum counts 30+ on 30 May 2012 and 75+ on 4 July 2013). On 31 May 2012 near Southwest Lake and on 7 July 2013 near the Modern Ranch birds were in distraction display. SPECIMENS (4): UAM 28440, ♀; UAM 28438, ♂; UAM 28439, ♂, all 15 May 2008; and UAM 26979, ♀, 16 May 2008. NOTES: Least Sandpipers nest in the Kodiak archipelago, including Tugidak, the Alaska Peninsula (Gabrielson and Lincoln 1959), the Shumagins (Byrd 2001), and possibly on Chowiet Island (Andersen et al. 2013).

Calidris mauri. Western Sandpiper. Spring and fall migrant. One on 3 May 2009 was the only one recorded in spring. Small flocks present 6–10 July 2013, with a high count of 110+ on 6 July.

Limnodromus griseus (caurinus). Short-billed Dowitcher. Spring migrant. My only records of dowitchers, all identified as this species, were of single birds on 12 May 2008, 30–31 May 2012, and 7 July 2013 and two on 16 May 2011 and 15 May 2014. NOTES: The Short-billed Dowitcher nests on the Alaska Peninsula (Gabrielson and Lincoln 1959, Gill et al. 1981) and in the Kodiak archipelago including Tugidak. The Long-billed Dowitcher (*L. scolopaceus*) is a rare spring migrant at Kodiak and Tugidak.

Gallinago delicata. Wilson's Snipe. Probable breeder. Winnowing heard on most trips (maximum five on 8 July 2013 in Southwest Marsh). Evidence of breeding consisted of a bird in distraction display on 10 July 2013 at the headwaters of the Southwest River and these SPECIMENS (2): UAM 30488, adult ♂, 3 June 2012; and UAM 31808, adult ♀, ovary 18 × 13 mm, oviduct enlarged, 8 July 2013. NOTES: Wilson's Snipe breeds in the Kodiak archipelago, the Shumagins (Gabrielson and Lincoln 1959), and undoubtedly on the Alaska Peninsula (Murie 1959, Gill et al. 1981).

Phalaropus lobatus. Red-necked Phalarope. Probable breeder. Usually seen in pairs, maximum 30+ on 8 July 2013 in Southwest Marsh. Copulation observed 31 May 2012. At least three still present on 24 August 2010. SPECIMENS (2): UAM 31876, adult ♀, ova to 7 and 3 mm in diameter; oviduct enlarged; UAM 31877, adult ♂, both 8 July 2013. NOTES: Red-necked Phalaropes nest regularly in the Kodiak archipelago including Tugidak, and on the Alaska Peninsula (Gill et al. 1981).

Phalaropus fulicarius. Red Phalarope. Spring migrant. Only records are of one on 17 May 2008 and six on 15 May 2011. SPECIMEN (1): UAM 26300, ♂, 17 May 2008.

Stercorarius parasiticus. Parasitic Jaeger. Uncommon, possible breeder. Two individuals together (pairs?) seen once each in 2008, 2010, 2011, and 2014. Not seen in 2009. In 2012 and 2013 one or two birds were seen almost daily, and on 2 June 2012 near the Old Ranch two birds pursued an eagle that flew over the marshy area they were frequenting. All but one bird were of the dark morph. SPECIMENS (2): UAM 27378, adult ♀ in breeding condition, ova to 10 mm in diameter; UAM 24625, adult ♂, both 17 May 2008. NOTES: Parasitic Jaegers breed on the Alaska Peninsula (Gill et al. 1981), Ugaiushak Island (Wehle 1978), the Semidis (Hatch and Hatch 1983a), and Tugidak, and probably on the Shumagins (Bailey 1978, Bailey and McCargo 1985) and Sutwik Island (Bailey and Faust 1981).

Stercorarius longicaudus (pallascens). Long-tailed Jaeger. Only records are of single birds on 3 June 2012 and 8, 9, and 11 July 2013. NOTES: Unlike the Parasitic, the Long-tailed Jaeger was always observed alone. It nests on Tugidak but not elsewhere in southwest Alaska (Gabrielson and Lincoln 1959, Murie 1959, Gibson and Byrd 2007).

Uria aalge (inornata). Common Murre. Only observations are of single birds on 30 May 2012 and 5 July 2013 and several north of Chirikof on 4 July 2013. NOTES: Both the Common and Thick-billed murre (*U. lomvia*) breed by the hundreds of thousands in the Semidis (Hatch and Hatch 1983a). Dall (1874) observed unidentified murre at Chirikof in June 1874.

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Cephus columba (columba). Pigeon Guillemot. Common, probable breeder. Birds were observed on cliffs or making passes at them east of Southeast Lake (3 June 2012 and 9 July 2013), at Southwest Anchorage (7 July 2013), and south of the Old Ranch (10 July 2013). Maximum count was 70 on 9 July 2013 between Southeast Lake and South Cape. NOTES: Breeds commonly along rocky coasts of the Kodiak archipelago, Alaska Peninsula (Sowls et al. 1978), and Semidis (Hatch and Hatch 1983a).

Aethia psittacula. Parakeet Auklet. Possible breeder. I saw ~30 birds immediately offshore of a steep boulder face at South Cape on 9 July 2013 but none there on 14 May 2014. NOTES: I was not able to locate the primary source for the assertion by the AOU (1957) and Gabrielson and Lincoln (1959), and subsequently by Vaurie (1965) and Gaston and Jones (1998), that Parakeet Auklets breed on Chirikof. They breed in the Shumagins (Bailey 1978), Semidis (Hatch and Hatch 1983a), and the Kodiak archipelago (Sowls et al. 1978).

Fratercula corniculata. Horned Puffin. Probable breeder. My only observations were of one on 4 July 2013 north of Chirikof, 11 on 7 July 2013 in Southwest Anchorage, and 50+ on 9 July 2013 on the water and making passes at cliff faces at South Cape. NOTES: see notes under Tufted Puffin.

Fratercula cirrhata. Tufted Puffin. Probable breeder. I observed several on 4 July 2013 north of Chirikof, one on 7 July 2013 in Southwest Anchorage, and at least three on 9 July 2013 making passes at cliff faces near South Cape. NOTES: On 7 July 2013 I saw hundreds of unidentified puffins flying around and landing on the top of Round Rock. Historic reports include those of Captain Cook (June 1778; Stresemann 1949) and Dall (1874; "puffins" in June 1874).

Rissa tridactyla (pollicaris). Black-legged Kittiwake. Common, probable breeder. Most commonly seen bathing in the larger lakes or at the mouths of streams. Representative high counts: 100+ on 14 May 2011, 1 June 2012, and 12 July 2013. On 14 May 2014 a large offshore rock 0.9 km east-northeast of South Cape held 200+ birds that may have been nesting and may be the colony reported by Sowls et al. (1978). Kittiwakes did not appear to be nesting in any numbers on Round or Nagai rocks in 2013 or 2014 when I searched for them specifically, although a few may nest there at times (Sowls et al. 1978). NOTES: Workman (1969) mentioned kittiwakes as present in July and August 1963.

Rissa brevirostris. Red-legged Kittiwake. On 1 March 1972, G. V. Byrd saw one with thousands of Black-legged Kittiwakes 40 km southeast of Chirikof (Kessel and Gibson 1978).

Larus canus (brachyrhynchus). Mew Gull. Spring migrant. Only records are of three on 6 May 2010, at least three on 16 May 2008, and two on 30 May 2012. NOTES: Mew Gulls breed on the Alaska Peninsula (Murie 1959), in the Shumagins (Kenyon 1964, Bailey 1978), and in the Kodiak archipelago, including Tugidak.

Larus argentatus smithsonianus. Herring Gull. One adult on 2 June 2012 accompanied Glaucous-winged Gulls at Southwest Anchorage. SPECIMEN (1): UAM 30575, ♀. NOTES: Herring Gulls are rare at Kodiak and probably along most of the Alaska Peninsula as well (see Murie 1959). Subspecies *smithsonianus* is casual farther west in the Aleutians (Gibson and Byrd 2007). The Chirikof specimen betrays no sign of hybridization with the Glaucous-winged Gull, as is common around Cook Inlet to the east (Williamson and Peyton 1963).

Larus glaucescens. Glaucous-winged Gull. Common; no evidence of breeding. Seen daily on all trips, in greatest numbers at the mouths of streams or bathing in the larger lakes. Representative high counts: 100+ on 2 May 2010 and 7 July 2013.

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NOTES: Glaucous-winged Gulls breed commonly in the Semidis (Hatch and Hatch 1983a) and on Tugidak. See notes under Glaucous Gull.

Larus hyperboreus (barrovianus). Glaucous Gull. One immature observed on 1 June 2012. NOTES: Dall (1874) reported seeing the Glaucous Gull on 10 June 1874, but he did not report *L. glaucescens*, a species more likely to be present in numbers.

Onychoprion aleuticus. Aleutian Tern. Uncommon, has nested. Four on 12 May 2014 over East Lake, at least four from 13 to 15 May 2014, at least three on 16 May 2008, and eight on 31 May 2012, all over Southwest Lake. On 5 July 2013 I found a nest with two eggs about 0.5 km southwest of East Lake, and there were probably two to four times the six birds visible at once in that area. I visited this inland area only in 2013, but the species' presence in other years suggests regular breeding, as its arrival is generally from the open sea directly to its nesting grounds (Kessel and Gibson 1978). SPECIMENS (2): UAM 24828, ♂; and UAM 24829, ♂, both 16 May 2008. NOTES: Aleutian Terns breed intermittently rather than annually at many nest sites in southwest Alaska (Gabrielson and Lincoln 1959, Kessel and Gibson 1978, North 1997). See notes under Arctic Tern.

Sterna paradisaea. Arctic Tern. Only records are of two on 16 May 2011, one on 4 July 2013, and three on 5 July 2013. NOTES: The report by SOWLS et al. (1978) of two colonies of 100 and 200 birds on the island's east side 18 June 1977 were based on rough estimates of unidentified terns (colony documentation on file at UAM and AMNWR).

Asio flammeus (flammeus). Short-eared Owl. One on 7 May 2009 near West Point. NOTES: Short-eared Owls nest throughout southwest Alaska (Murie 1959, Gill et al. 1981, Gibson and Byrd 2007) including Tugidak.

Falco columbarius (columbarius). Merlin. I observed single individuals on 1 May 2010 and 11 May 2014. NOTES: Merlins are known to nest on Kodiak Island and the base of the Alaska Peninsula.

Falco rusticolus. Gyrfalcon. Breeder. Seen generally in two separate areas on the east and west sides of the island. On the east side two were on cliff faces south of the Chirikof River mouth on both 6 May 2009 and 10 July 2013, and one was there on 2 May 2010. On the west side all observations were at the Sand Shack Bluffs, where I noted one on 31 May 2012, a family group of four on 6 July 2013, and a nest with adults, two chicks, and an egg on 12 May 2014. Two individuals were near Southwest Lake on 24 August 2010. All birds appeared to be of the gray morph. SPECIMEN (1): UAM 31804, juvenile ♀, 6 July 2013.

NOTES: It is possible that Gyrfalcons nested at the Sand Shack Bluffs and went unnoticed prior to 2013. They have nested as close as Terrace Island in Wide Bay on the southeast side of the Alaska Peninsula (Bailey and Faust 1984) and Tugidak. An immature Gyrfalcon fitted with a satellite transmitter in the summer of 1992 on the Seward Peninsula moved to the Chukotsk Peninsula, Russia, in September of that year before moving to the Bristol Bay region and spending the last two weeks of November on or near Chirikof, where its transmitter stopped working (McIntyre et al. 2009). The assertion by Potapov and Sale (2005) that Gyrfalcons nest on Chirikof referred instead to Tugidak (Eugene Potapov and Ted Swem in litt., 2013).

Falco peregrinus (pealei). Peregrine Falcon. Rare, possible breeder. Single individuals observed on 5 May 2010, 8 May 2009, 14 and 17 May 2011, and 14 May 2014. At least two of these were immatures. NOTES: Cade (1960: Figure 2) suggested Peregrines nested on Chirikof, but there is no recent evidence of this (White et al. 1976). They nest in the Semidis (Cade 1960, Andersen et al. 2013), the Shumagins (R. H. Day in litt., 2014), and other islands off the Alaska Peninsula (Wehle 1978, Bailey and Faust 1981, 1984), but nesting has been documented only once in the Kodiak archipelago.

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Pica hudsonia. Black-billed Magpie. One on 4 May 2010 near Southwest Lake. SPECIMEN (1): UAM 27024, ♀. NOTES: Magpies are resident breeders on the Alaska Peninsula (Murie 1959, Gill et al. 1981), the Shumagins (Dall 1873, Kenyon 1964), and Kodiak (Friedmann 1935), and although they are not known to nest on Tugidak they have been reported from the southern part of that island (May 2013; *vide* Jay Wattum). Magpies nested on Chowiet in 2010 (Andersen et al. 2013). Workman's (1966:188) assertion that "The large birds on the island were generally scavengers (magpies, crows and ravens)" probably refers simply to the family Corvidae. The Northwestern Crow (*Corvus caurinus*) is essentially unknown west of the Kodiak archipelago and adjacent mainland (see Gibson 1970, Tobish and Isleib 1991).

Corvus corax (kamtschaticus). Common Raven. Common breeder. Seen nearly daily in small numbers (one or two) on most trips. Typical high counts: five on 4 May 2009 and 14 May 2011, seven on 15 May 2011; exceptionally, a flock of 34+ frequented the west-side beach 10–15 May 2014. Nest sites included the West Point area (active all years), east side of Southwest Anchorage (active 2012 and 2014), south of the Old Ranch (active 2013), and Sand Shack Bluffs (active 2014). Nest areas often included multiple nests, which were used in different years. Dall (1874) mentioned ravens as present at Southwest Anchorage on 10 June 1874. SPECIMENS (2): UAM 30045, adult ♂, wing chord 473 mm, 3 June 2012; and UAM 34188, juvenile ♀?, 8 July 2013. NOTES: Alaska subspecies of *C. corax* are poorly defined (Rea, *in* Phillips 1986), and Chirikof lies at the hypothesized boundary of *kamtschaticus* and *principalis*. The only adult Chirikof specimen is large, suggesting *kamtschaticus*.

Tachycineta thalassina (thalassina). Violet-green Swallow. One on 5 May 2009 between South Cove and Southeast Lake. NOTES: Violet-green Swallows nest at the base of the Alaska Peninsula (Williamson and Peyton 1962) and probably Kodiak Island but are only casual in the Aleutians (Gibson and Byrd 2007).

Riparia riparia riparia. Bank Swallow. Common, probable breeder. Seen regularly around the island in 2012 and 2013. I frequently encountered nest holes in sandy banks and observed a bird entering one of them on 10 July 2013. SPECIMEN (1): UAM 30192, ♀, 30 May 2012. NOTES: Bank Swallows nest regularly in southwest Alaska (Murie 1959), including the eastern Aleutians (Gibson and Byrd 2007), the Shumagins (Gabrielson and Lincoln 1959), and the Kodiak archipelago, including Tugidak, and have nested at least once on Chowiet (Andersen et al. 2013). A lack of observations in early May is consistent with late-May arrival dates in the eastern Aleutians (Gibson and Byrd 2007) and Kodiak.

Petrochelidon pyrrhonota pyrrhonota. Cliff Swallow. One on 3 June 2012 at Southeast Lake. SPECIMEN (1): UAM 30193, ♀. NOTES: The Cliff Swallow nests at the base of the Alaska Peninsula (Williamson and Peyton 1962) but is a rare spring migrant at Kodiak and only casual farther west in the Aleutians (Gibson and Byrd 2007).

Troglodytes pacificus semidiensis. Pacific Wren. Common breeder. Wrens were encountered on all trips wherever cliffs or bluffs reached the shoreline, including occasionally West Point and the Sand Shack Bluffs, and could be quite numerous along the base of higher cliffs. Juveniles were common in July 2013. SPECIMENS (31): UAM 27106–121, 30131–136, 31856–861, 35401–402; all 5 May–12 July.

NOTES: Chirikof birds are larger and paler than *helleri* from northern Kodiak Island. Topotypes of *kiskensis* from Kiska in the central Aleutians appear more massive, averaging longer billed and slightly darker than *semidiensis* from Chirikof, but intervening material available to me was scant and unhelpful in revealing a possible cline in phenotypes between Kiska and Chirikof. With only one record, the wren appears to be accidental on Tugidak; the single specimen (UAM 34542; 17 Dec 2013) is an

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example of *helleri*. A significant die-off of wrens in at least the northern portion of Kodiak Island in winter 2011–2012 (Tobish 2013) did not appear to affect Chirikof.

Catharus guttatus guttatus. Hermit Thrush. Spring migrant. Only records are of single birds on 1 June 2012 and 12–13 May 2014. SPECIMEN (1): UAM 30188, ♀, 1 June 2012. NOTES: A common breeder in southwest Alaska (Friedmann 1935, Murie 1959, Gibson and Byrd 2007), the Hermit Thrush has nested in the Semidis (Andersen et al. 2013) although apparently not on Tugidak.

Ixoreus naevius (meruloides). Varied Thrush. One on 14 May 2014 in the vicinity of the Modern Ranch. NOTES: The Varied Thrush occurs west at least to the base of the Alaska Peninsula (Williamson and Peyton 1962) and is a common nester on Kodiak Island but is virtually unknown west of there (Murie 1959, Gill et al. 1981, Gibson and Byrd 2007).

Anthus rubescens pacificus. American Pipit. Uncommon, probable breeder. Less common in early May (e.g., single individuals only on 6 May 2009 and 2010) but regularly encountered later (maximum at least seven singing birds 31 May 2012). SPECIMEN (1): UAM 27350, ♂, 6 May 2010. NOTES: American Pipits breed regularly in the eastern Aleutians (Gibson and Byrd 2007), the Alaska Peninsula (Gabrielson and Lincoln 1959), and probably the Kodiak archipelago (Howell 1948), including Tugidak.

Calcarius lapponicus alascensis. Lapland Longspur. Common breeder. Seen daily on all trips, in the first half of May occasionally in flocks (e.g., 15 on 13 May 2014). Three nests each with five eggs on 5 May 2009, and 11 and 12 May 2014. I observed a bobtailed juvenile on 2 June 2012 and encountered juveniles regularly 4–12 July 2013. SPECIMENS (5): UAM 28302, ♀, 15 May 2008; UAM 26348, ♂, 15 May 2008; UAM 24710, ♂, 16 May 2008; UAM 30347, ♂, 2 June 2012; and UAM 30190, juvenile ♂, 2 June 2012. NOTES: The Lapland Longspur breeds commonly throughout the Aleutians (Gibson and Byrd 2007) and Alaska Peninsula (Gill et al. 1981) and in parts of the Kodiak archipelago, including Tugidak.

Setophaga petechia (rubiginosa). Yellow Warbler. One or two on 24 August 2010 around the Modern Ranch. NOTES: A common breeder in southwest Alaska (Kessel and Gibson 1978) as far as the easternmost Aleutians (Gibson and Byrd 2007), the Yellow Warbler has been observed on the Semidis during the breeding season (Gabrielson and Lincoln 1959) and is an uncommon breeder on Chowiet (Andersen et al. 2013). It also breeds on Tugidak, but the lack of a brush zone on Chirikof probably precludes breeding there.

Setophaga coronata hooveri. Yellow-rumped Warbler. Spring migrant. Two on 1 June 2012 on the east side of island and one on 3 June 2012 at Southeast Lake. SPECIMEN (1): UAM 30189, ♂, 1 June 2012. NOTES: Yellow-rumped Warblers breed west at least to the base of the Alaska Peninsula (Williamson and Peyton 1962) and probably the northern parts of the Kodiak archipelago, where they are common in summer. Unknown in spring farther west in the Aleutians (Gibson and Byrd 2007; see also Gill et al. 1981).

Cardellina pusilla pileolata. Wilson's Warbler. Spring and fall migrant. Only records are of three on 1 June 2012 near the North End, two on 2 June 2012 near Southwest Lake, one on 13 May 2014 in a brushy steep-sided canyon tributary to Southwest River, and one on 24 August 2010 at the Modern Ranch. SPECIMEN (1): UAM 30191, ♂, 1 June 2012. NOTES: A common breeder in southwest Alaska (Murie 1959) as far west as the easternmost Aleutians (Gibson and Byrd 2007), Wilson's Warbler has been observed in the Semidis during the breeding season (Gabrielson and Lincoln 1959) and breeds uncommonly on Chowiet (Andersen et al. 2013). It also probably breeds on Tugidak.

Passerculus sandwichensis sandwichensis. Savannah Sparrow. Common breeder.

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Uncommon in the first week of May when occasionally *not* observed on my arrival (e.g., 1 May 2010), but usually quickly became numerous. Juvenile birds seen regularly 4–12 July 2013. Dall (1874) mentioned Savannah Sparrows as present on 10 June 1874. SPECIMENS (4): UAM 26350, ♂, 15 May 2008; UAM 28048, ♂, 16 May 2008; UAM 28049, ♂, 16 May 2008; and UAM 35399, ♂, 13 May 2014. NOTES: Savannah Sparrows breed commonly in the eastern Aleutians (Gibson and Byrd 2007), Alaska Peninsula (Gill et al. 1981), Chouiet (Andersen et al. 2013), and the Kodiak archipelago including Tugidak.

Passerella iliaca unalaschcensis and *P. i. insularis*. Fox Sparrow. Spring migrant. I noted one each on 5 May 2010, 14 May 2008, 14 May 2014, and 3 June 2012, two on 12 May 2014 and 17 May 2011. SPECIMENS (3): UAM 27544, singing ♂, 5 May 2010, *insularis*; UAM 30332, singing ♂, 3 June 2012, *unalaschcensis*; and UAM 35400, ♀, 12 May 2014, *unalaschcensis*. NOTES: *P. i. insularis* is a common breeder in the Kodiak archipelago, including Tugidak (UAM specimens), *unalaschcensis* from the Semidis (UAM specimens) west to Unimak Island (Murie 1959, Gibson and Byrd 2007).

Melospiza melodia sanaka. Song Sparrow. Common breeder. Seen regularly on all trips, usually along the coast, more commonly at the base of sea cliffs. Two females collected on 3 June 2012 had shelled eggs in the oviduct. Juveniles were seen regularly 4–12 July 2013. SPECIMENS (34): UAM 27876–878, 28553–555, 30138–145, 35415–426, adults, 16 May–12 July; UAM 31882–886, juveniles, 12 July 2013.

NOTES: Dall (1874) mentioned "*Mel. insignis*" as present on 10 June 1874 at Southwest Anchorage. Dall's identification of *insignis* was made almost 30 years before the description of *sanaka* and a mere five years after Baird's description of *insignis*, with which Dall (1870) was familiar. Chirikof probably represents the eastern extent of the range of subspecies *sanaka*. In addition to the eastern Aleutians this subspecies also occurs in the Shumagins (Gabrielson and Lincoln 1959), Semidis (Gabrielson and Lincoln 1951), and probably other islands off the Alaska Peninsula (e.g., Ugaiushak; Wehle 1978) for an unknown distance to the north and east. There are apparently no specimens of this species from anywhere between Stepovak Bay and Kuliak Bay other than from the Semidis and Chirikof, a distance of over 450 km. Subspecies *insignis* occurs in the Kodiak archipelago (Gabrielson and Lincoln 1951, Gibson and Withrow in press). As in 1951, it remains true today that "specimens are needed from this area before the ranges of the two races can be defined with accuracy" (Gabrielson and Lincoln 1951:253).

Zonotrichia leucophrys gambelii. White-crowned Sparrow. One on 12 May 2014 at East Lake. SPECIMEN (1): UAM 35398, ♂. NOTES: White-crowned Sparrows nest along the Alaska Peninsula, mostly on the Bering Sea side, west at least to the Port Moller area (Gill et al. 1981), but do not nest on Kodiak and are virtually unknown in the Aleutians (Gibson and Byrd 2007).

Zonotrichia atricapilla. Golden-crowned Sparrow. Spring migrant. One on 14 May 2008 at East Lake. Of two on 2 June 2012 in a brushy tributary canyon of the Southwest River, one sang repeatedly and another was heard briefly. SPECIMEN (1): UAM 30187, ♂, 2 June 2012. NOTES: Golden-crowned Sparrows nest commonly the length of the Alaska Peninsula (Murie 1959), breed on the Semidis (Andersen et al. 2013) and in the Kodiak archipelago (Friedmann 1935), and are suspected of breeding on Tugidak.

Leucosticte tephrocotis griseonucha. Gray-crowned Rosy-Finch. Common breeder. Most numerous along sea cliffs, but encountered regularly along the west side and at the North End as well. I observed courtship behavior on 5 May 2009 above Southeast Lake and found a nest with recently hatched young on 1 June 2012 inside a broken insulator of a tower at the North End. From 4 to 12 July 2013 I saw adults and juveniles regularly, sometimes in numbers (e.g., 15 juveniles, 7 July 2013, in old

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corral at Modern Ranch). SPECIMENS (28): UAM 26358, 27279–280, 28573–576, 30125–130, 31867–875, 35403–408; all 14 May–12 July.

NOTES: The distributional limits of subspecies *griseonucha* and *littoralis* in southwestern and south-central Alaska have yet to be completely resolved. Gabrielson and Lincoln (1959) considered birds from the Semidis, where the species still breeds commonly (Andersen et al. 2013), to be *griseonucha*. A clinal decrease in size from west to east in the Aleutian Islands and coastal southwest Alaska, pointed out by Johnson (1972), is readily apparent in UAM specimens. Chirikof birds are at the small end of the range of *griseonucha* but clearly larger than examples of *littoralis* from the Talkeetna Mountains and Cook Inlet area. Few useful specimens exist from the Kodiak archipelago, where as a nesting bird the rosy-finch is not well understood, and birds from there may be intermediate (Grinnell 1901, Gabrielson and Lincoln 1959, Johnson 1972).

Acanthis flammea (flammea). Common Redpoll. A redpoll on 15 May 2014 in driftwood on west side was probably this species.

DISCUSSION

Eighty-nine species of birds have been recorded from Chirikof Island. Approximately 22 of these are confirmed or probable breeders, and close examination of Round and Nagai rocks would likely add three to four more breeding species. This is fewer breeding species than are recorded from Tugidak Island (39 breeding species) or the Semidi Islands (≥ 36 breeding species; Hatch and Hatch 1983a, b; Andersen et al. 2013), the nearest neighboring islands. The composition of breeding birds of Tugidak, a relatively flat island with sandy beaches and many lakes, ponds, and marshes, and of the Semidis, composed of many smaller, rocky, steep-sided islands rimmed by sea cliffs, differs dramatically. Tugidak has many breeding waterfowl and the only breeding seabirds are gulls and terns; the Semidis host about a quarter of the breeding seabirds (*Fulmarus*, Phalacrocoracidae, Alcidae, Laridae, etc.) in the Gulf of Alaska (Hatch and Hatch 1983a) but fewer nesting waterfowl. Chirikof has examples of the gross habitat types found in both neighboring areas, but the number of breeding species is lower.

Particularly conspicuous, by their low numbers or absence as breeders, are waterfowl, seabirds, oystercatchers, and passerines that nest in tall grass or shrubs. Several grassland species (Lapland Longspur, Savannah Sparrow) appear to benefit from the intense grazing of cattle, and a burrow nester (Bank Swallow) is a common bird, probably due in part to loss of vegetation and subsequent erosion from heavy grazing and trampling by cattle. The historic introduction of ground squirrels may be a factor in the presence of breeding Gyrfalcons, and the lack of breeding seabirds may contribute to the absence of breeding Peregrine Falcons. The lack of suitable habitat probably inhibits breeding by several species (Hermit Thrush, Yellow Warbler, Wilson's Warbler, Fox Sparrow, Golden-crowned Sparrow) that are otherwise common breeders in neighboring areas of southwest Alaska. Chirikof also represents the known eastern limit of several subspecies (*Troglodytes pacificus semidiensis*, *Melospiza melodia sanaka*, *Leucosticte tephrocotis griseonucha*, *Calidris ptilocnemis couesi* [with the southern part of the Kodiak archipelago], and possibly *Corvus corax kamtschaticus*).

Although I did not specifically study the effects of introduced predators (foxes) and herbivores (cattle and ground squirrels) on birds at Chirikof,

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comparisons with adjacent areas suggest these effects are significant (see above). Foxes have no doubt reduced or eliminated breeding populations of many birds through predation, as is well documented elsewhere in southwest Alaska (Bailey 1993, Ebbert and Byrd 2002). The dense grass or shrub cover many nesting birds require has been dramatically reduced by grazing. Cattle may also adversely affect bird life by trampling (Paine et al. 1996), soil compaction, and possibly predation (Nack and Ribic 2005) and in conjunction with foxes have almost certainly influenced birds' relative abundance and species richness, as documented for feral herbivores in other areas (e.g., Fleischner 1994, Belanger and Picard 1999, Sullivan and Kershner 2005, Van Vuren 2013). Thus Chirikof, while situated between some of the most avifaunistically vibrant islands in the western Gulf of Alaska, appears to be less productive than it would otherwise be.

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LITERATURE CITED

- Alaska Department of Fish and Game. 1995. Tugidak Island critical habitat area management plan. Alaska Dept. Fish and Game, Anchorage.
- American Ornithologists' Union. 1957. Check-list of North American Birds. 5th ed. Am. Ornithol. Union, Baltimore.
- American Ornithologists' Union. 1998. Check-list of North American Birds, 7th ed. Am. Ornithol. Union, Washington, D.C.
- Andersen, E. M., Wang, J., Drummond, B. A., and Rojek, N. A. 2013. Biological monitoring at Chowitz Island, Alaska in 2012. U. S. Fish and Wildlife Service, Alaska Maritime Natl. Wildlife Ref. Rep. 2013/04.
- Bailey, E. P. 1978. Breeding seabird distribution and abundance in the Shumagin Islands, Alaska. *Murrelet* 59:82–91.
- Bailey, E. P. 1993. Introduction of foxes to Alaskan Islands—history, effects on avifauna, and eradication. U.S. Fish and Wildlife Service Resource Publ. 193.
- Bailey, E. P., and Faust, N. H. 1980. Summer distribution and abundance of marine birds and mammals in the Sandman Reefs, Alaska. *Murrelet* 61:6–10.
- Bailey, E. P., and Faust, N. H. 1981. Summer distribution and abundance of marine birds and mammals between Mitrofanina and Sutwik islands south of the Alaska Peninsula. *Murrelet* 62:34–42.
- Bailey, E. P., and Faust, N. H. 1984. Distribution and abundance of marine birds breeding between Amber and Kamishak bays, Alaska, with notes on interactions with bears. *W. Birds* 15:161–174.

NOTES ON THE BIRDS OF CHIRIKOF ISLAND, ALASKA

- Bailey, E. P., and McCargo, D. 1985. Eradication of fox on Bird Island and incidental surveys of seabirds in the Shumagin Islands, Alaska May–June 1984. U. S. Fish and Wildlife Service, Alaska Maritime Natl. Wildlife Ref. Rep. 84/03.
- Banks, R. C. 2011. Taxonomy of Greater White-fronted Geese (*Aves: Anatidae*). *Proc. Biol. Soc. Washington* 124:226–233.
- Belanger, L., and Picard, M. 1999. Cattle grazing and avian communities of the St. Lawrence River islands. *J. Range Mgmt.* 52:332–338.
- Brown, P. W., and Fredrickson, L. H. 1997. White-winged Scoter (*Melanitta fusca*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 274. Acad. Nat. Sci., Philadelphia.
- Byrd, G. V. 2001. Wildlife surveys at Simeonof, Chernabura and nearby islands in the outer Shumagin Islands in July 2001. U. S. Fish and Wildlife Service, Alaska Maritime Natl. Wildlife Ref. Rep. 01/06.
- Cade, T. 1960. Ecology of the Peregrine and Gyrfalcon populations in Alaska. *Univ. Calif. Publ. Zool.* 63:151–290.
- Clark, D. W. 2010. Ground squirrel: The mysterious rodent of Kodiak. *Arctic Anthropol.* 47:59–68.
- Conover, B. 1944. The North Pacific allies of the Purple Sandpiper. *Field Mus. Nat. Hist. Zool Ser.* 29:169–179.
- Cook, J. A., Eddingsaas, A. A., Loxterman, J. L., Ebbert, S., and MacDonald, S. O. 2010. Insular arctic ground squirrels (*Spermophilus parryii*) of the North Pacific: Indigenous or exotic? *J. Mammal.* 91:1401–1412.
- Dall, W. H. 1870. *Alaska and Its Resources*. Lee and Shepard, Boston.
- Dall, W. H. 1873. Notes on the avifauna of the Aleutian Islands, from Unalashka eastward. *Proc. Calif. Acad. Sci., Ser. 1*, 5:25–35.
- Dall, W. H. 1874. W. H. Dall's diary for 1873–74. Smithsonian Institute Archives, Record Unit 7073, Box 20A, Folder 4.
- Ebbert, S. E., and Byrd, G. V. 2002. Eradications of invasive species to restore natural biological diversity on Alaska Maritime National Wildlife Refuge, in *Turning the Tide: The Eradication of Invasive Species* (C. R. Veitch and M. N. Clout, eds.), pp. 102–109. IUCN SSC Invasive Species Specialist Group. Int. Union Cons. Nat., Gland, Switzerland.
- Fields, W. M. 2000. *Now It Can Be Told: Stories of Alaskan Pioneer Ranchers*. Publication Consultants, Anchorage.
- Fleischner, T. L. 1994. Ecological costs of livestock grazing in western North America. *Cons. Biol.* 8:629–644.
- Friedmann, H. 1935. The birds of Kodiak Island, Alaska. *Bull. Chicago Acad. Sci.* 5:13–54.
- Gabrielson, I. N., and Lincoln, F. C. 1951. The races of Song Sparrows in Alaska. *Condor* 53:250–255.
- Gabrielson, I. N., and Lincoln, F. C. 1959. *The Birds of Alaska*. Stackpole, Harrisburg, PA.
- Galbreath, K. E., Cook, J. A., Eddingsaas, A. A., and DeChaine, E. G. 2011. Diversity and demography in Beringia: Multilocus tests of paleodistribution models reveal the complex history of arctic ground squirrels. *Evolution* 65:1879–1896.
- Gaston, A. J., and Jones I. L. 1998. *The Auks*. Oxford Univ. Press, New York.
- Gibson, D. D. 1970. Recent observations at the base of the Alaska Peninsula. *Condor* 72:242–243.
- Gibson, D. D., and Byrd, G. V. 2007. *Birds of the Aleutian Islands*. Nuttall Ornithol. Club and Am. Ornithol. Union Ser. Ornithol. 1. .
- Gibson, D. D., and Withrow, J. J. 2015. *Inventory of the species and subspecies of Alaska birds*, second edition. *W. Birds* 46, in press.
- Gideon, H. 1989. *The round the world voyage of Hieromonk Gideon 1803–1809*. Translated by L. T. Black. Limestone Press, Kingston, Ontario.

NOTES ON THE BIRDS OF CHIRIKOF ISLAND, ALASKA

- Gill, R. E., Petersen, M. R., and Jorgensen, P. D. 1981. Birds of the northcentral Alaska Peninsula, 1976–1980. *Arctic* 34:286–306.
- Gill, R. E., Tomkovich, P. S., and McCaffery, B. J. 2002. Rock Sandpiper (*Calidris ptilocnemis*) in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 686. *Birds N. Am.*, Philadelphia.
- Golder, F. A. 1925. Bering's Voyages: An Account of the Efforts of the Russians to Determine the Relation of Asia to America, vol. II. Am. Geogr. Soc., New York.
- Grinnell, J. 1901. Record of Alaskan birds in the collection of the Leland Stanford Junior University. *Condor* 3:19–23.
- Hatch, S. A., and Hatch, M. A. 1983a. Populations and habitat use of marine birds in the Semidi Islands, Alaska. *Murrelet* 64:39–46.
- Hatch, S. A., and Hatch, M. A. 1983b. An isolated population of small Canada Geese on Kaliktagik Island, Alaska. *Wildfowl* 34:130–136.
- Hoffman, W., Heinemann, D., and Wiens, J. A. 1981. The ecology of seabird feeding flocks in Alaska. *Auk* 98:437–456.
- Howell, J. C. 1948. Observations on certain birds of the region of Kodiak, Alaska. *Auk* 65:352–358.
- Hultén, E. 1968. *Flora of Alaska and Neighboring Territories*. Stanford Univ. Press, Stanford, CA.
- Johnson, J., and Blanche, P. 2011. Catalog of waters important for spawning, rearing, or migration of anadromous fishes—Southwestern Region, effective June 1, 2011. Alaska Dept. Fish and Game Spec. Publ. 11-08.
- Johnson, M., Conklin, J. R., Johnson, B. L., McCaffery, B. J., Haig, S. M., and Walters, J. R. 2009. Behavior and reproductive success of Rock Sandpipers breeding on the Yukon–Kuskokwim River delta, Alaska. *Wilson J. Ornithol.* 121:328–337.
- Johnson, R. E. 1972. *Biosystematics of the avian genus Leucosticte*. Ph.D. dissertation, Univ. of Calif., Berkeley.
- Keithahn, E. L. 1962. Chirikof, the foggy island. *Alaska Sportsman*, April:16–17, 33.
- Kenyon, K. W. 1964. Wildlife and historical notes on Simeonof Island, Alaska. *Murrelet* 45:1–8.
- Kessel, B., and Gibson, D. D. 1978. Status and distribution of Alaska birds. *Studies in Avian Biol.* 1.
- Khlebnikov, K. T. 1994. Notes on Russian America, parts II–V: Kad'iak, Unalashka, Atkha, the Pribylows. Translated by M. Ramsay. Limestone Press, Kingston, Ontario.
- Lindenkohl, H. 1875. Sketch of Southwest Anchorage, Chirikof Island, Alaska. From observations by Act'g. Assist. W. H. Dall and party in June, 1874. U. S. Coast Survey, Washington, D. C.
- MacDonald, S. O., and Cook, J. A. 2009. *Recent Mammals of Alaska*. Univ. Alaska Press, Fairbanks.
- McIntyre, C. L., Douglas, D. C., and Adams, L. G. 2009. Movements of juvenile Gyrfalcons from western and interior Alaska following departure from their natal areas. *J. Raptor Res.* 43:99–109.
- Murie, O. J. 1959. Fauna of the Aleutian Islands and Alaska Peninsula. *N. Am. Fauna* 61.
- Nack, J. L., and Ribic, C. A. 2005. Apparent predation by cattle at grassland bird nests. *Wilson Bull.* 117:56–62.
- Nilsen, T. H., and Moore, G. W. 1979. Reconnaissance study of Upper Cretaceous to Miocene stratigraphic units and sedimentary facies, Kodiak and adjacent islands, Alaska. U.S. Geol. Survey Prof. Paper 1093.
- North, M. R. 1997. Aleutian Tern (*Sterna aleutica*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 291. Acad. Nat. Sci., Philadelphia.
- Paine, L., Undersander, D. J., Sample, D. W., Bartelt, G. A., and Schatteman, T. A.

NOTES ON THE BIRDS OF CHIRIKOF ISLAND, ALASKA

1996. Cattle trampling of simulated ground nests in rotationally grazed pastures. *J. Range Mgmt.* 49:294–300.
- Phillips, A. R. 1986. *The Known Birds of North and Middle America*, part 1. A. R. Phillips, Denver.
- Phillips, L. M., Powell, A. N., and Rexstad, E. A. 2006. Large-scale movements and habitat characteristics of King Eiders throughout the nonbreeding period. *Condor* 108:887–900.
- Potapov, E., and Sale, R. 2005. *The Gyrfalcon*. Yale Univ. Press, New Haven, CT.
- Powell, A. N., Phillips, L. M., Rexstad, E. A., and Taylor, E. J. 2005. Importance of the Alaskan Beaufort Sea to King Eiders (*Somateria spectabilis*). *Univ. Alaska Coastal Marine Inst. Annu. Rep.* 11:12–22.
- Pruett, C. L., and Winker, K. 2005. Biological impacts of climate change on a Beringian endemic: Cryptic refugia in the establishment and differentiation of the Rock Sandpiper (*Calidris ptilocnemis*). *Climatic Change* 68:219–240.
- Saltonstall, P. G., and Steffian, A. F. 2005. Archaeological sites of Chirikof Island, Kodiak Archipelago, Alaska. Alutiiq Museum and Archaeological Repository, Kodiak.
- Sowls, A. L., Hatch, S. A., and Lensink, C. J. 1978. Catalog of Alaskan seabird colonies. U. S. Fish and Wildlife Service, Anchorage.
- Stresemann, E. 1949. Birds collected in the North Pacific area during Capt. James Cook's last voyage (1778 and 1779). *Ibis* 91:244–255.
- Sullivan, B. L., and Kershner, E. L. 2005. The birds of San Clemente Island. *W. Birds* 36:158–273.
- Tobish, T. G. 2013. Alaska region. *N. Am. Birds* 66:717–720.
- Tobish, T. G., and Isleib, M. E. 1991. Alaska region. *Am. Birds* 45:1149–1151.
- Van Vuren, D. H. 2013. Avian response to removal of feral sheep on Santa Cruz Island, California. *Wilson J. Ornithol.* 125:134–139.
- Vaurie, C. 1965. *The Birds of the Palearctic Fauna. Non-Passeriformes*. H. F. & G. Witherby, London.
- Wehle, D. H. S. 1978. Studies of marine birds at Ugaiushak Island, Alaska, in *Environmental Assessment of Alaska Continental Shelf, Annual Report of Principal Investigators*, vol. 3, pp. 208–312. *Natl. Oceanogr. and Atmospheric Admin., Env. Res. Lab., Boulder, CO*.
- White, C. M., Roseneau, D. G., and Hehnke, M. 1976. Gulf of Alaska coast and southeastern Alaska, in *The 1975 North American Peregrine Falcon Survey* (R. W. Fyfe, S. A. Temple, and T. J. Cade, eds.). *Can. Field-Nat.* 90:259–261.
- Williamson, F. S. L., and Peyton, L. J. 1962. Faunal relationships of birds in the Iliamna Lake area, Alaska. *Biol. Papers Univ. Alaska* 5.
- Williamson, F. S. L., and Peyton, L. 1963. Interbreeding of Glaucous-winged and Herring Gulls in the Cook Inlet region, Alaska. *Condor* 65:24–28.
- Workman, W. B. 1966. Archaeological reconnaissance on Chirikof Island, Kodiak group: A preliminary report. *Arctic Anthropol.* 3:185–192.
- Workman, W. B. 1969. Contributions to the prehistory of Chirikof Island, southwestern Alaska. M.A. thesis, Univ. of Wisconsin, Madison.

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