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BIRDS OF AMCHITKA ISLAND, ALASKA

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AMCHITKA Island, in the Rat Island group of the Aleutian Islands, is volcanic in origin and rises near the southernmost limit of the Aleutian Ridge. It is situated between 178°37'E. and 179°29'E. longitude and 51°21'N. and 51°39'N. latitude (Figure 1). Its length is approximately 55 kilometers (35 miles) and its width 5 to 8 kilometers (3 to 5 miles). It lies approximately 1,200 kilometers (660 nautical miles) southwest of the tip of the Alaska Peninsula and about the same distance southeast of Cape Kamchatka on the Kamchatka Peninsula. The island is part of the Aleutian National Wildlife Refuge.

The maritime climate of Amchitka is relatively uniform and is characterized by fog in summer and clear weather interspersed with frequent storms in winter. The island lies in the path of storms that move eastward from Siberia. The temperature extremes recorded during the study period were -6°C ($+21^{\circ}\text{F}$) in February and $+18^{\circ}\text{C}$ ($+64^{\circ}\text{F}$) in July. Powers, Coats, and Nelson (1960) give the following general weather data obtained from The Arctic Weather Central, 1950, which was taken at the Amchitka air base between 1943 and 1948: the mean annual temperature was $+4.4^{\circ}\text{C}$ ($+40^{\circ}\text{F}$), winds in summer averaged 32 kilometers (20 miles) per hour and seldom exceeded 110 kilometers (70 miles) per hour. In winter, winds averaged 40 kilometers (25 miles) per hour and frequently exceeded 160 kilometers (100 miles) per hour. Precipitation, including 178 cm. (70 inches) of snowfall, averaged 89 cm. (35 inches).

Rock Sandpipers wintered in the shelter of Kirilof Dock, Amchitka Island. At high tide the birds rested, during low tide they foraged on exposed tidal rocks. 26 January 1959. KWK 59-1-10.



Amchitka is treeless. Flora of the subarctic or tundra association cover all suitable areas. The terrain is generally flat or rolling on the eastern half of the island, ranging in altitude from about 45 to 165 meters. The western half is mountainous, rising to an altitude of 420 meters. During World War II, Amchitka was an important air base. As many as 10,000 men are said to have been stationed there. There are three large air strips near the eastern end of the island and a number of miles of surfaced taxi ways to serve them. Roads of crushed rock lead to many parts of the eastern half of the island. Hundreds of telephone poles, rotting Quonset huts, and other buildings scattered over the landscape serve as constant reminders of wartime occupation. During the 1955-1959 periods of our studies, the island, except for our presence, was unoccupied.

Observations of birds in winter for the Aleutian area are few. They have been published for the Unalaska area (Cahn, 1947), Adak (Taber, 1946), and Attu (Sutton and Wilson, 1946). Brief visits to Amchitka have been made by a number of zoologists, usually during the summer season. Available ornithological information for the Aleutian area has been summarized by Murie (1959) and Gabrielson and Lincoln (1959).

The data presented in this paper include observations and specimen records from all seasons and were obtained during four periods that I spent on Amchitka: 27 July to 4 October 1955; 5 May to 26 July 1956; 1 October to 11 December 1957; and 21 January to 20 May 1959. As much as possible, I have attempted to eliminate data that duplicate material already in published form. While sea otter (*Enhydra lutris*) studies were the primary objective of the visits to Amchitka, observations of birds were recorded when time permitted, and an effort was made to collect all unusual species seen. Time did not permit a search for all nesting species.

Predators have had an important effect on certain resident bird populations of Amchitka. The blue fox (*Alopex lagopus*) was introduced there in historical times, but the date of its introduction does not seem to be recorded. The World War II military occupation ended in 1951, leaving behind dogs, cats, and the house rat (*Rattus norvegicus*). A program of predator eradication was immediately begun. In 1951, 180 kilograms (400 pounds) of 1080-treated baits were distributed on the east end of the island. This eradication program eliminated the dogs and cats, and reduced foxes and rats in local areas. In an attempt to eliminate foxes completely, poisoning was continued: 1953-1954, 5,000 strychnine pellets were distributed by air drop over

the western half of the island; 1955, strychnine pellets were distributed by hand over the eastern half of the island; 1956, 40,000 strychnine pellets and 90 kilograms (200 pounds) of fish containing 1080 poison were distributed over the island by air drop; 1957, about 40,000 strychnine pellets were distributed by air drop (R. D. Jones, *in litt.*). In 1959, when snow covered the ground, I searched many miles for fox tracks and saw signs of only one fox on the eastern half of the island. Efforts to eliminate any remaining foxes were intensive in the summer of 1960, but at least one animal could not be hunted down (Jones, *in litt.*).

The extent to which the blue fox has affected bird populations is a moot question. The small passerines were apparently not threatened by them. The Common Teal (*Anas crecca nimia*) and the Mallard (*Anas platyrhynchos*) maintain nesting populations on Amchitka and other islands inhabited for many years by foxes. The Aleutian race of the Canada Goose (*Branta canadensis leucopareia*), however, is now all but extinct. Whether or not the fox is responsible for its reduction is an unanswered question (Murie, 1959).

The house rat is today extremely abundant on Amchitka Island. Neighboring Rat Island was apparently infested prior to 1790, when it received its name. Amchitka, however, was free of rats until World War II military occupation (Murie, 1959). Since then the population has prospered. Even today, nearly 10 years after the departure of the military, great colonies of rats persist in abandoned garbage dumps. From these centers of abundance they have spread to all parts of the island. They are most numerous near shorelines, where food and cover are readily available. Inland, food and cover are sparse and rats are scarce, but I have seen occasional diggings in the tundra at maximum distances from the coast. The degree to which nesting bird populations have been affected by rat predation varies with different species. Near the beach at the head of Constantine Harbor I have watched broods of Common Teal melt away in the course of a few days after hatching and found rat-gnawed remains of ducklings at pond edges. This teal is, nevertheless, the most abundant resident duck at Amchitka. The fact that it nests on inland lakes where rats are not abundant may account for its ability to survive in spite of them. Jones has found rats on all islets adjacent to Amchitka. In spite of their presence on the Kirilof Islets, numbers of the Common Eider (*Somateria mollissima*), Glaucous-winged Gull (*Larus glaucescens*), and Tufted Puffin (*Lunda cirrhata*) annually raise broods there. It appears, however, that the rat has exterminated two nesting species on Amchitka.

the Song Sparrow (*Melospiza melodia maxima*) and the Winter Wren (*Troglodytes troglodytes kiskensis*).

Murie (*in litt.*) found rats common but confined to the beaches on Rat Island, and he notes further that "In my field notes I find no records of song sparrows or wrens [there]." On Atka Island, however, he found rats as well as the Song Sparrow and Winter Wren. But he noted "that on Rat Island these rodents are confined to the beach, while on Atka there is plenty of inland vegetation" and the rats were not concentrated along beaches but more generally distributed inland. The available information indicates that where food and cover for rats are scarce inland the rats concentrate their populations along the shore, which is the habitat of the Winter Wren and Song Sparrow, and these two species may then be in danger of extermination. Rats also became established on Adak, Kiska, and other islands, where they were introduced by the military during World War II (Jones, *in litt.*). Wrens and Song Sparrows are still abundant on Adak. It appears that ecological conditions there may be similar to those on Atka. Rats have escaped on the Pribilofs many times but have never become established there. When the rat becomes established in the favorable habitats that the Aleutians appear to offer, eradication is probably impossible by any known means.

From the ornithological point of view, Amchitka differs from many Aleutian islands. Its population of alcids is small, while the Fulmar (*Fulmarus glacialis*) and Black-legged Kittiwake (*Rissa tridactyla*) are apparently absent from the breeding bird population.

The observations presented are from the eastern half of Amchitka. The western mountainous section is difficult of access, and our work did not take us there.

Sixty-nine species are included in the following annotated list. Among the specimens and observations obtained at Amchitka are two species (*Turdus obscurus* and *Muscicapa griseisticta*) and two races (*Phylloscopus borealis examinandus* and *Motacilla flava simillima*) new to the North American list; these specimens are listed by Gabrielson and Lincoln (1959). Five additional species are represented on the North American list by very few records, and four others found on the North American mainland have not previously been collected in the Aleutians. In addition, there are a number of species listed that have not previously been recorded specifically from Amchitka. Some of these are of quite general distribution in the Aleutians and would therefore be expected at Amchitka. Others, however, have rarely been recorded in the Aleutian area. Species of Asian origin were usually found, as would be expected, during the spring and fall migration periods following storms.

ANNOTATED LIST

Gavia immer. Common Loon. During spring and fall I have seen, at a distance, loons presumed to be this species. On 10 August 1955 about 10 were

seen on Constantine Harbor and in flight over the water, many of them uttering loud calls. In June 1956 a pair, presumably nesting, was seen on a lake near the east end of the island.

Gavia stellata. Red-throated Loon. 16 July 1956 two young, about 10 days old, were seen on a small tundra pond near the middle of the island, and Jones (*in litt.*) saw young on several lakes in the summer of 1960. Pairs, presumed to be breeding, were seen each spring on several lakes on the eastern half of the island. Although said to winter in the Aleutians, they were apparently absent at Amchitka during the winter months.

Diomedea albatrus. Short-tailed Albatross. No living birds have been seen. In Kitchen Middens, several of which are being washed away by tsunami and storm waves, the bones of several avian species are numerous. This species, bones of which were identified at the U.S. National Museum, predominates. Its remains are recorded from middens on other Aleutian Islands (Murie, 1959).

Diomedea immutabilis. Laysan Albatross. In addition to the beach remains of two individuals previously recorded (Kenyon, 1950), a dead bird was found on the beach of St. Makarius Point on 17 June 1956. During an aerial survey on 26 May 1959, a lone Laysan Albatross was seen in flight at 179°58'W. and 51°58'N., approximately 65 kilometers (40 miles) northeast of East Cape, Amchitka. On a dory trip from Amchitka to Semisopochnoi on 24-26 June 1960, Jones (*in litt.*) saw two Laysan Albatrosses; on 14 July he saw another about five kilometers (three miles) south of Windy Island, off the Pacific shore of **Amchitka**.

Phalacrocorax pelagicus. Pelagic Cormorant. This appears to be the most numerous and well-adapted resident marine bird at Amchitka. During violent winter storms, with winds of 110 kilometers per hour and more, when other birds seek shelter, this cormorant frequents its usual inshore feeding areas. It nests principally on islets. On the Kirilof Islets a pair was noted sitting on a newly made nest on 23 April 1959, but nest building appeared to be at its height in mid-May when many birds were seen gathering bills full of grass from the steep slopes of Kirilof Point. Three nests contained one, three, and four eggs on 23 May 1956; birds were incubating on a number of others. On 8 July several nests still contained eggs, and others contained young about a week old. The white flank patches of breeding plumage appear during February. Among about 50 birds seen on 5 February 1959, only one showed white patches. Among about 100 birds seen on 26 February, the majority showed them. Cormorants frequently became entangled in gill nets set at depths of 6 to 15 meters but were seldom taken at depths of 23 to 26 meters in Constantine Harbor. On several occasions I saw a bird surface with a fish in its bill. On 1 August 1955 a Glaucous-winged Gull snatched a fish from a cormorant, which retaliated by grasping the gull's tail feathers. It was towed several yards before releasing its hold. Murie (1959) states that natives of Atka Village told him that this cormorant "will go to the lakes of Amchitka Island in winter." I have seen it only on the sea, never on a lake.

Olor cygnus. Whooper Swan. This species was seen regularly but in small numbers from fall through early spring at Amchitka. Nevzeroff, who spent the winters of 1940 and 1946 on Amchitka trapping foxes, said that he saw several flocks of four to six swans in both seasons and always on Silver Salmon Lake. However, he did not identify them as to species. Murie (1959) obtained native reports of many swans, presumed to be Whistling Swans (*Olor columbianus*), on

Amchitka in the winter months. All swans listed below were examined through a 50-power telescope and were positively identified as *cygnus*. I have seen no other species on Amchitka.

On 26 October 1957 two adults were seen on the lake at the head of St. Makarius Bay. The following day probably the same pair was on Silver Salmon Lake. On 8 November 1957 seven birds, four adults and three subadults in gray plumage, were feeding on Silver Salmon Lake. On 9 November 1957 I collected an adult male (USNM 465720) from this group. It had much body fat and weighed 12.7 kilograms. Its length was 1,437 mm., and the wing span was 2,285 mm. The stomach was filled with finely ground aquatic vegetation. On 9 December 1957 one adult was on the lake at the head of Constantine Harbor. On 15 March 1959 six birds, two adults and four subadults in gray plumage, were on Silver Salmon Lake. On 18 March 1959 the six (recorded above) plus two adults and one subadult were seen. The two groups remained separate but loosely associated on Silver Salmon Lake and when frightened flew to a nearby lake. On 29 March 1959 a lone adult was on Silver Salmon Lake. On 2 April 1959 a flock of nine, six adults and three subadults, rested and fed on Silver Salmon Lake. In summary, during fall months of 1957, seven adult and three subadult swans were seen, and one was collected. During late winter and early spring of 1959 11 adults and 8 subadults were seen. The swans showed a preference for Silver Salmon Lake. The available data indicate that *cygnus* probably visits Amchitka regularly during migration to and from Siberian nesting grounds. The Whooper Swan was added to the North American list when Wilke collected a specimen on St. Paul Island (Wilke, 1944). I found this specimen, which was misplaced during the war, buried among Government files on St. Paul Island. It is now USNM 419832. A second specimen (USNM 397550) was killed and given to me by Anton Kochutin on St. Paul in 1949. The specimen reported from Amchitka is the third specimen record for North America.

Branta canadensis leucopareia. Canada Goose. The decline in abundance of this bird in the Aleutians is reviewed by Murie (1959). Jones (*in litt.*) says that in the early 1950's he saw a pair on one of the lakes at Amchitka, but during a search for nesting waterfowl in the summer of 1960 he found none. I have seen it only once. On 9 May 1959 a flock of seven birds landed on one of the Kirilof Islets and fed on an open grassy area that day and the next. On 10 May I collected a female (USNM 466346), which weighed 1,927 grams. The ovaries had not approached breeding condition. This was apparently a very old bird, being extremely fibrous and tough. The remaining six birds flew westward along the shore and did not return to the Constantine Harbor area. Krog (1953) collected one at this same location on 10 June 1952. During spring and summer months I have walked over many miles of Amchitka's lowland country, skirting the scattered lakes. On 19 and 20 May 1959, during an aerial survey of sea otters, we passed over the majority of Amchitka's lakes and looked for geese without success. There can be little doubt that, as a nesting species, this goose is extinct on Amchitka. On 20 May 1959 Refuge Supervisor David L. Spencer and I made a special effort to inspect every lake on Agattu Island from low altitude flight. The only bird we saw was a Common Loon. All available evidence indicates that today the Aleutian nesting goose population is nearly extinct.

Philacte canagica. Emperor Goose. This species winters in numbers at Amchitka. On 19 November 1957 a low-altitude aerial survey around Amchitka revealed numerous flocks along the beachline, except on the southwestern quarter

of the island where the terrain falls abruptly into the Pacific. An estimate of 500 to 700 birds was made. In the fall the first small flock of six birds was seen on 16 October. During January and February several hundred geese, in flocks of 30 to 50 birds, occupied beaches of bays or rocks along points having areas of kelp exposed at low tide. By early March the number of geese present became about half that of the midwinter period. The number present continued to decrease steadily throughout March and April. The last flock was seen on 21 April. Although this goose may walk to fresh-water puddles and small ponds beside the beach, or gather at the mouths of streams on the beach to bathe and preen, Jones and I have not seen it on lakes at Amchitka, but Jones (*in litt.*) has observed it in the fall on lakes near Cold Bay, Alaska. It habitually feeds among rocks and kelp beds at low tide, but after storms, flocks gather to feed among heaps of kelp that have washed ashore.

On 3 and 4 March 1960 an aerial survey was made in the eastern Aleutians. Dale W. Rice and I recorded our estimates of the number of Emperor Geese in each flock seen. The data obtained are summarized below:

Islands of Four Mountains	1,020
Fox Islands	
Umnak Area	2,375
Unalaska	7,375
Krenitzin Islands	1,400
Unimak-Amak	200
Sanak and Sandman Reefs	100
	<hr/>
	12,470

Considering that, at this period, many of the geese wintering in the Aleutians have moved eastward, our count perhaps represents between one half and one third of the wintering population of the Aleutian Islands, which I estimate at 25,000 to 37,000. Spencer and Jones (*in litt.*) suggest that important numbers of Emperor Geese may winter along the Alaska Peninsula and that the total Emperor Goose population may be on the order of 200,000 birds. Natives of Atka and Nikol'ski told me that they kill a few each winter, but that the birds quickly become wild where they are hunted and for this reason the number taken is not large.

Anas platyrhynchos, Mallard. Among the waterfowl this species is second in abundance only to *Anas crecca nimia*. In late January several large flocks, one of about 200 birds, were seen at Rifle Range Point. Generally, however, flocks consisted of 5 to 15 birds. In early March, when all fresh water was frozen over, Mallards fed among pools and kelp exposed at low tide. Even at other times they habitually fed to some degree in the tidal zone. Pair formation takes place in mid-March. By 9 May mated pairs occupied small ponds and marshy areas. By 10 June females were seldom seen, indicating that incubation was in progress. On eight occasions, between 11 and 29 June 1956, an adult female was flushed from a small pond by the passage of our truck on a surfaced road. This bird left the pond to approach the truck route when we were at a distance of about 200 meters. She flew low and rapidly, crossed the road in front of the truck, then turned to fly parallel to it, increased her speed to stay about 10 meters ahead of and on the right-hand side of the truck; a position she held for approximately 1-2.5 kilometers. She then turned left in a high arc over a hill, and returned to

her starting place. According to the speedometer her top speed was 92-96 kilometers (58 to 60 miles) per hour, while about 60 meters of altitude was gained along the sloping, up-hill road. Her flight pattern during this decoy or distraction behavior was the same on each occasion. In early October the Mallard was less abundant than at other seasons. By mid-October the number present increased, perhaps indicating some interisland migration.

Anas acuta. Pintail. This species occurs regularly in the spring but not in great numbers: 1 March, one at head of Constantine Harbor; 22 and 28 March, one pair on lake near Constantine Harbor; 4 April, four seen; 7 April, five seen; 15 April, flock of 50; last two weeks of April, flocks seen on numerous occasions; 3 May, one pair, St. Makarius Point. Jones (*in litt.*) saw a brood of five on 15 July 1952 near Kirilof Bay, and several more in the summer of 1960.

Anas crecca nimia. Common Teal. This species is abundant throughout the year. On the eastern half of Amchitka the late summer population is roughly estimated to be at least 1,000 birds. During winter months flocks of 25 to more than 100 occupy favorite ponds or beaches during high tide. At low tide the birds feed in shallow water among exposed reefs. In the spring and summer they feed among the vegetation of shallow fresh-water ponds and lakes and to a lesser degree in salt water. Pair formation takes place in March, and by 9 May the pairs are scattered widely among the small ponds and lakes. The nesting period is prolonged. A nest with six partially incubated eggs was seen 8 June; on 12 June a newly hatched brood was seen, and on 17 June two nests, containing six and nine fresh eggs, were found. On 31 July a brood of six newly hatched young and broods of two and three young each, about half grown, were seen. Nests are placed near stream edges and in grass clumps, often several hundred meters from the nearest water. By late August the flocks have formed, mostly on lakes near shorelines. During October the number seen at usual resting and feeding places decreases, perhaps indicating a degree of migration. Many, however, remain throughout the winter. Predation by the blue fox has been unimportant during the past few years because of the fox-reduction program. The present teal population seems not to have been damaged by the many years of high fox population of the 1930's and 1940's. Today the excessive number of rats along shore areas may act to limit the teal population there. Seldom do more than one or two young from broods hatched near beach areas reach flight age. The Bald Eagle and Peregrine Falcon often harass teal. However, on the many occasions I have watched these raptors, especially the falcon, stoop on teal, I have never seen one caught. The teal, when flying, remain in flocks near the water; as a falcon approaches, all immediately flop into the water where the falcons do not attack them. Eagles are easily avoided by making sharp turns.

Anas carolinensis. Green-winged Teal. On 15 March a male (USNM 466828) weighing 283.5 grams was taken on a small shallow lake at the head of Constantine Harbor. It was near but not with a flock of about 60 Common Teal. As Murie (1959) points out, this species is quite abundant in the Alaska Peninsula area, only stray individuals moving westward into the Aleutians. It has not previously been recorded from Amchitka.

Mareca penelope. European Widgeon. On 30 April a flock of 11 (7 males, 4 females) was closely observed through 7 x 50 binoculars on the lake near the head of Constantine Harbor. They were joined by another pair on 2 May. The original flock of 11 birds was observed repeatedly on several lakes until 10 May,

when they apparently departed. Jones (*in litt.*) says that he saw this species twice on Amchitka in 1949, again in 1960, and has checked one in a hunter's bag at Cold Bay on the Alaska Peninsula. The species has not previously been recorded from Amchitka, but other records indicate that it may be expected in the Aleutians in spring (Murie, 1959).

Spatula clypeata. Shoveler. On 7 April Jones and I saw a flock of five at close range at Rifle Range Point. Jones (*in litt.*) has observed Shovelers at Amchitka several times, but the species has not previously been recorded from the Aleutians.

Aythya marila. Greater Scaup. Between 29 January and mid-April flocks of 10 to 20 birds visited several of the deeper fresh-water lakes, particularly Jones Lake, on the east half of Amchitka. Individual flocks apparently visited the island for a week or two, then left. This species has frequently been recorded throughout the Aleutians during spring and summer months. Jones (*in litt.*) found it nesting on Amchitka in 1960 and "banded a few nestlings."

Bucephala clangula. Common Goldeneye. This species winters in moderate numbers. Flocks of 6 to 15 birds, sometimes mixed and at other times of one sex, frequented Constantine Harbor and nearby lakes. Other flocks were seen at South Bight (40 birds on 1 March 1959) and at several places along the Pacific and Bering Sea shores. My last observation is for 29 March. Although recorded at other places in the Aleutians, it has not previously been specifically recorded from Amchitka.

Bucephala albeola. Bufflehead. In summarizing the data on this species, Murie (1959) indicates that it is of rather sparse and irregular distribution in the Aleutians in winter. From January to late April a number remained at Amchitka. The following were noted: 27 January, two flocks: 12 birds (4 males and 8 females) and 29 birds (10 males and 19 females); 19 February, 29 birds (8 males and 21 females) all near the head of St. Makarius Bay. In addition, pairs and small flocks were regularly seen on inland lakes, especially on Jones Lake. The species should, therefore, be considered a rather common wintering bird at Amchitka.

Clangula hyemalis. Oldsquaw. Flocks of six to as many as 150 birds were seen frequently in Constantine Harbor and along the Pacific side of the island, February through April. Courtship behavior was first observed on 17 February 1959. Although an occasional pair may be seen on lakes in the spring, I have not seen evidence of nesting. In the fall the first flock of 11 males was noted on 4 November.

Histrionicus histrionicus. Harlequin Duck. This species is present throughout the year at Amchitka, as it is reported to be throughout the remainder of the Aleutians. According to Murie (1959) its status as a breeder in the Aleutian area is uncertain. On Amchitka I have seen no indication of nesting and have seen this duck only on salt water. It feeds by diving and foraging among rocks exposed at low tide. The stomachs of three individuals taken on 21 April 1959 all contained the same food items. The total number of individual food items is summarized in order of abundance: *Littorina*, 301; chitons, 15; amphipods, 7, limpets, 4.

Somateria mollissima. Common Eider. Although this species may be present near Amchitka throughout the year, it is scarce and occurs offshore between

mid-October and April. The first seen were two females, 1.6 kilometer (1 mile) offshore, on 26 February. The first eiders seen on rocks were eight females and three males at St. Makarius Point on 25 March. Pairing appears to occur in early or mid-May, and many pairs remain in flocks of up to 10 birds until nearly mid-June. Egg laying begins about 8 to 10 June and continues into late June. Mating was observed on 24 June. The first young, a brood of four, were seen on 2 July. The majority nest on offshore islets, but a few widely separated nests were found on the main island. The Kirilof Islets, at the mouth of Constantine Harbor, is one of Amchitka's important nesting areas. Lensink and I conducted a nest census of the three main islets on 8 July 1956. The data are summarized below:

<i>No. nests</i>	<i>Nest contents</i>	<i>Total eggs or young</i>
4	1 egg	4
9	2 eggs	18
13	3 eggs	39
20	4 eggs	80
8	5 eggs	40
5	6 eggs	30
1	6 newly hatched	6
5	young hatched and gone	20 (est.)
—		—
65		242

Little predation occurs during incubation. The nests are usually well hidden in clumps of *Elymus*. Gulls nesting nearby were not seen to rob any nests during our census. Rats are apparently unable to get at the eggs during incubation. There are no foxes on the islets. Shortly after hatching, the young are led to the water by their mothers. From this time appreciable loss occurs, probably to rats when the broods are brought ashore at night. Gulls have not been seen to take the chicks but undoubtedly do get some of them. Jones (*in litt.*) saw "Bald Eagles take the young off the water" in the summer of 1960. Within a few weeks after hatching it is not unusual to see groups of three or four ducks with only five or six ducklings among them. In late summer and fall, mothers and young congregate into a single group near the head of Constantine Harbor. By this time, among this nesting group, approximately 40 to 70 young remain alive.

Melanitta deglandi dixonii. White-winged Scoter. In his review of the distribution of this species, Murie (1959) indicates that its frequency of occurrence decreases toward the western Aleutians. Observations at Amchitka confirm this. The birds are, however, present there in the winter in small flocks of 2 to 12 birds. Prior to mid-March they were seen only on the open sea about 3 kilometers offshore. On 17 March two pairs were seen in Constantine Harbor. From this date until late April, five or six were always present there. An adult male (USNM 466787), food diving in 23 meters of water, weighed 1,247 grams, and the stomach contained the remains of four or five green sea urchins (*Strongylocentrotus drobachensis*) 15 to 20 mm. in diameter. The testes were enlarged, but I have seen no indication of nesting at Amchitka.

Mergus serrator. Red-breasted Merganser. The nesting of this species on Amchitka was established by Beals' observation of a brood of seven young on 3

September 1944 (Gabrielson and Lincoln, 1959). Single birds, pairs, and groups of three or four are present throughout the year, both on fresh and salt water, but they are not numerous. In midwinter they are quite scarce, becoming slightly more numerous in spring. Courtship behavior was observed on 3 April.

Haliaeetus leucocephalus. Bald Eagle. This species is common and may be seen at almost any time and any place on the island, except during storms when it seeks a sheltered perch on a leeward cliff or hillside. At least nine pairs nest annually on the eastern half of the island. Seven of the habitually used eyries are on the Bering Sea shore and only two on the Pacific side. Preference for the north exposure may reflect a tendency to avoid winds that prevail from a southerly direction during spring and summer months. Incubation may begin in early April but varies with individual pairs. On 12 April two pairs were seen incubating. Newly hatched young have been found on 13 and 25 May and 23 June. Although it is not unusual that three young are hatched, it is seldom that more than one or two are successfully fledged.

During the period of intensive fox poisoning at Amchitka, in the early and mid-1950's, the eagle population was somewhat reduced. Several dead birds were found that had eaten poisoned pellets. Local reproduction and an influx of birds from other areas, however, quickly restored the population, and in 1959 it had apparently again reached its natural ceiling.

This eagle is primarily a carrion feeder, subsisting on marine mammal, bird and fish remains that wash ashore. Small items may be carried to nests or feeding stations, but a number of eagles visit or remain near large beached carcasses until they are consumed or washed away. On 27 October eight subadult and two adult eagles rested near a dead sperm whale. Similar numbers are often seen near large carcasses. Sea otters die in considerable numbers during late winter and early spring storms. Eagles attack the rotting carcasses through the abdomen, turning the skin inside out and leaving it attached to the skeleton only at the tail, digits, and head. Four or five eagles have been observed to thus clean all soft parts from an otter carcass in two to three days, leaving most of the skeleton and skin. Krog (1953) on the basis of the remains of three sea otter pups in an eagle nest concluded that the Bald Eagle is a predator of the sea otter. Jones and I have also found the remains of sea otter pups in eagle nests, but on the basis of many hours of field observation by Jones, Lensink, several Aleutian natives, and myself, in areas where both eagles and sea otters were present, I believe that eagles cannot be considered a predator of the sea otter. No one, to my knowledge, has seen an eagle attack a living sea otter. Frequently I have seen mother sea otters food-diving, the pup left floating on the surface, while eagles flew low overhead or rested on nearby cliffs. The otters at Amchitka show no fear of eagles. I have seen only one eagle pay any attention to an otter. This individual was eating a fish. The eagle swooped toward it, but the otter rolled over, holding the fish under water beneath its body, until the eagle passed. Since the eagle did not attack the otter's back, which remained above the surface, it was presumably interested only in the fish. Dead otter pups wash ashore at Amchitka with moderate frequency, particularly during the late winter-early spring stormy period. These are quickly found by eagles and being small are carried to nests. That an eagle would rarely take a living sea otter pup, left unprotected while its mother gathered food beneath the surface, must, of course, be considered a possibility. The sea otter population at Amchitka has now reached a population ceiling.

another indication that predation by eagles is negligible. Although eagles have been seen to take living birds, it is my conclusion that they seldom take a healthy adult unless it is in some way hindered from normal escape. At Amchitka, eagles are quick to take a gull or waterfowl wounded by gunfire. On many occasions I have watched eagles attempt to catch healthy waterfowl, cormorants, and gulls but without success. In flight, healthy birds easily avoid the clumsy flight of eagles, but Jones (*in litt.*) has seen diving ducks plucked from the water's surface by a swooping eagle. Eagles are rarely seen within a kilometer of the gull colony on the Kirilof Islets during the nesting season. Those that attempt to enter this area are quickly driven away by a swarm of attacking gulls. It appears most doubtful that the Bald Eagle could be considered an important predator on any species in the Amchitka area. Murie's data (1940) indicate that the Bald Eagle's diet is composed of 58.9 to 86.0 per cent birds. This is based on food remains in nests, and on pellet examinations. In some areas these data may accurately reflect food habits of this species. At Amchitka, however, such figures must be considered in the light of field observations. The remains of many mammal carcasses and large fish, on which the eagles at Amchitka subsist to an important degree, would not often be detected in pellets or at nests. The remains of birds and smaller mammals accumulate over a long period in nests. Such remains were noted to persist in recognizable form at an Amchitka eagle nest for several months. The degree to which the Bald Eagle actually subsists on birds in areas similar to Amchitka is probably less than data gathered from nests would indicate.

The plumage of the subadult Bald Eagle, which Murie (1959) discusses, is extremely variable, showing a wide range of markings intermediate between uniform brown and the adult plumage. Undoubtedly this condition has caused confusion in field identification of species. During 13 field seasons spent in the Aleutian and Pribilof areas, I have searched carefully for other species of eagles but have seen none. I observed an eagle resembling a Gray Sea Eagle (*Haliaeetus albicilla*), which proved, on close examination, to be a Bald Eagle in intermediate plumage. The occurrence of other eagles in the Aleutian-Pribilof area must be considered as accidental, and only occurrences substantiated by specimens should be accepted.

Circus cyaneus. Marsh Hawk. At least one individual remained on Amchitka from 20 October to 8 November. During this period it was repeatedly seen at several locations on the eastern half of the island. It was very shy, and attempts to collect it were unsuccessful. The abundance of rats and small birds apparently furnished an adequate food source. Several observations indicate that this species may rarely stray westward in the Aleutians (Murie, 1959).

Pandion haliaetus. Osprey. On 20 October 1957 one individual remained for several hours along the shores of Constantine Harbor, where it soared on updrafts along the bluffs and was studied through 7 x 50 binoculars. Although this species occurs in Kamchatka, no other record for the Aleutians has been reported.

Falco rusticolus. Gyrfalcon. The status of this species in the Aleutians previously was based only on sight records which indicated that it infrequently occurs there. A female taken on 8 November 1957 (USNM 465712) proved to be *F. r. obsoletus*. Its stomach was filled with the remains of a rat. On 28 February 1959 three Gyrfalcons were seen and a female taken (USNM 466315), which was identified as *F. r. uralensis* > *obsoletus*. It weighed 1,729 grams, and the stomach contained the remains of a rat. On 10 March 1959 one was seen on Kirilof Point

and another in the same area on 25 March. On 5 April three were seen at Rifle Range Point, and on 12 May one was seen in the same area. All birds were of the dark phase. This species apparently visits Amchitka sporadically in the fall to spring period, particularly in late winter or early spring during or shortly after periods of westerly circulation. I have seen no indication that it nests on Amchitka. Bond (1949) has shown that diagnostic characters of *F. r. obsoletus* and *F. r. uralensis* overlap. The Amchitka specimens appear to be from this zone of intergradation. It would appear that more specimens from breeding populations of the several races must become available before the origin of winter migrants can be properly established.

Falco peregrinus. Peregrine Falcon. This falcon is most abundant on Amchitka during summer and fall months. During these seasons a man on foot anywhere on the eastern half of the island is frequently escorted by one, usually in immature plumage, watching for rosy finches (*Leucosticte tephrocotis*) or Lapland Longspurs (*Calcarius lapponicus*) that take wing. Also one could be seen near any pond or lake frequented by waterfowl. In winter and spring they are relatively scarce. On cliffs of the eastern half of the island I noted the approximate locations of two eyries and found a third. On 17 June 1956 it contained one half-grown young. Incubation appeared to be in progress on 1 March 1959. Apparently most of the birds hatched the previous season leave Amchitka before the breeding season.

Falco columbarius bendirei. Pigeon Hawk. A male (USNM 466314) in subadult plumage was taken on 5 February 1959. It weighed 113 grams, and the stomach contained remains of a rosy finch. Sight records were obtained: last week in May 1956, one seen on two successive days; 31 January 1959, one seen; 7 February 1959, one seen; 10 March 1959, two seen; 26 March 1959, one seen. Those that could be clearly observed were in heavily streaked subadult plumage. I suspect that individuals remained at Amchitka only a day or two and then left the island. Twenty-five to 30 kilometers were covered almost daily on roads. If the birds had remained for several days, they would undoubtedly have been seen in favorite places, which appeared to be the Kirilof Point and Rifle Range Point areas. On the basis of the above observations, this species might be considered a scarce but regular winter and spring visitor at Amchitka. Murie (1959) considers this species rare in the Aleutians and mentions only two specimens from Unalaska, plus a sight record from Adak and another from Kiska.

Lagopus mutus gabrielsoni. Rock Ptarmigan. In 1955, 1956, and 1957 this Ptarmigan was quite scarce. It was much more abundant in 1959, perhaps because of the reduction of foxes. On a 22-kilometer (14-mile) drive 15 to 20 birds could regularly be seen in 1959, where only two to four were usually seen in previous years. In 1959, several flocks of 4 to 10 birds occupied the area between Kirilof Point and St. Makarius Point, where in previous years pairs or individuals were rarely seen. The summer plumage begins to appear in early March, and pair formation apparently begins in mid-March, when some of the birds leave the flocks. Crowing and courtship flights were first observed on 9 May 1959. Five adults were collected and are in the U.S. National Museum collection.

Grus canadensis. Sandhill Crane. This species is recorded from the Aleutians west of Unimak Island only at Bogoslof, Attu, and Agattu Islands (Murie, 1959). I have not seen it on Amchitka, but Jones (*in litt.*) observed three birds near Aleut Point from a distance of 50 meters on 10 and 11 June 1960.

Haematopus bachmani. Black Oystercatcher. Almost every point is occupied by a pair of oystercatchers. Except during storms the pairs are scattered. During winter and spring storms they gather in flocks in sheltered areas. The more violent the storm, the larger the flocks become. On 4 March 1959, when the wind was 110–130 kilometers (70 to 80 miles) per hour, a flock at St. Makarius Point numbered 27 birds. Again on 6 May, shortly after a storm began, a flock of 10 oystercatchers had gathered. After the storm had progressed for several hours, becoming more violent, 14 additional birds had joined the flock. Fresh eggs were found on 23 May 1956, three; 29 May, two; and 7 June, one. An estimate, based on incomplete counts, places the resident population at 80 to 100 pairs on the eastern half of Amchitka.

Pluvialis dominica. American Golden Plover. This species stops, and then briefly, at Amchitka during migration. One was seen at Makarius Point on 11 June 1956, and a flock of four seen on 18 October 1959 at the head of Constantine Harbor, when disturbed, circled to 150 meters and then headed south. The dearth of other records indicates that Amchitka may be between routes of migration of this species, which breeds in North America and Asia.

Arenaria interpres. Ruddy Turnstone. I saw a few small flocks and stray individuals on Amchitka during the latter half of October 1957, and Jones (*in litt.*) saw three small flocks in August 1960. Apparently this island is not on the main migration route of this species. Many hundreds stop on the Pribilofs in late summer.

Tringa glareola. Wood Sandpiper. During the first two weeks in June several individuals were seen on fresh-water marshy areas. Two were collected on 10 June 1956, but one was eaten by a rat before it was prepared. The other (sex unknown) was preserved (USNM 464728). One other specimen was taken on St. Paul Island in 1954. Previously, the species was represented on the North American list by only one specimen taken on Sanak Island on 27 May 1894 (Littlejohn, 1904). More careful observation might reveal that this species stops regularly at Amchitka in small numbers during migration.

Heteroscelus incanum. Wandering Tattler. The first fall migrant was seen on the shore of Constantine Harbor on 10 August 1955. Several other individuals have been seen, but unfortunately I failed to keep a record of the dates. It is an uncommon migrant.

Erolia ptilocnemis couesi. Rock Sandpiper. During October and November small flocks of up to 10 birds were seen feeding on marshy upland tundra areas, and scattered individuals and small groups frequented the beaches. In winter months they gathered in large flocks. From January through March few were seen scattered along beaches or on uplands. During this period a concentration varying from 50 to 160 birds was noted daily on the rocks near Kirilof Dock where the birds rested at high tide and fed at low tide. By 21 April the flock was reduced to 15 birds, the majority having moved to fresh-water or upland areas. By 5 May all had left the dock area, and pairs were seen occupying territories well away from beaches. A small number, usually single birds, frequented the beaches.

Erolia alpina pacifica. Dunlin. On 26 January 1959 a lone male (USNM 466312), weight 50.5 grams, was collected on the sand beach at the head of Constantine Harbor. This appears to be the first specimen taken in the Aleutians. It apparently strays into the Aleutians only rarely and has previously been re-

corded on the basis of sight records at Umnak (Murie, 1959), and Adak (Taber, 1946).

Limosa lapponica baueri. Bar-tailed Godwit. I have seen six birds on the beach at the head of Constantine Harbor. On 3 June 1956 three specimens, two males and a female (USNM 464725, 464726, and 464727), were taken from a flock of four. On 14 May 1959 two were seen and taken; both were females (USNM 466323 and 466324), and weighed 198.5 and 127.6 grams, respectively. They had little subcutaneous fat. In late May and early June of 1960 Jones (*in litt.*) "saw a flock of about 200 from which three were collected. [The flock] stayed for quite a while and we saw small numbers at widely separated points." Although there are comparatively few records of this species for the Aleutians (Murie, 1959), it is apparent that migrants stop regularly at various points throughout the Aleutians.

Crocethia alba. Sanderling. On 23 April 1959 Jones found a flock of 11 Sanderlings on the sand and cobble beach at the head of Kirilof Bay. On 25 April they were still in the same area, and we took three (USNM 466831, 466832, and 466833), two females and one male. A male obtained by Beals on 7 February 1941 at Amchitka (Murie, 1959) is apparently the only other record for the Aleutian Islands.

Lobipes lobatus. Northern Phalarope. During summer months scattered pairs occupy some of the shallow lakes and ponds. During dory trips near Amchitka in August of 1960, Jones (*in litt.*) obtained the following observation: "We saw a large flock (about 150) 2 or 3 miles off the Crown Reefer and another in the middle of Oglala Pass."

Stercorarius parasiticus. Parasitic Jaeger. A pair in dark plumage was first seen on 12 May 1956 beyond the air strip on the east end of Amchitka. During the remainder of May and June one or two pairs were seen whenever we visited this area. Krog (1953) reports it as nesting, but we did not find nests.

Larus glaucescens. Glaucous-winged Gull. This gull is numerous at Amchitka throughout the year. A colony on the Kirilof Islets is composed of about 100 pairs. On 10 March 1959 several individuals had taken territories. Mating was observed on 18 May 1956. On 21 May four nests with two eggs and one nest with one egg were found in addition to several nests in which no eggs had yet been laid. By 23 May about 15 nests contained three eggs. On 3 July two nests were found with hatching young. By 8 July the colony contained freshly laid eggs, hatching eggs, and chicks in all stages of growth, some showing pin feathers. The prolonged nesting period may have been a result of our visits to the colony early in the season.

Sterna paradisaea. Arctic Tern. A flock of about 20 birds was frequently seen during spring and summer at Crown Reefer Point. These birds behaved as if nesting, but I was unable to find nests in that area. Krog (1953) found this species ". . . nesting quite commonly in the interior of the island." This was not the case during the period of my observations or of Jones (*in litt.*). One pair nested on the Kirilof Islets. A fresh egg, which later hatched, was found on the large Kirilof Islet on 13 June 1956, and Jones found one fledgling on St. Makarius Point 24 July 1960.

Uria lomvia. Thick-billed Murre. This murre is scarce at Amchitka. Lone individuals occasionally enter Constantine Harbor. During the six-kilometer

dory trip along the north shore of the eastern half of Amchitka, between Constantine Harbor and East Cape, we seldom saw more than four to six individuals. Perhaps fewer than a dozen pairs nest along this coast, and I have seen no indication of nesting on the south shore. During aerial surveys around the island, I have seen no indication of a large colony. The Common Murre (*Uria aalge*) is apparently absent from the island.

Cepphus columba. Pigeon Guillemot. Approximately 15 pairs enter Constantine Harbor in mid-March, and about half this number nest in May on beams under Kirilof dock. During the winter we found the birds scattered and usually about two kilometers offshore. Krog (1953) saw no evidence of nesting in May of 1952. A female (USNM 464732) taken on 7 May 1956 was identified as intermediate between *C. c. kaiurka* and *C. c. columba* by Aldrich. Two females (USNM 466792 and 466829) collected on 26 February and 23 March, respectively, have been identified as *C. c. columba*. Storer (1950) presumed that *kaiurka*, the Commander Island race, extended eastward to Umnak. These specimens support, in part at least, the conclusion that Amchitka is in a zone of intergradation between the two races. A larger series should, however, be collected at various islands of the outer Aleutians.

Synthliboramphus antiquum. Ancient Murrelet. This murrelet was seen frequently on Constantine Harbor and in the vicinity of the Kirilof Islets in spring and summer. Flocks usually numbered fewer than 10 birds. The earliest observation was a flock of five on 23 April 1959. The species may breed at Amchitka, but I have not found eggs.

Cyclorhynchus psittacula. Parakeet Auklet. This species is scarce at Amchitka. We found them singly or in pairs from 1-1.5 kilometers offshore in winter and spring months. In the course of a six-kilometer dory trip we seldom saw more than two or three. I have never seen it on cliffs, and if it nests at all on Amchitka it does so in very small numbers.

Aethia cristatella. Crested Auklet. This species is scarce at Amchitka. During the summer a few scattered individuals were seen on dory trips, usually about a mile off the north shore. On a six-kilometer dory trip from the mouth of Constantine Harbor, six were recorded. I have not seen it on cliffs, and if it nests at all on Amchitka it does so in very small numbers.

Aethia pusilla. Least Auklet. This species is usually scarce at Amchitka. During fall, winter, and spring, birds were seen singly or in groups of two or three about a mile off the north shore. In the winter of 1952, however, Jones (*in litt.*) found them abundant off Amchitka. The largest number that I recorded on a six-kilometer dory trip was 18 on 23 April 1959. I have seen no indication of nesting.

Fratercula corniculata. Horned Puffin. This species is scarce at Amchitka. During winter and early spring occasional single individuals were seen about a mile offshore. Three or four pairs nest each year under Kirilof dock. Aside from these, I have seen no indication of nesting.

Lunda cirrhata. Tufted Puffin. This species was seen throughout the year, but it was scarce and well offshore in the winter. The first birds were seen at the Kirilof Islets on 9 May, where there was a colony of about 50 to 70 pairs. A few additional pairs nest in burrows near the tops of cliffs on Kirilof Point. Several heavily incubated eggs were found on 8 July.

Nyctea scandiaca. Snowy Owl. A single individual was seen several times

during the summer of 1956, and two were seen during the winter and spring of 1959. The birds were always seen on the rolling uplands near the middle of the island, except after a heavy snowfall, when one was seen on the east end of the island on 16 February. No indication of nesting could be found.

Asio flammeus. Short-eared Owl. On 26 June 1956 an individual, dead several days, was found at East Cape. On 28 June one was seen flying across the tundra near the airstrip. On 21 February 1959 a male (USNM 466316), weighing 340 grams, was taken on St. Makarius Point. Its stomach contained only a fresh dropping, probably from a Rosy Finch. There were heavy layers of subcutaneous and abdominal fat. This species nests as far west as Unalaska Island but apparently wanders more or less regularly westward to Attu (Murie, 1959).

Corvus corax. Common Raven. The raven was formerly resident on Amchitka (Jones, *in litt.*). The fox-poisoning program has, however, now eliminated the resident population, but occasional pairs visit the island. In 1955 a pair was seen only once on 26 September. In 1956 two pairs remained in the vicinity of Constantine Harbor during part of the summer. In 1957 two pairs were present during the first two weeks of October. These occurrences might indicate that the species will eventually become re-established on Amchitka.

Troglodytes troglodytes tanagensis. Winter Wren. Dall (1874) noted that young Winter Wrens were "very plentiful" on Amchitka in July 1870. Murie, quoting from his 1937 field notes, says (*in litt.*): "Winter Wrens are particularly common on this island." In 1937 he found two nests there (Murie, 1959). Although I searched diligently for wrens in all seasons, I saw only one in the 1955-1959 period. This one, a male (USNM 465418), was located by Krear on 4 November 1957, feeding in cracks on the face of a beach cliff 1.5 kilometers southwest of South Bight. Of this specimen Aldrich (*in litt.*) says, "Your Winter Wren specimen proved to be a surprise since it belongs to the race *tanagensis* rather than *kiskensis*, the form which was formerly recorded from Amchitka." I know of only one additional observation of wrens there since World War II. In May 1955 Jones (*in litt.*) saw one on the islet off Chitka Point. Aside from the rats introduced on Amchitka during the 1940's, no other ecological change is evident, so it may therefore be assumed that the rats exterminated the wren population. Nesting wrens would be most vulnerable. They nest among rocks and tumbled-down structures along beaches in locations easily accessible to rats, abundant in these areas. It is interesting to note, in this respect, that this wren is not recorded from Rat Island (Murie, *in litt.*). The 1957 specimen of *tanagensis* was undoubtedly a wanderer from an island east of Amchitka. Since this race has not previously been recorded from Amchitka, the question is suggested as to what extent interisland wandering and subsequent establishment of individuals in populations of another race takes place.

Turdus obscurus. Dusky Thrush. A male (USNM 464735), with testes approaching breeding condition and much body fat, was first seen searching for food beside a stream emptying into Cyril Cove on 27 May 1956. It was quite wild but remained in the same general area during a half hour of stalking. On 19 October 1957 another individual was seen on a sheltered beach among the *Elymus* about two miles southwest of South Bight. This individual was so wild that it could not be taken. This species, which breeds in northeastern Siberia, is a new addition to the North American list.

Phylloscopus borealis examinandus. Arctic Warbler. In mid-October of 1957

a number of these birds apparently visited Amchitka. A male (USNM 465415) was taken on 17 October and another (USNM 465421) on 23 October. Both specimens contained much subcutaneous and abdominal fat. Five individuals were seen between 15 and 23 October, at the following locations: head of Constantine Harbor, end of St. Makarius Point, and head of St. Makarius Bay. All frequented upper beach areas where they foraged about the stalks of *Senecio* and often disappeared among the *Elymus* clumps. The two specimens constitute the first records of the occurrence of this Asian subspecies of Arctic Warbler on North American soil. This race breeds on the Kamchatka Peninsula and on the Commander Islands.

Muscicapa griseisticta. Gray-spotted Flycatcher. On 1 June 1956 Bennett took a female (USNM 464740) having considerable body fat. It was near Kirilof dock and perched on a pile of old timbers, from which it flew several times in pursuit of insects. The stomach contained broken parts of insects. These were examined by R. H. Foote and C. W. Sabrosky of the Division of Insects, U.S. National Museum, who gave the following identifications: various species of *Phaonia*, *Hydrotaea*, and *Scopeuma*, and an unidentified helemyzid. This is the first North American record of the Gray-spotted Flycatcher. Its nearest known breeding place is Kamchatka. Apparently this specimen is the first member of the family Muscipidae to be taken in North America. Aldrich says (*in litt.*): "This specimen matches the unique type of *Butalis pallens* Stejneger (1887), obviously a member of the species *Muscicapa griseisticta* from Bering Island, in its pale coloration. It is different in this respect from all other specimens of the species in the U.S. National Museum. If, after collection of additional material from Bering Island, *pallens* proves to be distinct, the Amchitka Island specimen should be referred to this race."

Motacilla alba. White Wagtail. On 19 May 1956 one individual was seen near Kirilof dock. Snow Buntings chased it persistently, and it several times sought refuge near an abandoned warehouse. It was so wild, however, that in an hour of stalking it could not be taken. This species is rare in the Aleutian area. The Asian race *lugens* has been collected on Attu, and there are several sight records of the species from there (Murie, 1959).

Motacilla flava simillima. Yellow Wagtail. On 25 May 1956 a pair of Yellow Wagtails was seen near the beach at the western corner of Constantine Harbor. The birds were extremely wild, and efforts to take them were fruitless. On 26 May the birds were again seen in the same location. Bennett, after an hour of stalking, was able to obtain one, a male (USNM 464738), having considerable body fat. These are the only Yellow Wagtails that I have seen on Amchitka. This would indicate that the race breeding in northern Alaska does not migrate through the Aleutians, as once supposed (A.O.U., 1931), and that one seen on Attu (Turner, 1886) probably belonged to the eastern Siberian race. The specimen here reported is the first record of this race for North America.

Anthus spinoletta pacificus and *japonicus*. Water Pipit. It is not unusual to see pipits on the beach at the head of Constantine Harbor in summer and fall. Only one specimen, sex undeterminable (USNM 465413), was taken from a group of three seen there on 14 October 1957. This proved to belong to the Asian race *japonicus*, which has previously been recorded only from St. Lawrence and Nunivak Islands (A.O.U., 1957). In the late winter and spring of 1959 the species was searched for, but only one flock of four birds, among a flock of 25 Snow

Buntings, was seen on 27 February. One of these, a male (USNM 466325) weighing 22.6 grams, was taken. It has been identified as *pacificus*, the race reported commonly throughout the Aleutians in spring and summer.

Fringilla montifringilla. Brambling. Late in the afternoon of 14 October 1957 two fed in an open grassy area near the beach at the western corner of Constantine Harbor. The following morning three birds were found at the same location and, one, an adult male (USNM 465414), was taken. On 17 October a flock of eight was found feeding in the same location. They were wary and when frightened flew several hundred feet in the air before heading inland. The only other record of this species for North America was taken at St. Paul Island, Alaska, on 25 October 1914 (Hanna, 1916).

Leucosticte tephrocotis griseonucha. Gray-crowned Rosy Finch. This bird is abundant on Amchitka. Unlike the Winter Wren and Song Sparrow, it often nests on inaccessible cliffs and on rafters in buildings where it is usually safe from rats. Nesting begins in early May. Hatching eggs were found on 18 May. Usually two and sometimes three broods are raised. Flocks of 10 to 20 birds form in late summer. During stormy periods, particularly in February and March, these small flocks join into larger ones, often of 50 to 60 birds. During a storm with winds of 110 to 125 kilometers per hour on 4 March 1959, one flock was estimated at about 150 birds. After storms the large flocks again separate into smaller ones. The flocks break up and pairing begins at the end of March.

Acanthis flammea flammea. Common Redpoll. On 1 March 1959 a female (USNM 466326), weighing 14 grams and having much body fat, was taken while it fed among dead grass patches on beach cliffs southwest of South Bight. One other Redpoll, seen during a storm on 6 May 1959, was quickly carried away by the wind and could not be taken. Sight records of Redpolls, presumed to be this species, have been recorded for several localities in the outer Aleutians (Murie, 1959).

Junco hyemalis hyemalis. Slate-colored Junco. On 4 November 1957 a male (USNM 465419) having much body fat was taken while feeding among *Elymus* clumps near a small stream southwest of South Bight. Krear had observed it in this location several hours before it was taken. Although this species has been taken on the Pribilof Islands (Hanna, 1919), it has not been recorded previously from the Aleutian Islands.

Melospiza melodia. Song Sparrow. Not one Song Sparrow was seen on Amchitka in the 1955-1959 period. Murie (*in litt.*) recorded in his field notes that it was common there in July of both 1936 and 1937. Krog (1953) does not mention the species. It was apparently exterminated on this island after the introduction of rats during World War II. Like the Winter Wren, now also gone, it frequented the coast where it nested on grassy slopes easily accessible to rats.

Calcarius lapponicus alascensis. Lapland Longspur. This species is an abundant summer resident on Amchitka. Its habitat includes all areas on the eastern half of the island. This fact undoubtedly renders it safe from excessive predation by rats. The first male was seen on 27 April 1959. Males continued to arrive in increasing numbers until reaching maximum abundance on 10 May. By this time most had chosen song perches and were defending territorial boundaries. By 20 May 1959 when I left Amchitka, no females were seen, but on 27 May 1959 several were noted at Adak. The first nest with hatching young was found on 11 June 1956, and heavily incubated eggs were found on 17 June. The majority

apparently leave in September, but two stragglers, both females, were seen on 17 and 19 October, and one, a female (USNM 465420) having little body fat, was collected on 13 November 1957.

Plectrophenax nivalis townsendi. Snow Bunting. Singing was first heard on 24 March 1959. Pairs and males singing from perches were seen until 10 April, when males were seen in song flight. The first finished nest (but no eggs) was found on 21 May 1956, and a nest containing four fresh eggs was found on 26 May. Nestlings in pin feathers were found on 9 June, and four newly hatched young on 15 June. By 26 August young were seen in new fall plumage. In early winter most birds were seen inland and on high ground in flocks of 5 to 10 individuals, but when snow covered the ground the size of flocks increased. One of more than 100 birds was seen on 15 February 1959. Nesting takes place in all suitable habitats, both inland and in cliffs and among rocks near the shore. The species is present throughout the year, but in winter seldom frequents shore areas. The first individuals were seen at the shore, near Kirilof dock, on 10 March, and four or five pairs nested in cliff crevices of this area. The narrow crevices in which they nest, the inaccessibility of many of these areas to rats and the diversification of nesting sites, from the shore to the highlands, have probably protected this species from serious rat predation.

Emberiza rustica latifascia. Rustic Bunting. On 20 October 1957 a male (USNM 465416) was heard calling from a *Senecio* stalk among *Elymus* clumps near the beach on the east side of Constantine Point and taken. On 27 October a second (USNM 465417) was taken in exactly the same place. This bird was badly damaged by shot, and sex was not determined. Both birds had a large quantity of subcutaneous and abdominal fat. This Asian species is represented in North America by only three other specimens taken in June 1911 by Wetmore and McKechnie on Kiska Island (Murie, 1959).

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