

## MIGRANT BIRDS AT SHEMYA ISLAND, ALEUTIAN ISLANDS, ALASKA

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**ABSTRACT.**—A five-season study of bird migration in the Near Islands, western Aleutian Islands, Alaska, resulted in data that suggest that some 30 Palearctic and Aleutican taxa that are of irregular occurrence or are virtually unknown in Alaska east of 180° occur regularly on passage in this area in small numbers, some of them both spring and autumn. Most of these forms are apparently en route in spring to the Koryak Highlands or the Anadyr River basin, both of which areas lie directly north of the Near Islands, in the U.S.S.R. An annotated list of 147 taxa discusses all forms recorded.

The Near Islands, named by Russian explorers for their proximity to Asia, are five islands—Attu, Agattu, Alaid, Nizki, and Shemya—that make up the westernmost group of the Aleutian Islands, Alaska. Shemya is the easternmost of the group (52°43'N, 174°07'E). It is situated 1,500 km west and south of the Alaska mainland, 630 km south and east of Cape Olyutorsk, Koryak Highlands, and 600 km east of Kamchatka (Fig. 1). It is 320 km southeast of the Commander Islands.

Shemya is a small, low-lying island, a "raised, wave-cut platform" (Gates et al. 1971) of 14.2 km<sup>2</sup> with a coastline of 21.5 km. It is treeless, as are all of the Aleutians, but it differs from many of the others in being quite flat—a gently rolling, meadow-covered plateau that drops from elevations of 70–80+ m above North Beach to 10–15 m above South Beach. Fifteen permanent lakes regularly support transient waterfowl populations, but three of the largest (Upper, Lower, and Laundry lakes) support a diversity of birds not seen at the others. The steep bluffs along the irregularly sculpted north shore (Fig. 2), with its protected amphitheatres and bays and dense tall forb vegetation, are most important to transient passerines.

Shemya has a maritime climate. Fog and rain are characteristic, and violent storms, often with sustained winds over 50 kph, occur frequently, usually arriving from the southwest or west in spring, from the northwest or west in fall. Eleven of the 29 avian habitats described for Alaska by Kessel (1979) were identified at Shemya: Lacustrine Waters and Shorelines, Fluvial Waters and Shorelines, Inshore Waters, Rocky Shores and Reefs, Beaches, Cliffs (coastal), Wet Meadows, Dwarf Shrub Meadows, Grass Meadows, Tall Forb Meadows, and Artificial (e.g., buildings,

garbage dumps, World War II wreckage). Their relative importance to migrants on the island was not determined systematically, partly because most migrants were waterfowl or shorebirds, whose habitat uses were straightforward, and partly because the availability of *any* cover and food on this small island were often the only criteria that seemed important (i.e., the substrate many migrants used depended on the topography and its function in protecting them from the weather). The island is part of the Aleutian Islands National Wildlife Refuge, and since 1943 the U.S. Air Force has maintained it as a military installation.

During the periods 9–23 May 1975, 30 April–31 May 1976, 29 April–7 June 1977, 31 August–3 October 1977, and 15 August–13 October 1978 I conducted fieldwork on the island, under cooperative agreements between the University of Alaska Museum and the U.S. Fish and Wildlife Service, and with the cooperation of the U.S. Air Force, in an effort to inventory the migrant bird forms that occur in this poorly-known and westernmost part of Alaska and of the Refuge. I was accompanied in the field in different seasons by George E. Hall, Theodore G. Tobish, and Raymond S. Hadley, all experienced Alaskan field ornithologists.

Fieldwork was conducted on foot, except in spring 1977, when a truck was available. We wanted to inventory all migrants on the island, so we surveyed it in an opportunistic fashion, monitoring habitats and topography in daily response to weather conditions and to the stage of migration. The small size of the island enabled us to survey carefully the entire perimeter on days when we deemed it profitable to do so. Experience elsewhere in the Aleutians had taught that most through-migrants make landfall and remain at the perimeter of an island, so that, except to check prominent features elsewhere on

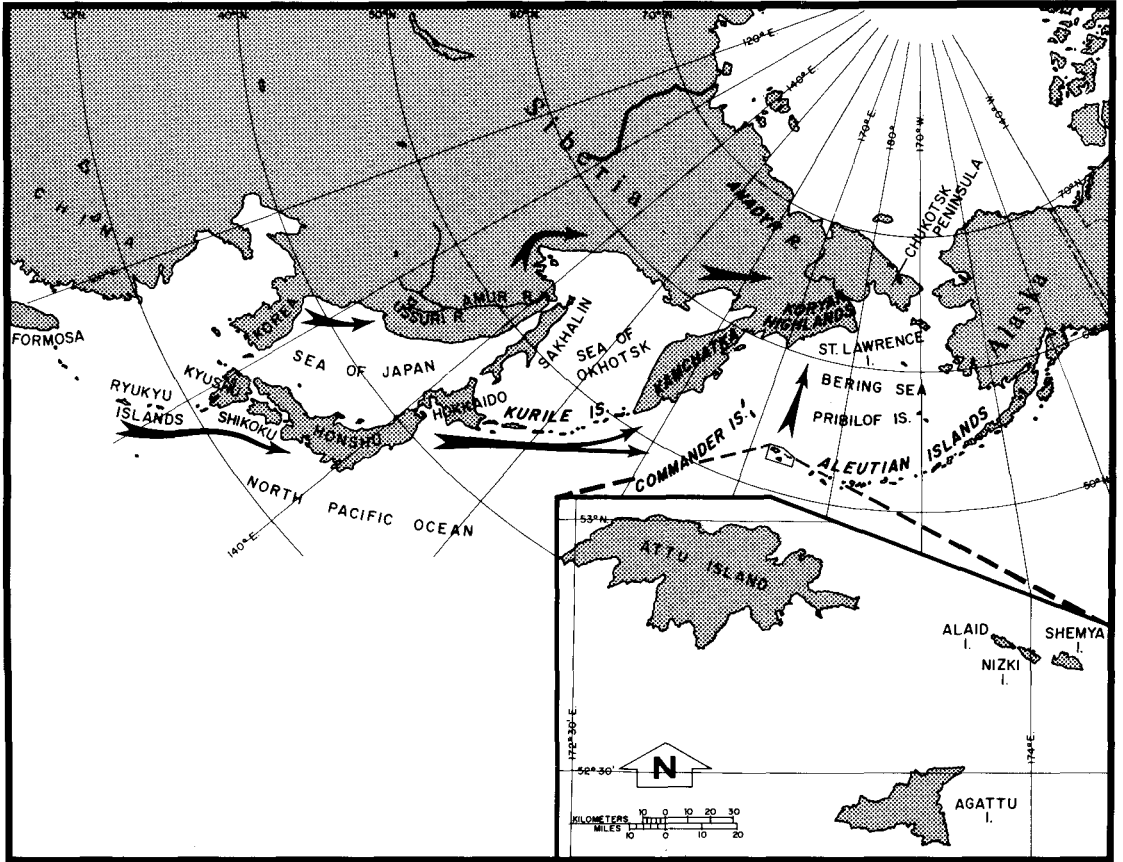


FIGURE 1. The Near Islands in perspective. (Arrows indicate routes of eastern Asia flyway [see McClure 1974] that involve Alaska migrants.)

the island (e.g., deep-water lakes for waterfowl), time was best spent surveying perimeter habitats. The data presented in the annotated list are the result of 341 man/days (174 calendar days) afield on the island. On only seven additional days, all in autumn 1978, were storms so severe that we suspended field work.

Murie (1959) discussed the historic origins of birds in the Aleutian Islands, and Emison et al. (1971) and Byrd et al. (1974) outlined the zoogeographic affinities of birds at Amchitka and Adak islands, located 250 and 460 km east of Shemya, respectively, but the large proportion of the Palearctic and Aleutian components in the annual passage of birds through the westernmost Aleutian Islands has not been recognized heretofore. It is clear from a comparison of Shemya data with those available from the Kurile Islands, Kamchatka, Commander Islands, Koryak Highlands, Chukotsk Peninsula, St. Lawrence Island, Pribilof Islands, and from elsewhere in the Aleutians, that the Near Islands provide an annual eastern dispersal limit for a number of species and subspecies of only casual or accidental oc-

currence farther east. This paper discusses the timing, abundance, and zoogeographic affinities of these forms.

#### ANNOTATED LIST

One hundred forty-five species (147 forms) of 27 families of birds were recorded during the survey, 38% of the 383 species known to have occurred in Alaska through 1978 (Kessel and Gibson 1978, plus two additional species in this paper). Phylogenetic sequence and nomenclature of species generally follow Morony et al. (1975). Subspecies nomenclature and limits follow Vaurie (1959, 1965) or the A.O.U. (1957). Status terminology follows Kessel and Gibson (1978).

Subspecies listed without parentheses are represented by specimens collected during the survey. They are on deposit at the University of Alaska Museum (UAM), and I have identified them unless it is stated otherwise. Subspecies within parentheses are not specimen-based identifications; they include some forms that are recognizable in life (e.g., *Somateria mollissima v-nigrum*, *Melanitta nigra americana*, *Nu-*



FIGURE 2. North Beach bluffs, Shemya Island, looking east, 2 October 1977.

*menius phaeopus variegatus*, *Leucosticte arctoa griseonucha*) and others that are presumptive assignments based on range. Most are, as well, inferences based on specimens of these forms taken elsewhere in the Aleutian Islands. Only one of the presumptive subspecies allocations implies occurrence of a form not substantiated by specimen in Alaska—the occurrence of *Podiceps a. auritus* is inferred from timing of, and western Bering Sea origin of weather systems preceding, the birds' arrivals.

Among those not substantiated by specimen at Shemya are four polytypic Holarctic species for which I do not believe the subspecies can be inferred from either sightings or known range. The affinity of these species—Common Goldeneye, Marsh Hawk, Rough-legged Hawk, and Glaucous Gull—is listed simply as Holarctic.

Zoogeographic affinity listed after each form is the faunal region in which the breeding range, or the greatest proportion of the breeding range, of a subspecies—or species, if monotypic—lies. Of the faunal regions recognized here, the Aleutican requires explanation. This region encompasses the Aleutian and Commander islands, Bering Sea islands, northeastern Asia from the base of Kamchatka and Chaun Bay east, and most of Alaska (see Fay and Cade 1959). It is considered to be the differentiation center for one polytypic avian genus (*Ae-*

*thia*), at least three monotypic genera (*Aphriza*, *Eurynorhynchus*, *Cyclorhynchus*), at least one polytypic species (Rock Sandpiper), several monotypic species (e.g., Red-faced Cormorant, Emperor Goose, Wandering Tattler), and a number of subspecies (e.g., *Somateria mollissima v-nigrum*, *Leucosticte arctoa griseonucha*).

*Gavia stellata (stellata)*. Red-throated Loon. Essentially Holarctic. Casual in spring. One alternate-plumaged bird was seen 26 May 1976. Species breeds elsewhere in the Near Islands (Murie 1959).

*Gavia immer*. Common Loon. Nearctic (and W Palearctic). Annual in spring and fall, rare. Species breeds elsewhere in the Aleutians (Murie 1959), as close as Alaid and Nizki (J. L. Trapp, U.S.F.W.S., pers. comm.).

*Gavia adamsii*. Yellow-billed Loon. Aleutican. Casual in spring. One basic-plumaged bird was seen 3 May 1976. Species probably winters sparingly throughout the Aleutians (pers. observ.).

*Podiceps grisegena (holbollii)*. Red-necked Grebe. E Palearctic and W Nearctic. Annual; uncommon in spring and rare in fall. Maximum was 39 birds on 2 May 1977. Species probably winters throughout the Aleutians (pers. observ.).

*Podiceps auritus (auritus)*. Horned Grebe. Palearctic. Casual in fall. Up to four birds were present 30 September–3 October 1977. There are few western Aleutian records of the species (Murie 1959); this form has been recorded in the Commander Islands (Johansen 1961).

*Diomedea immutabilis*. Laysan Albatross. North Pacific Ocean. Annual in spring, uncommon. Species occurred regularly off East End, where seen within one km of shore. Maximum was 10+ on 9 May 1977.

*Puffinus tenuirostris*. Short-tailed Shearwater. South Pacific Ocean. Annual in fall, common to abundant.

*Oceanodroma furcata (furcata)*. Fork-tailed Storm-

Petrel. Aleutican. Casual in spring. One bird was seen in flight over the island on 25 May 1977 in fog. Species breeds at Buldir, 105 km east of Shemya, and at Agattu and Attu (Murie 1959, Sowls et al. 1978).

*Phalacrocorax pelagicus (pelagicus)*. Pelagic Cormorant. Aleutican. Resident breeder, uncommon.

*Phalacrocorax urile*. Red-faced Cormorant. Aleutican. Resident breeder, common.

*Anser fabalis (serrirostris)*. Bean Goose. E Palearctic. Casual in spring, when single birds were seen on 12–13 May and 27 May 1976.

*Anser canagicus*. Emperor Goose. Aleutican. Annual in spring and fall, uncommon. Species winters throughout the Aleutians (Murie 1959), departs Shemya by early May. Earliest fall sighting was of an adult seen 27 September 1977.

*Branta canadensis (leucopareia)*. Canada Goose. Aleutican. Casual in fall. At least five birds occurred between 3 September and 12 October 1978. One wore a collar that identified it as having been released at Agattu in June 1978, part of the recovery program for this endangered form (Springer et al. 1978).

*Anas penelope*. Eurasian Wigeon. Palearctic. Annual in spring and fall, fairly common. Species regularly occurred in spring in flocks of over 10; maxima were 57 birds (including a flock of 35) on 22 May 1976 and 47 (including a flock of 29) on 10 May 1977. One male on 6 September 1978 was earliest fall record.

*Anas falcata*. Falcated Teal. E Palearctic. Casual in spring. Possibly the same pair was seen on 26, 29 and 31 May 1976.

*Anas strepera (strepera)*. Gadwall. Holarctic. Casual in spring. A pair was present with other surface-feeding ducks 25–27 May 1976.

*Anas crecca (nimia)*. Green-winged Teal. Aleutican. Annual in spring and fall, fairly common; probably resident breeder as well. Maximum in spring was 36+ on 7 May 1977, in fall 69 birds (including a flock of 55) on 1 October 1978.

*Anas platyrhynchos (platyrhynchos)*. Mallard. Essentially Holarctic. Annual in spring and fall, uncommon; probably resident breeder as well. Maximum was 30+ on 11 May 1975.

*Anas acuta (acuta)*. Pintail. Holarctic. Annual in spring and fall, common. Maximum was 198 (including a flock of 120+) on 9–10 May 1977.

*Anas querquedula*. Garganey. Palearctic. Annual in spring and fall, rare. Species occurred in spring from 10 May (1977) to 31 May (1977) and in fall from 31 August (1977) through 13 October (1978). Maximum was five birds on 26–27 May 1976. Specimens: UAM 3448, ad. ♂, 322 g, light fat, 17 May 1976; UAM 3607, imm. ♀, 347 g, light fat, 20 September 1977.

*Anas clypeata*. Northern Shoveler. Holarctic. Annual in spring and fall, rare. Eight birds in mid-May 1975 was maximum.

*Aythya valisineria*. Canvasback. Nearctic. Casual in spring. A pair at Laundry Lake 5–9 May 1977 is the first record in the western Aleutians. It winters regularly as far west as Adak (Byrd et al. 1974).

*Aythya ferina*. Common Pochard. Palearctic. Annual in spring, rare. Maximum was four males and five females together at Kay and Upper lakes on 17 May 1975. Specimen: UAM 3437, ♂, 1,100 g, heavy fat, 4 May 1976.

*Aythya fuligula*. Tufted Duck. Palearctic. Annual in spring and fall, more numerous in spring, when fairly common. Maxima were single-species flocks of 43 (including 26 adult males) on 17 May 1975 and of 33 on 23–24 May 1976, both at Upper Lake. Earliest in fall was one on 28 September 1978. Specimen: UAM 3441, ad. ♂, 690 g, light fat, 12 May 1976.

*Aythya marila*. Greater Scaup. Holarctic. Annual in

spring and fall, uncommon. Maximum was 23 (including a flock of 14) on 27 May 1976. Species breeds elsewhere in the Aleutians (Murie 1959).

*Somateria mollissima (v.-nigrum)*. Common Eider. Aleutican. Resident breeder, common.

*Polysticta stelleri*. Steller's Eider. Aleutican. Annual in spring, rare. Maximum was five females or young males together on Alcan Harbor 8–19 May 1977. Species winters commonly at both ends of the Aleutian-Commander axis (Murie 1959, Johansen 1961).

*Histrionicus histrionicus*. Harlequin Duck. Essentially Aleutican (and NW Palearctic). Resident non-breeder, common. Maximum flock size was 120 birds (just completing molt) on 8 September 1978.

*Clangula hyemalis*. Oldsquaw. Holarctic. Annual in spring, fairly common. Maximum of 50 birds was seen 4 May 1976 and 2 May and 5 May 1977. Species winters commonly throughout the Aleutians (Murie 1959).

*Melanitta nigra (americana)*. Black Scoter. Essentially Aleutican (and NE Nearctic). Annual in spring and fall, uncommon. Maximum was 14+ on 30 April 1977. Species winters commonly in the Aleutians (Murie 1959).

*Melanitta fusca (deglandi)*. White-winged Scoter. Nearctic. Annual in spring, rare. Maximum was six birds on 5 May 1976. Species winters throughout the Aleutians (Murie 1959).

*Bucephala albeola*. Bufflehead. Nearctic. Annual in spring, rare. Maximum was a flock of eight birds 30 April–15 May 1976. Latest record was 22 May (1976). Species winters sparingly throughout the Aleutians (Murie 1959) and is a "rare winter straggler" in the Commanders (Johansen 1961).

*Bucephala clangula (ssp.)*. Common Goldeneye. Holarctic. Annual in spring and fall, uncommon. Maxima were 33 birds on 10 May 1976 and 24 on 4 May 1977. Species winters throughout the Aleutians (Murie 1959).

*Mergus albellus*. Smew. Palearctic. Annual in spring and probably in fall, rare. Maximum was six birds together 15–16 May 1975. Two females or young males on 29 September 1977 were earliest in fall. Species winters in the Aleutians in small numbers (Kessel and Gibson 1978).

*Mergus serrator*. Red-breasted Merganser. Holarctic. Annual in spring, rare. Maximum was three on 10 May 1975. Species breeds and winters widely in the Aleutians (Murie 1959).

*Mergus merganser merganser*. Common Merganser. Palearctic. Annual in spring, rare. Maximum was five together on various dates in May 1975 and May 1976. Specimens taken 5 May 1976 (UAM 3546, ad. ♂, 1,995 g, very heavy fat) and 8 May 1976 (UAM 3438, ad. ♂, 1,075 g, thin, no fat, found dead) are the first records of this form in Alaska (Byrd et al. 1978).

*Circus cyaneus (ssp.)*. Marsh Hawk. Holarctic. Casual in fall. A female was seen 23 September–3 October 1977 and one bird was recorded 9 October 1978. There are few other Aleutian records (Kessel and Gibson 1978), and there is apparently only one record in the Commanders (Dement'ev and Gladkov 1951).

*Buteo lagopus (ssp.)*. Rough-legged Hawk. Holarctic. Casual in spring. At least one light-phase bird was observed 17–23 May 1976. Species is a casual visitant anywhere in the central and western Aleutians and in the Commanders (see Byrd et al. 1974).

*Falco tinnunculus interstinctus*. Eurasian Kestrel. E Palearctic. Accidental. One bird observed 5 September 1978 by B. E. Lawhead, University of Alaska, was collected on 9 September (UAM 3683, imm. ♀, 280 g, light-moderate fat, stomach empty), and a similarly-plumaged individual was observed 2–6 October 1978. The specimen was identified as this form by R. C.

Banks, U.S.F.W.S. at the National Museum of Natural History (NMNH). I know of no previous Alaska record of the species.

The easternmost subspecies of this widespread Old World falcon, *interstinctus* is mainly resident, but partly migratory, occurring in Japan (Hokkaido, Honshu), Korea, China, Burma, Assam, and the Himalayas. It winters as far north as Shikoku and Kyushu, and it has occurred as far south as the Philippines, Borneo, and Malaya (Vaurie 1965).

*Falco peregrinus (pealei)*. Peregrine Falcon. Aleutican. Annual in spring and fall, rare. Maximum was at least three immatures present in September and early October 1977. This form breeds throughout the Aleutians (Murie 1959).

*Pluvialis dominica (fulva)*. Lesser Golden Plover. Palearctic. Annual, uncommon in spring and common in fall. Maxima in spring were 16 birds on 16 May 1975 and 14 birds on 19 May 1976, in fall 156 birds on 6 October 1978 and 136 on 2 October 1977.

*Pluvialis squatarola*. Black-bellied Plover. Holarctic. Casual in fall. Two immatures were seen in fall 1978, one each on 18 and 29 September.

*Charadrius semipalmatus*. Semipalmated Plover. Nearctic. Casual in fall. An immature was collected from a group of Golden Plovers and turnstones on 7 September 1977 (UAM 3593, imm. ♂, 42.5 g, light-moderate fat).

*Charadrius mongolus (stegmanni)*. Mongolian Plover. Aleutican. Annual in spring and probably in fall, rare. Species occurred in spring from 15 May (1977) to 31 May (1977) and in fall from 30 August to 9 September 1978. Spring maxima were a flock of five on 19 May 1976 and a flock of three on 19 and 21 May 1977; fall maximum was five immatures on 2 September 1978. Specimen: UAM 3677, imm. ♀, 63 g, moderate fat, 30 August 1978. It could not be identified to subspecies.

*Eudromias morinellus*. Dotterel. Palearctic. Casual, perhaps annual and rare, in fall. An immature was collected 17 September 1977 (UAM 3605, imm. ♂, 105 g, heavy fat) and another was seen 8 September 1978. There is no previous Aleutian record, and there is apparently only one record in the Commanders, also in fall (Johansen 1961).

*Limosa limosa melanuroides*. Black-tailed Godwit. E Palearctic. Casual in spring. A "flight" of these birds reached the western Aleutians in spring 1976 (see Byrd et al. 1978), when a few were seen at Shemya 18-24 May; maximum, a pair. Specimen: UAM 3453, ♂, 206 g, moderate fat, 23 May 1976.

*Limosa lapponica (baueri)*. Bar-tailed Godwit. Aleutican. Annual in spring, rare to fairly common. Pairs were seen at intervals in May of each year; maximum was a flock of 55 on 23 May 1976.

*Numenius phaeopus (variegatus)*. Whimbrel. E Palearctic. Annual in spring and fall, rare to uncommon; more numerous in fall than in spring. Earliest in spring was one on 24 May 1976, and no more than two at once were seen at that season. Maximum was 11 on 3 September 1978. Species occurred in fall from 30 August (1978) to 18 September (1978), with a very late bird on 29 September 1978.

This form breeds in northeastern Siberia and winters from Formosa to Australia and New Zealand (Vaurie 1965). It is the regular migrant Whimbrel in the Commander Islands (Johansen 1961), where specimens have been taken 25 May-26 June and 31 August-8 September (Hartert 1920). The published record of the eastern limits of occurrence is incomplete. According to Gabrielson (1952), the first two Alaska records were birds taken at St. Lawrence Island and at Barrow in 1937 and 1938, respectively. The UAM has five St. Lawrence Island specimens of *variegatus* that ante-

date those records, however, the earliest collected 11 August 1933 at Gambell (UAM 1482, ♀, M. Echak). A sighting at Adak on 1 June 1971 (Byrd et al. 1974) was the first Aleutian report of this form, and the only Aleutian specimen I know of was taken at Buldir (UAM 2872, imm. ♀, 350 g, moderate fat, 3 September 1974, G. V. Byrd). Nearctic *N. p. hudsonicus* is not known in the Aleutians.

*Numenius tahitiensis*. Bristle-thighed Curlew. Aleutican. Casual in spring. A characteristically unsuspecting pair was studied at length at West End Beach 17-18 May 1975. There are only two other Aleutian records: one at Amchitka 23 May 1974 (C. M. White, pers. comm.), and up to two at Buldir 19-28 May 1975 (G. V. Byrd, pers. comm.). This species normally passes over the Aleutians without stopping.

*Tringa erythropus*. Spotted Redshank. Palearctic. Annual in fall, rare. Single birds were seen 20 September 1977 (UAM 3608, imm. ♀, 159 g, moderate fat), 5-7 September and 23 September 1978, and 10-11 October 1978. Species was recorded in five successive falls of intensive western Aleutian observation, 1974-1978 (Byrd et al. 1978, plus records above).

*Tringa nebularia*. Greenshank. Palearctic. Probably annual in spring, rare; casual in fall. Species occurred from 15 May (1975) to 31 May (1976) in spring, when maximum was 11 (including a flock of nine), 25-26 May 1976. An immature collected 6 September 1978 was the only fall record. Specimens: UAM 3358, ♀, 153 g, light fat, 15 May 1975; UAM 3682, imm. ♀, 200 g, extremely heavy fat, 6 September 1978.

*Tringa melanoleuca*. Greater Yellowlegs. Nearctic. Accidental. One bird observed 12 May 1975 could not be collected. I know of only one previous Aleutian record (Byrd et al. 1974).

*Tringa glareola*. Wood Sandpiper. Palearctic. Annual in spring, when uncommon to common, and probably in fall, when rare. Species occurred in spring from 11 May (1976, 1977) to 5 June (1977). Maximum was 142+ on 16 May 1976, during a particularly heavy passage of shorebirds. Species occurred 22 August to 13 September 1978, when no more than two birds were seen at a time. One bird on 29 September 1978 is latest Alaska record. Specimen: UAM 3681, imm. ♂, 52.3 g, moderate-heavy fat, 5 September 1978.

*Xenus cinereus*. Terek Sandpiper. Palearctic. Casual in spring. A bird collected 24 May 1976 was the only record (UAM 3454, ♂, 64 g, moderate fat).

*Actitis hypoleucos*. Common Sandpiper. Palearctic. Annual in spring and fall, rare. Species occurred in spring from 14 May (1976) to 31 May (1976) and in fall from 28 August (1978) to 16 September (1977). Maximum was three on 27 May 1976 and 29 August 1978. Specimens: UAM 3359, ♂, 61.5 g, very heavy fat, 19 May 1975; UAM 3679, imm. ♂, 40.2 g, light-moderate fat, 31 August 1978.

*Heteroscelus brevipes*. Polynesian Tattler. E Palearctic. Probably annual in spring, when rare, and in fall, when uncommon. One bird on 18 May 1976 was the only spring record. Species occurred in fall 20 August-17 September 1978; maximum was at least eight birds on 3 September. Tattlers that were probably *brevipes* were present in fall as late as 11 October (1978); maximum count of this genus was 25 birds on 3 September 1978. Specimens: UAM 3673, ad. unsex., 148 g, extremely heavy fat, 20 August 1978; UAM 3674, ad. ♀, 110 g, heavy fat, 20 August 1978; UAM 3688, imm. ♀, 111 g, moderate fat, 17 September 1978.

*Heteroscelus incanus*. Wandering Tattler. Aleutican. Annual in spring and fall, rare to uncommon. Species occurred in spring from 16 May (1975) to 6 June (1977), maximum 10 on 31 May 1976. In fall, few tattlers were

identified as this species. Specimen: UAM 3574, ♀, 115 g, heavy fat, 22 May 1977.

*Arenaria interpres (interpres)*. Ruddy Turnstone. Palearctic. Annual in spring, when rare, and in fall, when common. Species occurred in spring from 12 May (1977) to 7 June (1977), maximum nine birds on 19 May 1975. Maximum counts in fall were 310 birds on 2 September 1978 and 130 on 10 September 1977. This is the only shorebird for which the Aleutian Islands provide an autumn staging area, similar to that provided farther north by the Pribilofs (see Thompson 1974). Specimens: UAM 3599, imm.♂, 97.5 g, heavy fat; UAM 3600, imm. unsex., 116.5 g, extremely heavy fat; UAM 3601, imm.♀, 79.7 g, very light fat; all taken 11 September 1977. None could be assigned to subspecies.

*Phalaropus lobatus*. Northern Phalarope. Holarctic. Annual in fall, rare to uncommon. Species occurred from 25 August (1978) to 22 September (1977); maximum was eight birds on 2 September 1978. It breeds elsewhere in the Aleutians (Murie 1959).

*Phalaropus fulicarius*. Red Phalarope. Holarctic. Casual in spring, and annual in fall, when common offshore. One bird at Alcan Harbor on 21 May 1976 was the only spring record. Species occurred in fall from 22 August (1978) to 29 September (1977), maximum 20+ on 9 September 1978.

*Gallinago gallinago gallinago*. Common Snipe. Palearctic. Annual in spring and fall, uncommon. This form occurred in spring from 4 May (1977) to 30 May (1977) and in fall from 21 August (1978) to 30 September (1977). Maximum in spring was 20 birds on 15 May 1975; all fall records were of singles or twos. Specimens: UAM 3360, ♀, 108 g, light fat, 21 May 1975; UAM 3446, ♂, 79.5 g, light fat, 17 May 1976; UAM 3447, ♂, 96.3 g, moderate fat, 17 May 1976.

*Limnodromus scolopaceus*. Long-billed Dowitcher. Aleutican. Casual in fall. A few were seen 4–24 September 1978; two together on 20th was maximum. I know of no prior western Aleutian record. Specimen: UAM 3684, imm.♂, 91 g, moderate fat, 11 September 1978.

*Calidris tenuirostris*. Great Knot. Aleutican. Casual in spring. One bird was seen 24 and 27 May 1976 on South Beach with other shorebirds. I know of one previous Aleutian record (Byrd et al. 1974).

*Calidris canutus (canutus)*. Red Knot. Essentially Holarctic. Casual, perhaps annual and rare, in fall. One bird was seen with a flock of turnstones 2–9 September 1977 and another was seen with turnstones on 11 September 1978.

*Calidris alba*. Sanderling. Holarctic. Probably annual in spring and fall, rare. One bird was seen 30 April 1977, and single birds were seen at intervals from 8 September to 2 October 1977. Species winters locally in the Aleutians (Kessel and Gibson 1978).

*Calidris pusilla*. Semipalmated Sandpiper. Nearctic. Accidental. One bird, accompanied by a Temminck's Stint, was collected at Upper Lake on 4 September 1977 (UAM 3591, imm. unsex., 22.3 g, light fat). If Eyerdam's (1936) records from Unalaska and Unimak are correct, they are the only other Aleutian records of the species.

*Calidris mauri*. Western Sandpiper. Aleutican. Casual in fall. At least two birds were present in fall 1977, one on 14 September (UAM 3603, imm.♂, 32 g, extremely heavy fat) and another 16–20 September. There are few Aleutian records (see Byrd et al. 1974).

*Calidris ruficollis*. Rufous-necked Sandpiper. Aleutican. Annual in spring and fall, rare. Species occurred in spring from 22 May (1976) to 31 May (1977), when no more than two were seen at once. In fall it occurred from 25 August (1978) to 10 September (1977), maxi-

um four on 31 August and 5 September 1978. Specimens: UAM 3597, imm.♂, 28.5 g, moderate fat, 10 September 1977; UAM 3676, imm.♀, 37.3 g, extremely heavy fat, 25 August 1978.

*Calidris temminckii*. Temminck's Stint. Palearctic. Casual in spring and fall. One was seen at Laundry Lake on 22 May 1976 (UAM 3451, ♂, 23.5 g, heavy fat) and one at Upper Lake on 4 September 1977 (UAM 3590, imm. unsex., 24.4 g, moderate fat).

*Calidris subminuta*. Long-toed Stint. Aleutican. Annual in spring and probably in fall, rare to uncommon. Species occurred in spring from 12 May (1976) to 4 June (1977), usually singly or in pairs; maximum was 40+ (including a flock of 10) on 16 May 1976, during a heavy passage of shorebirds. In fall, four single birds were seen between 21 August and 3 September 1978. Specimens: UAM 3356, ♂, 24.7 g, moderate fat, 13 May 1975; UAM 3440, ♂, 27.5 g, moderate fat, 12 May 1976; UAM 3442, ♀, 29.8 g, very heavy fat, 15 May 1976; UAM 3443, ♂, 29.8 g, very heavy fat, 15 May 1976; UAM 3675, imm.♂, 26 g, heavy fat, 21 August 1978.

*Calidris bairdii*. Baird's Sandpiper. Nearctic. Casual in spring; annual in fall, when rare. One bird on 16 May 1977 was the only spring record. Species occurred in fall at irregular intervals from 19 August (1978) to 1 October (1978), one or two birds at a time.

*Calidris melanotos*. Pectoral Sandpiper. E Palearctic and Nearctic. Casual in spring; annual in fall, uncommon. One bird present 23–26 May 1976 was the only record in spring. Species occurred from 31 August (1977) to 20 September (1978) in fall, maximum 16 birds on 20 September 1978.

*Calidris acuminata*. Sharp-tailed Sandpiper. E Palearctic. Annual in fall, fairly common. Species occurred from 3 September (1977, 1978) through our latest day afield (13 October 1978). Maximum was 45 birds on 9 October 1978.

*Calidris ptilocnemis (couesi)*. Rock Sandpiper. Aleutican. Annual in spring, when rare, and in fall, when uncommon to common; possible breeder. A pair was present in Dwarf Shrub Meadow on 10 and 12 May 1975 and a singing bird was seen in the same area 29–31 May 1976; at least one singing bird was there 2 May–7 June 1977, two on 20 May 1977. Maximum in fall, when birds were present from 22 August (1978) on, was a flock of 100 at Alcan Harbor from 21 September 1977 on. This form is endemic to the Aleutians (Murie 1959).

*Calidris ptilocnemis (quarta)*. Rock Sandpiper. Aleutican. Casual in spring. A lone bird accompanied by a Rufous-necked Sandpiper on 22 May 1976 was identified as this Commander Islands form by its bright orange dorsum. It was not collected, and no others like it were seen.

*Calidris alpina (sakhalina)*. Dunlin. Aleutican. Annual in spring and fall, uncommon. Species occurred in spring from 13 May (1975) to 27 May (1976), maximum 14 birds on 19 May 1976. In fall it occurred from 31 August (1978) to 12 October (1978), maximum nine birds on 11 October 1978.

*Calidris ferruginea*. Curlew Sandpiper. Palearctic. Accidental. One bird was collected from a flock of turnstones on 11 September 1977 (UAM 3598, imm.♂, 48.5 g, thin, no fat), the first Aleutian record of the species.

*Limicola falcinellus sibirica*. Broad-billed Sandpiper. E Palearctic. Casual in fall. At least five birds occurred between 30 August and 6 September 1978. Two specimens were collected (UAM 3678, imm.♀, 29.2 g, thin, no fat, 30 August; UAM 3680, imm.♂, 41 g, heavy fat, 3 September), both assigned to subspecies by Banks. The only previous Alaska record is from Adak on 19 August 1977 (Day et al. 1979).

*Tryngites subruficollis*. Buff-breasted Sandpiper.

Nearctic. Casual, possibly annual and rare, in fall. One bird was collected from a flock of turnstones on 8 September 1977 (UAM 3594, imm. ♀, 41.6 g, thin, little fat) and single individuals were seen on 2, 11–13, and 29 September 1978. I know of no previous Aleutian record of the species.

*Philomachus pugnax*. Ruff. Palearctic. Annual in fall and probably in spring, rare. Single males were seen in spring on 1 May 1977 and 14 May 1975. In fall, immatures occurred from 19 August (1978) to 19 September (1977), maximum three birds together. Specimen: UAM 3357, ad. ♂, 148 g, light fat, 14 May 1975.

*Stercorarius pomarinus*. Pomarine Jaeger. Holarctic. Casual inshore in spring. Two light-phase birds on 3 June 1977 were the only record.

*Stercorarius parasiticus*. Parasitic Jaeger. Holarctic. Casual in spring; annual in fall, when rare inshore. In spring, three were seen on both 13 and 28 May 1976. Species occurred in fall from 28 August (1978) to 13 September (1977, 1978), maximum five. It breeds at various locations throughout the Aleutians (Murie 1959).

*Stercorarius longicaudus*. Long-tailed Jaeger. Holarctic. Casual in spring. One bird seen 19 May 1976 had been forced down by fog.

*Larus canus kamtschatschensis*. Mew Gull. E Palearctic. Annual in spring, rare. Species occurred from 3 May (1977) to 23 May (1976), no more than two at once. Most were subadults. A specimen taken 16 May 1976 (UAM 3444, ad. ♀, 487 g, moderate fat) is the first Alaska record of this subspecies (Byrd et al. 1978).

*Larus argentatus vegae*. Herring Gull. E Palearctic. Annual in spring, rare; casual in fall. Species occurred in spring as late as 3 June (1977). Possibly the same first-autumn bird was present 20 September–2 October 1978. A specimen collected 5 May 1977 (UAM 3568, ad. ♂, 1,530 g, very heavy fat) was identified as this form by A. A. Kistchinski, Ringing Center, Moscow.

*Larus schistisagus*. Slaty-backed Gull. Aleutican. Casual in spring. At least 12 birds occurred in spring 1977, as late as 3 June. Maximum was five on several occasions. Specimens: UAM 3566, 3rd-yr ♀, 1,380 g, moderate-heavy fat, 3 May; UAM 3567, 1st-year ♂, 1,270 g, heavy fat, 4 May; UAM 3569, ad. ♀, 1,300 g, moderate-heavy fat, 6 May.

*Larus glaucescens*. Glaucous-winged Gull. Aleutican. Resident breeder, common.

*Larus hyperboreus* (ssp.). Glaucous Gull. Holarctic. Annual in spring, rare to uncommon. Species occurred as late as 7 June (1977); maximum was 15+ on 30 April 1976. It winters in small numbers in the Aleutians (Murie 1959).

*Larus ridibundus*. Black-headed Gull. Palearctic. Annual in spring, rare to uncommon. Species occurred from 10 May (1975) to 1 June (1977), maximum eight adults on 17 May 1976.

*Rissa tridactyla*. Black-legged Kittiwake. Holarctic. Annual in spring, when uncommon, and in fall, when common. Species breeds at many locations in the Aleutians, including nearby Buldir, Attu, Agattu, and Alaid (Sowls et al. 1978).

*Rissa brevirostris*. Red-legged Kittiwake. Aleutican. Casual in spring. An adult was found injured on 3 May 1976 by J. L. Trapp. Species breeds at Buldir (Byrd 1978).

*Sterna hirundo longipennis*. Common Tern. E Palearctic. Annual in spring, rare. This form occurred from 19 May (1976) to 5 June (1977), maximum six on 22 May 1976. Specimen: UAM 3576, ad. ♀, 120 g, light fat, 31 May 1977.

*Sterna paradisaea*. Arctic Tern. Holarctic. Probably annual in spring and fall, rare to uncommon. At least 12 birds on 28 May 1977 was maximum. Species breeds

many places in the Aleutians, as close as Alaid (Murie 1959) and Nizki (J. L. Trapp, pers. comm.).

*Sterna aleutica*. Aleutian Tern. Aleutican. Annual in spring, uncommon; possibly breeds. Species arrived as early as 16 May (1976); maximum was 10 birds on 27 May 1976. It breeds at various locations in the Aleutians, as close as Alaid (Kessel and Gibson 1978) and Nizki (J. L. Trapp, pers. comm.).

*Uria lomvia* (arra). Thick-billed Murre. Aleutican. Casual in spring. Although small numbers of murre were seen in flight at great distance on several occasions, one breeding-plumaged bird on 12 May 1977 was the only inshore record of this species. Both murre breed as close as Buldir, Agattu, and Alaid (Sowls et al. 1978).

*Uria aalge* (inornata). Common Murre. Aleutican. Probably annual in fall, uncommon. Scattered small groups were seen 7 September–1 October 1978, maximum 12+ birds on 30 September.

*Cephus columba* (kaiurka). Pigeon Guillemot. Aleutican. Probably annual in spring, rare. Two birds were seen on 1 May 1976, and a pair was seen on 2 May 1977. Species breeds throughout the Aleutians (Murie 1959), but it is not common in the Near Islands (Sowls et al. 1978).

*Synthliboramphus antiquus*. Ancient Murrelet. Aleutican. Annual in spring and fall, rare. No more than six were seen at once. Species breeds at Buldir and probably at Agattu and Attu (Sowls et al. 1978).

*Aethia cristatella*. Crested Auklet. Aleutican. Casual in fall. One bird on 6 September 1977 was the only record. Species breeds at Buldir but not in the Near Islands (Sowls et al. 1978).

*Fratercula corniculata*. Horned Puffin. Aleutican. Annual in spring and fall, rare; probably breeds in small numbers. Earliest spring record was a pair on 20 May (1977), latest in fall was one on 22 September (1977). Species breeds at many locations in the western Aleutians (Sowls et al. 1978).

*Lunda cirrhata*. Tufted Puffin. Aleutican. Annual in spring and fall, uncommon to fairly common; breeds. Species occurred throughout spring periods, in fall as late as 10 September (1977, 1978). It breeds at many locations in the western Aleutians (Sowls et al. 1978).

*Nyctea scandiaca*. Snowy Owl. Holarctic. Possibly annual in spring, rare. Species occurred as late as 23 May (1976) and 6 June (1977); maximum was three birds on 9 May 1977. It breeds in small numbers at Attu (pers. observ.) and at Buldir (G. V. Byrd, pers. comm.) and winters in the Near Islands (J. L. Trapp, pers. comm.).

*Asio flammeus* (flammeus). Short-eared Owl. Holarctic. Annual in spring and probably in fall, rare. Single birds were seen 17 May 1975, 25 and 28 May 1976, 24 May 1977, and 3 October 1978. Species does not breed in the Aleutians west of Unalaska (Murie 1959).

*Apus pacificus pacificus*. White-rumped Swift. E Palearctic. Casual, possibly annual and rare, in fall. Two birds were seen 22 September 1977, one remaining through 24th, and singles were observed on 6 and 27 September 1978. A bird taken 22 September 1977 (UAM 3610, ♂, 29.6 g, thin, no fat) is the only Aleutian specimen. This form breeds as far northeast in Asia as the Koryak Highlands (Portenko 1963) and winters as far south as southern Australia, Tasmania, and New Zealand (Vaurie 1965).

*Alauda arvensis pekinensis*. Skylark. NE Palearctic. Annual in spring and fall, rare. Species occurred in spring from 1 May (1977) to 5 June (1977) and in fall from 16 September (1977, 1978) to 29 September (1978). Maximum was four singing males present most of May 1977. Specimen: UAM 3686, imm. unsex., 40.4 g, light fat, 16 September 1978.

The easternmost race of this widespread Palearctic species, *A. a. pekinensis* breeds in northeastern Siberia as far east as the Koryak Highlands, Kamchatka, and the Kuriles (Vaurie 1959, Portenko 1963). It is a regular spring visitor in the Commander Islands (Johansen 1961), where specimens have been collected 19 April–30 May (Stejneger 1885). (A specimen of *pekinensis* taken at Kure Atoll on 7 October 1963 [Clapp and Woodward 1968] provides evidence that these birds can complete much longer over-water flights than those required by an Asia–Near Islands–Asia passage—Kure is 1,900 km south of the central Aleutians.)

*Eremophila alpestris flava*. Horned Lark. N Palearctic. Accidental. Two birds were seen 19 September 1978; one was collected (UAM 3691, ♀ by plumage, 38.8 g, moderate fat) and the other remained through 26 September. The only other Alaska specimen of this form is from St. Lawrence Island (Sealy 1968). I know of no other Aleutian record of the species.

*Tachycineta thalassina lepida*. Violet-green Swallow. W Nearctic. Casual in fall. Four immatures arrived together on 16 September 1977, and two remained as late as 2 October. One immature was observed 2–3 October 1978. There is no previous Aleutian record. Specimen: UAM 3604, imm. ♂, 15.3 g, light fat, 16 September 1977.

*Hirundo rustica (gutturalis)*. Barn Swallow. E Palearctic. Casual in spring and fall. One bird was seen 19 May 1977 and another on 31 August 1978.

*Corvus corax (principalis)*. Common Raven. Nearctic. Resident breeder, common.

*Troglodytes troglodytes (meligerus)*. Winter Wren. Aleutian. Species occurred at irregular intervals, rare. Maximum was four birds on 10 October 1978. There was no evidence that a resident population existed from year to year; rather, the few birds seen seemed to be the result of small, yearly immigrations, presumably from nearby islands. (The species was recorded at both Alaid and Nizki in summers 1975 and 1976 [J. L. Trapp, pers. comm.], and newly-fledged young were abundant at Agattu from July to mid-September 1978 [D. W. Woolington and D. R. Yparraguirre, U.S.F.W.S., pers. comm.].)

*Eriothacus calliope*. Siberian Rubythroat. E Palearctic. Probably annual in spring and fall, rare. Species occurred in spring 31 May–3 June 1977 and in fall from 27 September (1977) through 10 October (1978), in ones or twos. (It was recorded at Nizki and Buldir immediately after our departure from Shemya in June 1976 [see Byrd et al. 1978].) Specimens: UAM 3577, ♂, 27.0 g, light fat, 31 May 1977; UAM 3579, ♀, 21.6 g, light fat, 1 June 1977; UAM 3693, ♂, 32.1 g, moderate–heavy fat, 3 October 1978. A male was mist-netted, banded and released on 6 October 1978.

Rubythroats breed throughout much of Siberia, occurring east to Anadyrland, Koryak Highlands, Kamchatka, the Kuriles, and Hokkaido (Vaurie 1959). Although Stejneger (1887) and Johansen (1961) described them as occasional stragglers in the Commanders, Hartert (1920) stated that they “probably . . . [pass] over the islands fairly regularly in spring.” Stejneger (1885) recorded earliest spring birds at Petropavlovsk on 22 May and said, “About the first of October all had left.”

*Oenanthe oenanthe (oenanthe)*. Wheatear. Palearctic. Casual in fall. Single birds on 13–14 September and 27 September 1977 were the only records.

*Catharus minimus (minimus)*. Gray-cheeked Thrush. Nearctic. Accidental. One bird was pursued about dense cover in foul weather on 21 September 1978. I know of no previous Aleutian sighting of the species. Given the weather conditions that preceded the bird's arrival, it probably came directly from northeastern

Asia, the western end of the breeding range (A.O.U. 1957, Vaurie 1959).

*Turdus obscurus*. Eye-browed Thrush. E Palearctic. Probably annual in spring, rare. Species occurred from 20 May (1976) to 7 June (1977), maximum three on 2 June 1977. Specimen: UAM 3452, ♂, 77 g, moderate fat, 22 May 1976.

*Turdus naumanni eunomus*. Dusky Thrush. NE Palearctic. Casual, possibly annual and rare, in spring. Single birds were observed on 18 and 24 May 1976, and at least one bird was seen 24, 28 and 29 May 1977. A bird collected 18 May 1976 (UAM 3449, ♂, 84.6 g, light fat) is the first Alaska specimen of the species.

*Locustella* (sp.). grasshopper-warbler. Palearctic. Casual in fall. On 24–25 September 1978 a *Locustella* was pursued through extensive rank vegetation and was ultimately shot but lost. It was identified by its size (5–6 inches), whitish underparts, gray-brown dorsum, longish bill with pale lower mandible, short wings and buzzy direct flight, and prominent long rounded brown tail with white corners and black subterminal band. There is no prior Aleutian record of this genus. The only prior Alaska record is of Middendorff's Grasshopper-Warbler (*L. ochotensis*; Swarth 1934), which breeds in Kamchatka, coasts of the Sea of Okhotsk, the Kuriles, Hokkaido, and Sakhalin (Vaurie 1959). This species is a regular spring straggler in the Commanders (Johansen 1961), where a fall specimen was taken on 2 October 1911 (Hartert 1920).

*Phylloscopus sibilatrix*. Wood Warbler. W Palearctic. Accidental. This *Phylloscopus* was collected 9 October 1978 as it foraged among stalks and branches of cow parsnip (*Heracleum lanatum*) and thistle (*Cirsium kamtschaticum*) (UAM 3695, imm. unsex., 8.4 g, no fat). It was identified by Banks and G. E. Watson, NMNH.

Species breeds throughout much of Europe and in western Siberia as far as 75–80°E (Vaurie 1959); it winters in tropical Africa (see Moreau 1972). There is apparently no record in eastern Eurasia, and I know of no other record in Alaska or North America.

*Phylloscopus fuscatus fuscatus*. Dusky Warbler. E Palearctic. Accidental. One bird was collected from dense *Elymus* on 18 September 1978 (UAM 3690, imm. ♀, 8.0 g, light fat). A second bird was mist-netted, banded and released that same day; it remained in the area through 23 September. The specimen was identified as this subspecies by Banks and Watson.

Species breeds in Asia, from the Ob River east to the Anadyr River basin and the Sea of Okhotsk and south to China (Vaurie 1959). This form straggles to Kamchatka (Vaurie 1959), but it is apparently unknown in the Kuriles or in Japan (Yamashina 1974). There is a sighting from St. Lawrence Island (King et al. 1978), but I know of no other Alaska specimen.

*Phylloscopus borealis borealis*. Arctic Warbler. NE Palearctic. Probably annual in fall, rare. Single birds were recorded 16 September 1977 and 25 September 1978, the latter collected (UAM 3692, ad. ♂, 14.4 g, moderate–heavy fat). Identification was confirmed by Banks and Watson. An example of nominate *borealis* taken on the Colville River (NMNH 591958, ♂, 21 June 1950, I. N. Gabrielson) and identified by M. R. Browning, NMNH, and one from Attu (UAM 3583, ♂, 14.5 g, heavy fat, 13 June 1977, T. G. Tobish) are the only other Alaska specimens of which I am aware.

This subspecies breeds at high latitudes throughout northeastern Siberia, from the Olenek River to Anadyrland and the Chukotsk Peninsula, where it is separated by the Bering Strait from Alaska-breeding *kennicotti*; and *xanthodryas* breeds in Kamchatka, the Kuriles and Japan (Vaurie 1959). The two previously published Aleutian specimens of this species were



identified as *examinandus* (Kenyon 1961), which form Vaurie (1959) submerged in *xanthodryas* but which Yamashina (1974:359) submerged in nominate *borealis*. Records from the Commander Islands are of *xanthodryas*, according to Johansen (1961), but specimens taken there on 6 June 1914 and 16 October 1911 were reported to be nominate *borealis* by Hartert (1920). Two specimens taken aboard ship between the Commanders and Kamchatka on 1 July 1954 were identified as *examinandus* (Kuroda 1955).

*Ficedula parva albicilla*. Red-breasted Flycatcher. E Palearctic. Accidental. A male collected 1 June 1977 is the first Alaska record of the species (Gibson and Hall 1978).

*Muscicapa sibirica sibirica*. Sooty Flycatcher. E Palearctic. Accidental. An immature *Muscicapa* was collected while it was foraging from a rocky bluff on 13 September 1977 (UAM 3602, imm.♂, 13.8 g, moderate fat). The first record of this species for Alaska, it was identified by Banks.

This form breeds from the Altai to Kamchatka, the Kuriles and Japan (Vaurie 1959). Thirteen specimens were collected 7–21 June 1883 in the Commander Islands, where many others were seen during that period (Stejneger 1885), but as a male taken there 8 June 1957 (Marakov 1962) seems to be the only subsequent record.

*Muscicapa griseisticta*. Gray-spotted Flycatcher. E Palearctic. Casual in spring. Species was recorded 30 May–5 June 1977, maximum five birds on 30 May. Specimen: UAM 3575, ♂, 13.8 g, light fat, 30 May 1977.

*Prunella montanella* (ssp.). Siberian Accentor. E Palearctic. Accidental. Single birds were observed on 17 and 24 September 1978; the first was collected (UAM 3689, imm. unsex., 18.2 g, light fat). Banks was unable to assign the specimen to subspecies. I know of no previous Aleutian record of the species.

*Motacilla flava similima*. Yellow Wagtail. E Palearctic. Annual, uncommon in spring and rare in fall. Species occurred in spring from 12 May (1976, 1977) to 1 June (1977) and in fall from 31 August (1977) to 18 September (1978). Maximum was nine birds 20–21 May 1976. Specimens: UAM 3571, ♂, 21.7 g, moderate fat, 16 May 1977, is *similima*; UAM 3570, ♂, 18.2 g, light fat, 12 May 1977, is a *similima* × *tshutschensis* intergrade.

This subspecies breeds on the coast of the Shelekova Gulf, in Kamchatka, and in the northern Kuriles (Vaurie 1959) and is a frequent and regular spring migrant in the Commanders (Johansen 1961). Elsewhere in the Aleutians, *similima* has been taken in spring at Buldir (UAM 2726, ♂, 21 g, moderate fat, 17 May 1974, G. V. Byrd) and at Amchitka (Kenyon 1961; and UAM 3421, ♀, 19 g, 15 May 1975, J. L. Trapp). It is the only subspecies substantiated by specimen in the Aleutians.

*Motacilla cinerea robusta*. Gray Wagtail. E Palearctic. Casual in spring. One bird collected 29 May 1976 (UAM 3456, ♂, 23.4 g, extremely heavy fat) was the only record. It was part of a small "flight" into the western Aleutians in spring 1976 (see Byrd et al. 1978).

*Motacilla alba lugens*. White Wagtail. E Palearctic. Annual in spring, rare. Species occurred from 1 May (1977) to 26 May (1976), maximum three together on 11 May 1975. Specimen: UAM 3565, ♂, 31.0 g, moderate fat, 1 May 1977.

This subspecies breeds in Kamchatka, the Kuriles, Hokkaido, northern Honshu, and coasts of the Sea of Okhotsk (Vaurie 1959) and is the regular spring visitant White Wagtail in the Commanders (Stejneger 1885, Johansen 1961), where specimens have been taken from 26 April to 16 June (Hartert 1920). Although gray-backed White Wagtails have been seen in the Aleu-

tians (Byrd et al. 1978), I know of no Aleutian specimen of *M. a. ocularis*, the Alaska-breeding form, or of female *lugens* (which, like both sexes of *ocularis*, is gray-backed), and most such records may pertain to the latter. The Attu specimen of *lugens* (Thayer and Bangs 1921) is the only other Aleutian specimen of the species that I know of.

*Anthus hodgsoni yunnanensis*. Indian Tree Pipit. E Palearctic. Casual in spring and fall. One bird was seen 16 May 1977, the only record in spring. At least four individuals were observed at intervals 14–29 September 1978. Specimens: UAM 3572, ♂, 30.6 g, heavy fat, 16 May 1977; UAM 3685, imm.♀, 23.5 g, light fat, 14 September 1978.

*Anthus cervinus*. Red-throated Pipit. Palearctic. Annual in spring and fall, rare. Species occurred in spring from 12 May (1977) to 31 May (1977) and in fall from 3 September (1977) to 29 September (1978). Maximum was three on 17 May 1976. Specimens: UAM 3445, ♂, 23 g, heavy fat, 17 May 1976; UAM 3596, ♀, 17.5 g, thin, light fat, 10 September 1977.

*Anthus spinoletta japonicus*. Water Pipit. E Palearctic. Casual in fall. One bird was collected from a group that included three *A. s. rubescens* on 16 September 1978 (UAM 3687, imm.♂, 20.3 g, light fat), and two or three like it were seen also that season. The specimen was identified by Banks. The only other Aleutian specimen of *japonicus* was taken 14 October 1957 at Amchitka (Kenyon 1961).

*Anthus spinoletta (rubescens)*. Water Pipit. E Palearctic and Nearctic. Annual in spring, when rare, and in fall, when uncommon to fairly common. This form occurred in spring from 12 May (1976, 1977) to 5 June (1977) and in fall from 4 September (1977) through 11 October (1978). Maximum in spring was seven birds on 14 May 1977, in fall 61 birds on 7 September 1977.

*Lanius cristatus lucionensis*. Brown Shrike. SE Palearctic. Accidental. An immature was observed making animated aerial sorties for kelp flies (*Fucellia*) from beach boulders and logs on 10 October 1978 and was collected (UAM 3696, imm., ♂ by plumage, 35.7 g, light fat). After comparison at both NMNH and the American Museum of Natural History, Banks identified it as this form.

Breeding no farther north than Korea, this subspecies is separated from Alaska by all three other subspecies (see Vaurie 1959). A sighting at St. Lawrence Island, 4–6 June 1977, judged to have been of *L. c. cristatus*, is the only prior Alaska record of the species (King et al. 1978).

*Dendroica townsendi*. Townsend's Warbler. W Nearctic. Accidental. One bird was collected as it foraged about a log jam on the beach on 3 October 1977 (UAM 3612, imm.♂, 10.4 g, light fat). There is no other record of the species west and south of Cook Inlet (Kessel and Gibson 1978), and I know of no prior record of any member of the family Parulidae in the Aleutians west of Unimak, the easternmost island.

*Fringilla montifringilla*. Brambling. Palearctic. Annual in spring and fall, uncommon. Species occurred in spring from 10 May (1976) to 30 May (1976) and in fall from 17 September (1977, 1978) to 12 October (1978). Maximum in spring was 17 birds on 29 May 1976 and in fall 24+ on 28 September 1978. Flocks of up to 17 were seen 29 September and 2 and 4 October 1978, of up to 10 on 22 September 1977.

Bramblings breed throughout northern Eurasia to the limit of trees, from Scandinavia east to Kamchatka (Vaurie 1959) and the Koryak Highlands (Portenko 1963). They are migratory, wintering in the Far East, in Japan, Formosa, and China (Vaurie 1959), and there have been at least two winter records as far north as

the southern Kuriles (Nechaev 1969). They are "regular, but never numerous, migrants" in the Commander Islands spring and fall (Stejneger 1885, 1887).

They move through the Near Islands on a schedule that fits passage dates in the Commanders (specimens 11–25 May, Stejneger 1885; specimens 14–24 May and 8 October, Hartert 1920) and in the southern Kuriles (May and September at Iturup, Bergman 1935; 1–17 May and October–November at Kunashir, Nechaev 1969), and fall arrival timing in Japan (October, Yamashina 1974).

Attesting that this route through the westernmost Aleutians is a normal eastern dispersal limit for Bramblings is the fact that there have been fewer than 10 spring records of this distinctive bird in Alaska east of 180°, despite field work in the Pribilofs over the last century and despite intensive recent field work in the Aleutians to the east (Adak) and at St. Lawrence Island (at Gambell). Equally important, none of these records has involved more than one bird (see Kessel and Gibson 1978). This evidence suggests that these birds orient themselves after reaching the Near Islands in spring and thence proceed directly to breeding grounds, probably in the Koryak Highlands.

In fall, an observation that suggests orientation of adaptive value was made on the clear, calm and sunny evening of 6 October 1978, when two separate flocks of Bramblings, of 10 and five birds, took flight from North Beach bluffs between 19:15 and 19:25, slowly circled for altitude for 3–5 minutes and then departed Shemya at about 500 m headed West—into the setting sun and toward Asia, at least 600 km distant, but the shortest route thereto. (I had observed some inter-Near Islands movement of passerines, including that of one Brambling, and such passages were performed low over the water, with no preamble—the birds above were departing the area.)

In fall 1978 seven Bramblings were mist-netted, banded and released at Shemya. Two specimens were collected: UAM 3439, ♂, 20.5 g, no fat, 10 May 1976; UAM 3609, imm. ♀, 20.9 g, very little fat, 22 September 1977. See Banks (1970) for a review of occurrences elsewhere in North America.

*Carduelis sinica kawarahiba*. Oriental Greenfinch. E Palearctic. Casual in fall. A family group of four birds, two adults and two immatures, was studied in *Cirsium* on 5 September 1977; an immature was seen 11 September 1977; and an adult and an immature together were seen on 18 September 1977. Specimens: UAM 3592, imm. ♂, 31.8 g, very little fat, 5 September; UAM 3606, ad. ♂, 30.8 g, little fat, 18 September.

This form breeds in Kamchatka and the Kuriles, south to Hokkaido and Sakhalin, and winters throughout Japan (Vaurie 1959). An example of *kawahariba* was taken aboard ship between Kamchatka and the Commanders on 13 June 1882 (Stejneger 1885), but there is apparently no record for the Commander Islands proper. There are a few prior Alaska records of the species, all sightings in the western Aleutians since 1976 (Byrd et al. 1978, Kessel and Gibson 1978).

*Acanthis flammea (flammea)*. Common Redpoll. Essentially Holarctic. Annual in spring and fall, rare. Maximum was five birds present most of September 1977.

*Acanthis hornemanni (exilipes)*. Hoary Redpoll. Essentially Holarctic. Casual in spring. One bird was present 9–14 May 1975, the only record. This form is a regular winter visitor in the Commanders, where it has remained as late as 13 May (Johansen 1961).

*Leucosticte arctoa (griseonucha)*. Gray-crowned Rosy-Finch. Aleutican. Resident breeder, uncommon.

*Carpodacus erythrinus (grebnitskii)*. Common Rosefinch. E Palearctic. Casual in fall. A female or im-

mature male was observed in *Cirsium* on 31 August 1977. There are a few previous western Aleutian sightings (Kessel and Gibson 1978), but only one Alaska specimen is known (Dau and Gibson 1974).

*Pyrrhula pyrrhula cassinii*. Bullfinch. E Palearctic. Casual in fall. One bird was collected in *Cirsium* and *Heracleum* on 27 September 1977 (UAM 3611, ♀ by plumage, 32.8 g, light–moderate fat). This form breeds in Kamchatka, the northern Kuriles, and the coast of the Sea of Okhotsk (Vaurie 1959). There have been over a half dozen widely scattered Alaska records (Kessel and Gibson 1978), including the holotype, but I know of no prior Aleutian Islands record.

*Emberiza pusilla*. Little Bunting. N Palearctic. Accidental. One bird observed foraging alone on the ground in cotton grass (*Eriophorum* sp.) on 8 September 1977 was collected (UAM 3595, imm. ♂, 15.0 g, light fat), the first record in Alaska.

Species breeds east to the Anadyr River basin (Vaurie 1959) and the Koryak Highlands (Portenko 1963), but it is not known on the Chukotsk Peninsula. Dates of extralimital birds taken 8 September (1933) at Wrangel Island (Portenko 1973) and 6 September (1970) aboard ship between that island and the northwestern Alaska coast (Watson et al. 1974) are remarkably synchronous.

*Emberiza rustica latifascia*. Rustic Bunting. Aleutican. Annual in spring and fall, rare. Species occurred in spring from 12 May (1977) to 4 June (1977) and in fall from 15 September (1977) to 6 October (1978). Maximum in spring was five on 26 and 30 May 1976; in fall species occurred singly. Specimens: UAM 3450, ♂, 24.3 g, heavy fat, 20 May 1976; UAM 3455, ♀, 26.2 g, extremely heavy fat, 27 May 1976; UAM 3694, imm. unsex., 27 g, heavy fat, 4 October 1978. This form breeds in Anadyrland, the Koryak Highlands, and Kamchatka (Vaurie 1959, Portenko 1963).

*Emberiza variabilis*. Gray Bunting. E Palearctic. Accidental. A male collected 18 May 1977 is the first Alaska record of the species (Gibson and Hall 1978).

*Emberiza schoeniclus pyrrhulina*. Reed Bunting. E Palearctic. Casual in spring. A male collected in *Elymus* on 4 June 1977 (UAM 3580, 25.5 g, moderate–heavy fat) was the only record. There have been two other recent western Aleutian records, both since 1975 (Kessel and Gibson 1978).

*Calcarius lapponicus (alascensis)*. Lapland Longspur. Aleutican. Annual spring and fall migrant and breeder, abundant. Males arrived in spring as early as 2 May (1976), females about one week later, and the species was present in fall through our departures, although flocks of departing birds heading east depleted numbers on the island by the last week of September (1977, 1978). Forty-three birds, almost all juveniles, were mist-netted, banded and released 17 August–20 September 1978. This was the only bird observed arriving from and departing to the east in spring and fall, respectively.

*Plectrophenax nivalis (townsendi)*. Snow Bunting. Aleutican. Resident breeder, fairly common.

*Melospiza melodia maxima*. Song Sparrow. Aleutican. Resident breeder, common. Specimens: UAM 3614, ♀, 40.2 g, light fat; UAM 3615, ♂, 41.7 g, light fat; UAM 3616, ♂, 45.7 g, light fat; UAM 3617, ♂, 42.2 g, light fat; all 2 June 1977.

*Ammodramus sandwichensis anthinus*. Savannah Sparrow. NW Nearctic. Casual in fall. Probably four individuals were recorded 31 August–16 September 1977. Specimen: UAM 3589, imm. ♂, 24.2 g, extremely heavy fat, 31 August 1977. It was identified as *anthinus* by J. D. Rising, University of Toronto.

Although there have been sightings of this species on a number of Bering Sea islands (Preble and McAtee 1923, Sealy 1967, Byrd et al. 1974, Johnson 1976, oth-

ers) and in Asia (Portenko 1973, Yamashina 1974), few specimens have been collected west of the breeding range. The widespread breeding form of mainland Alaska (A.O.U. 1957, Gabrielson and Lincoln 1959), *anthinus* has been taken on the Chukotsk Peninsula (Portenko 1973; another specimen was reported by binomen only—Krechmar et al. 1978), in the Pribilof Islands (Hanna 1916) and now in the western Aleutians. Nominate *sandwichensis* breeds in the western Alaska Peninsula—eastern Aleutians area (A.O.U. 1957, Gabrielson and Lincoln 1959) and is a casual visitant as far west as Adak (UAM 2685, ♂, 25.4 g, heavy fat, 1 June 1973, G. V. Byrd). It has not been recorded in the western Aleutians.

## DISCUSSION

Of 147 avian forms recorded, 138 are not resident on the island. Of these, 64 (46%) are of Palearctic affinity, 33 (24%) are Aleutian (i.e., their contemporary breeding distributions suggest that they have differentiated at the species or subspecies level in the Bering Sea region—see introduction), 26 (19%) are Holarctic, 13 (9.5%) are Nearctic, and two (1.5%) are from Pacific Ocean islands. The nine resident forms are included briefly for completeness. First North American specimen records of 12 forms were obtained during this survey (Common Merganser, *Mergus m. merganser*; Eurasian Kestrel, *Falco tinnunculus interstinctus*; Mew Gull, *Larus canus kamtschatschensis*; Dusky Thrush, *Turdus naumanni*; Wood Warbler, *Phylloscopus sibilatrix*; Dusky Warbler, *Phylloscopus fuscatus*; Red-breasted Flycatcher, *Ficedula parva*; Sooty Flycatcher, *Muscicapa sibirica*; Brown Shrike, *Lanius cristatus*; Oriental Greenfinch, *Carduelis sinica*; Little Bunting, *Emberiza pusilla*; and Gray Bunting, *Emberiza variabilis*); and 12 others were recorded for the first time in the Aleutian Islands.

The repeated occurrences in successive seasons of Palearctic and Aleutian forms that are regular migrants in the Commander Islands (Stejneger 1885, 1887; Hartert 1920; Johansen 1961), but that are hardly known east of the western Aleutians, demonstrate that the Near Islands provide annual landfall for small numbers of several forms that migrate between southeastern and northeastern Asia along a Japan–Kurile Islands–Kamchatka flight path. Such forms as Garganey, Common Pochard, Tufted Duck, Smew, Common Merganser, Mongolian Plover, Whimbrel, Spotted Redshank, Greenshank, Wood Sandpiper, Common Sandpiper, Polynesian Tattler, Common Snipe, Long-toed Stint, Black-headed Gull, Common Tern, Skylark, Siberian Rubythroat, Eye-browed Thrush, Arctic Warbler,

Yellow Wagtail, White Wagtail, Brambling, and Rustic Bunting migrate through the Near Islands regularly. Only one of these forms has been found breeding in the Aleutians (Wood Sandpiper—White et al. 1974). Most have breeding populations due north of the Near Islands, either in the Koryak Highlands or in the Anadyr River basin; the rest breed in Kamchatka. Of the shorebirds listed above, all but Spotted Redshank occur on the Asiatic–Palauan or Japanese–Marianan flyways outlined by Baker (1953), and many individuals at Shemya in autumn may be birds flying directly from northern Asia to wintering areas in the central Pacific (see Mayr 1953). Indeed, of 19 shorebirds that are regular visitors in the central Pacific (Baker 1953), 15 are regular migrants at Shemya—Lesser Golden Plover, Mongolian Plover, Bar-tailed Godwit, Whimbrel, Greenshank, Wood and Common sandpipers, Polynesian and Wandering tattlers, Ruddy Turnstone, Northern and Red phalaropes, Sanderling, Rufous-necked and Sharp-tailed sandpipers.

The legendary Aleutian weather, which is characterized by frequent cyclonic storms that move west-east from Asia to Alaska and that are often clearly responsible for the occurrence of forms recorded only once, wields somewhat different influences on different groups of migrants. In general, the passage of storms augments the abundance and diversity of migrants on the island, as poor flying conditions force birds to land wherever possible. Maximum counts of waterfowl and shorebirds are results of this phenomenon. Bar-tailed Godwit and Wood Sandpiper, for example, do not appear on the island *in numbers* unless poor flying conditions force these strong-flying birds to land. Passerines seem to require the landfall Shemya provides even in good flying weather. Some conspicuous passerines (e.g., Yellow Wagtail, Brambling, Lapland Longspur) and some shorebirds (e.g., Wood and Common sandpipers) arrive synchronously from year to year, regardless of the weather, and some less conspicuous passerines (e.g., Siberian Rubythroat, Rustic Bunting) may do so as well. Maximum counts of many passerines are the result of arrivals on different dates of individuals or small groups that remain on the island long enough to form aggregates of the species. An extended high pressure system in May 1977 resulted in a poor showing of shorebirds (e.g., no Greenshank; Long-toed Stint not sighted until 29 May, but recorded as early as 13 May 1975 and 12 May 1976), but

no regularly-occurring passerine failed to arrive on schedule.

Of suspected but not assessed influence on the numbers and diversity of migrants at Shemya is the fact that the Air Force housing and administration complex, which is located on high ground, as well as other buildings scattered about the island, are illuminated outdoors at night and in foul weather by hundreds of high-intensity lights. These lights must be visible in good weather for miles in all directions—from any altitude above a few hundred meters—because of the low relief of the island. This artifact must single out Shemya for migrants moving through the area at night and for birds transported to or caught in the area by storms, since it sets this island apart from an otherwise dark sea in all directions. There is no other such 'beacon' in the western Aleutian Islands.

Of the avian habitats at Shemya, Tall Forb Meadows are of particular interest because they provide for many passerines an equivalent of Shrubbery or Forest and Woodland, habitats absent at Shemya. These meadows are dominated by cow parsnip and thistle, both of which commonly reach heights of 1.8 m and form luxuriant stands in the protected draws and amphitheatres along the base of the North Beach bluffs, where the steep terrain also provides vertical escape for birds accustomed to taking flight into treetops. Siberian Rubythroat, Brambling, Rustic Bunting and others regularly occur in this habitat in fall, when the vegetation is at its tallest. Even in spring, thickets of the previous year's dead vegetation provide somewhat similar resources of cover and food. It is of interest that *Cirsium kamtschaticum*, like some of the birds that fed on it at Shemya, is not known east of the Near Islands (Hultén 1968), suggesting that migrant birds may have transported the seeds of this thistle to the western Aleutian Islands.

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