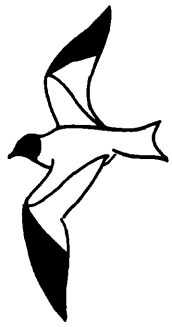


WESTERN BIRDS



Volume 25, Number 2, 1994

BIRDS OF THE PRUDHOE BAY REGION, NORTHERN ALASKA

CRAIG J. HOHENBERGER, Ventana Wilderness Sanctuary, Coast Route,
Monterey, California 93940

WAYNE C. HANSON, 1902 Yew Street Rd., Bellingham, Washington 98226

EDWARD E. BURROUGHS, 101132 Lee Street, Eagle River, Alaska 99577

This paper summarizes the results of our studies of birds of the arctic coastal plain of Alaska from 1971 to 1993 and numerous published and unpublished reports. Our objective is to synthesize the considerable data accumulated since oil extraction began in the Prudhoe Bay area and to provide a detailed account of all species within three contiguous regions so that future changes in species composition and status may be assessed.

Our primary sources of information were ecological studies of impacts of petroleum resource development undertaken at Prudhoe Bay from 1971 to 1973 as part of the Alaskan Arctic Gas Pipeline Company's effort. From 1974 to 1981, additional study sites were established on the coastal plain, near Franklin Bluffs, and in the coastal foothills under U.S. Energy Research and Development Administration (now U.S. Department of Energy) sponsorship. Several biologists and an increasing number of birders have continued to communicate to us their observations in the Prudhoe Bay area.

REGIONAL SETTING

The area covered by this paper extends from the Arctic Ocean on the north to the crest of the Brooks Range on the south, from the Canning and Ivishak rivers on the east to the Itkillik and Colville rivers on the west. We have divided this sector into three north-south regions: Prudhoe Bay, Franklin Bluffs, and Central Foothills (Figure 1). The Central Foothills region extends from the Brooks Range north to the Sagwon Bluffs and White Hills. The Franklin Bluffs Region includes the area bounded by the northern edge of Franklin Bluffs, which form the east bank of the Sagavanirktok River in that area, and the Itkillik and Shaviovik rivers. The

BIRDS OF PRUDHOE BAY

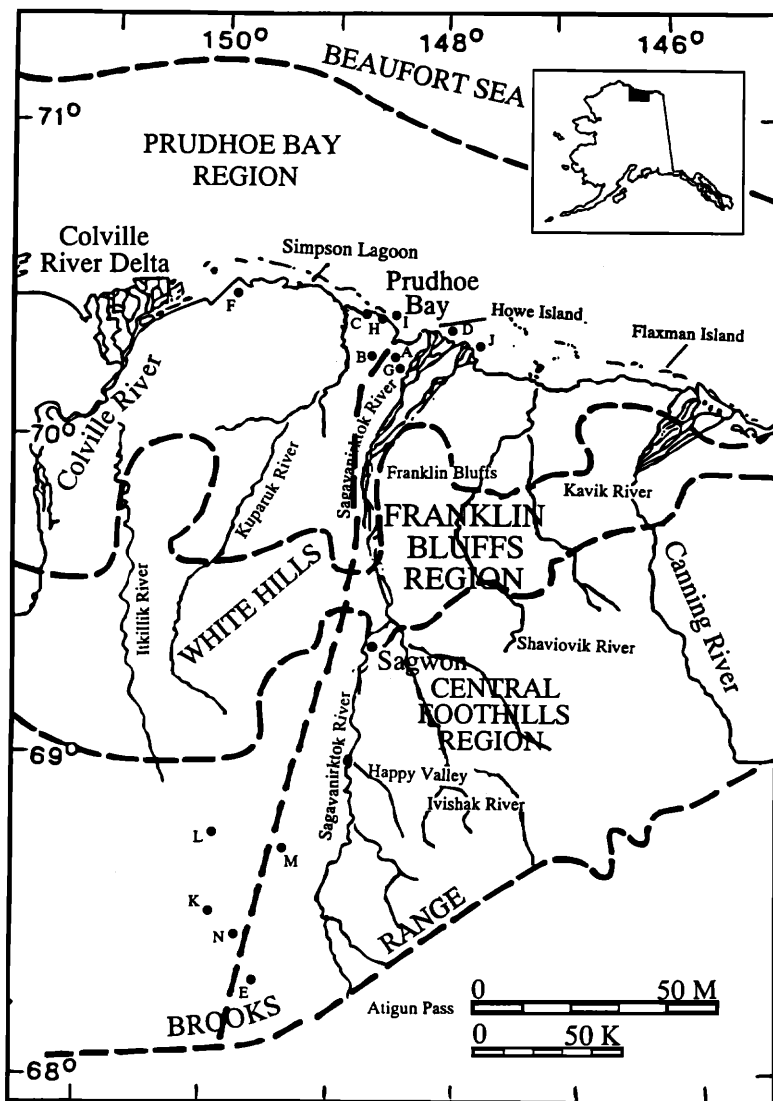


Figure 1. Prudhoe Bay, Franklin Bluffs, and Central Foothills regions. The dashed line from north to south shows the path of the Dalton Highway and Trans-Alaska pipeline. A, Atlantic Richfield Company's Prudhoe Bay operation center; B, British Petroleum's main operation center; C, Point Storkerson; D, Endicott Causeway; E, Atigun Valley; F, Oliktok Point; G, Deadhorse; H, Point McIntyre; I, West Dock; J, Point Brower; K, Galbraith Lake; L, Toolik Lake; M, pump station 3; N, pump station 4.

BIRDS OF PRUDHOE BAY

Prudhoe Bay Region extends south to the northern end of Franklin Bluffs and east to the confluence of the Kavik and Shaviovik rivers. In the Beaufort Sea, the region extends offshore about 55 km to include pelagic, nearshore, and littoral habitats of the continental shelf; it is bordered on the west by the Colville River and on the east by Flaxman Island.

Central Foothills Region

In this the most southern of the three regions, the Brooks Range dominates the landscape. Peaks range from 2134 to 2438 m in elevation, with rugged ridges extending east-west (Figure 2). The low, sparse alpine tundra vegetation of these mountains is composed of lichens, mat and cushion plants, and dwarf shrubs. The northern part of this region is characterized by numerous east-west ridges rising to about 360 m, interspersed with rolling plains and braided streams (Sage 1974). The dominant habitat is tussock-heath tundra, characterized by cottongrass (*Eriophorum vaginatum*), mountain avens (*Dryas integrifolia*), dwarf birch (*Betula nana*), cranberries and blueberries (*Vaccinium spp.*), Labrador tea (*Ledum decumbens*), and other shrubs. Willow (*Salix spp.*) thickets along streams and rivers and local patches of tall brush provide important habitat for passerines. Many areas away from the Dalton Highway, such as the White Hills, remain poorly explored from an avifaunal standpoint.



Figure 2. Spring break-up along the Dalton Highway and Trans-Alaska pipeline, in the Central Foothills region, Brooks Range, Alaska.

Photo by Craig Hohenberger

BIRDS OF PRUDHOE BAY

Franklin Bluffs Region

This region is a narrow transitional area between the wet coastal plain and rolling plateaus and mountains of the Central Foothills. The dominant physiographic feature is the Franklin Bluffs, which rise to 293 m and extend 32 km from north to south (Figure 3). Moderate slopes and relief have produced a mixture of well-drained xeric and mesic tundra and low, wet tundra. Drier areas are vegetated by *Dryas*, *Eriophorum* tussocks, and shrubs. Poorly drained terrain is characterized by wet sedge meadows covered by pioneering herbaceous plants. These mesic habitats are characterized by polygonized and frost-scar tundra. Polygons are low-lying ridges, rising to heights of 0.5 meters, formed from the cyclic arctic freezes and thaws. Frost scars are roughly circular, slightly convex, and composed of fine sandy loam that heaves under certain moisture and freezing conditions.

Dwarf willows are common on rises, and shallow ponds rimmed with the sedges *Carex aquatilis* and *Arctophila fulva* are sparsely distributed throughout the region. From 1976 to 1981, this region's birds were studied by Hanson and Eberhardt (1977–1981), Brink (1978), Jones et al. (1980), Garrett et al. (1981), and McCaffery et al. (1982), at a 100-ha site located 69 km south of Deadhorse (69°41' N, 148°42' W), 0.5 km west of the Sagavanirktok River, and 1.5 km west of the bluffs.

Prudhoe Bay Region

With a relief of <10 m, the coastal plain in the Prudhoe Bay Region is poorly drained, characterized by wet meadows, lakes, and ponds 1–2 m deep (Britton 1957). Walker et al. (1980) thoroughly described the area's landforms, soils, and vegetation. In general, water covers 50–75% of the region (Black and Barksdale 1949), and the land surface is covered by a mosaic of low-centered polygons and wet tundra dotted with ponds 1–2 m deep.

The plain's terrestrial vegetation is dominated by sedges mixed with *Eriophorum*, saxifrages, and louseworts (*Pedicularis* spp.) and underlaid by mosses. Several decumbent and dwarf willows are common on higher ground but are too low for nesting of many passerines. Well-drained sites with lichens, *Dryas*, and heather (*Cassiope tetragona*) are found along stream and river terraces, elevated lake shores, and on pingos (ice-cored hills). Salt marshes, dominated by *Puccinellia phryganodes* and *Carex subspathacea*, and grassy beaches are found intermittently along the shores of Prudhoe Bay and the Beaufort Sea (Figure 4) (Jeffries 1977, Broad et al. 1980, Taylor 1981).

Bergman et al. (1977) distinguished eight types of wetlands and documented their use by loons and waterfowl. Derksen et al. (1981) expanded that data base and demonstrated the applicability of the classification system across the National Petroleum Reserve—Alaska to the west. Connors et al. (1979), Myers and Pitelka (1980), Jones (1980), and Connors (1984) described these habitats' use by shorebirds. Lagoons and barrier islands of sand, gravel, and tundra border the outer coast of the Prudhoe Bay region discontinuously. Barrier islands occasionally support high densities of nesting marine birds (Divoky 1978a,b) and provide impor-

BIRDS OF PRUDHOE BAY



Figure 3. Representative habitat, characterized by *Dryas* and *Eriophorum*, along Franklin Bluffs and the Sagavanirktok River.

Photo by Craig Hohenberger



Figure 4. An abandoned native dwelling in wet tundra of the coastal plain, adjacent to the Beaufort Sea.

Photo by Craig Hohenberger

BIRDS OF PRUDHOE BAY

tant habitats for molting, feeding, and staging birds (Schamel 1978, Johnson and Richardson 1980, Divoky 1984). The central Beaufort Sea coast supports lower diversity and densities of breeding birds than do coasts of other northern seas, such as the Chukchi Sea, because it has few suitable nesting areas and the sea is relatively shallow and unproductive (Divoky et al. 1974).

The Prudhoe Bay Region is by far the most thoroughly studied of the three regions. We studied a Prudhoe Bay site from 1971 through 1980 (Hanson and Eberhardt 1976–1981) and a 100-ha site 20 km south of Prudhoe Bay from 1979 to 1981 (Hohenberger et al. 1980, 1981, 1982). Johnson and Herter (1989) summarized the 249 bird species recorded in the Alaskan and Canadian areas of the Beaufort Sea.

ANNOTATED LIST

One hundred seventy-four species of 28 families had been recorded from our study area as of 1993. The terms we use in describing the status of a species are those of Kessel and Gibson (1978): Resident—a species present throughout the year. Migrant—a seasonal transient between wintering and breeding ranges; in spring, includes species that have overshot their normal breeding range. Breeder—a species known to breed; prefixed by “possible” or “probable” if concrete breeding evidence is unavailable. Visitant—a nonbreeding species; also, in fall, a species not directly en route between its breeding and wintering ranges. Abundant—species occurs repeatedly in proper habitats, with available habitat heavily utilized, and/or the region regularly hosts great numbers of the species. Common—species occurs in all or nearly all proper habitats, but some areas of presumed suitable habitat are occupied sparsely or not at all and/or the region regularly hosts large numbers of the species. Fairly common—species occurs in only some of the proper habitat, and large areas of presumed suitable habitat are occupied sparsely or not at all and/or the region hosts substantial numbers of the species. Uncommon—species occurs regularly, but utilizes little of the suitable habitat, and/or the region hosts relatively small numbers of the species; not observed regularly even in proper habitats. Rare—species within its normal range, occurring regularly, but in very small numbers. “Very” rare is used for species that occur less regularly, not every year, and usually in very small numbers. The regions are abbreviated as PB (Prudhoe Bay), FB (Franklin Bluffs), and CF (Central Foothills). Early and late observation dates are given when significant, but are not available for every species because of sparse observer coverage in early spring and late fall. If a region is not listed in a species account, there are no records for that species in that region.

Initials and names of contributors of original observations are as follows: M. Amaral (MA), L. G. Balch (LGB), J. Booker (JB), M. Brauer (MB), K. L. Brink (KLB), M. K. Buckley (MKB), R. M. Burgess (RMB), E. E. Burroughs (EEB), T. A. Carpenter (TAC), J. Carr (JC), R. C. Clearman (RCC), P. G. Connors (PGC), B. A. Cooper (BAC), J. Davis (JD), R. H. Day (RHD), G. J. Divoky (GJD), L. E. Eberhardt (LEE), G. Elliott (GE), H. Fine (HF), E. Fiscus

BIRDS OF PRUDHOE BAY

(EF), R. Fraker (RF), D. A. Garrett (DAG), R. A. Garrett (RAG), A. Gavin (AG), D. D. Gibson (DDG), P. S. Gipson (PSG), G. E. Hall (GEH), W. C. Hanson (WCH), R. E. Harris (REH), J. Hawkings (JH), J. W. Helmericks (JWH), A. Hendrick (AH), D. R. Herter (DRH), K. Hirsch (KH), C. J. Hohenberger (CJH), M. Irinaga (MI), S. R. Johnson (SRJ), S. G. Jones (SGJ), K. T. Karlson (KTK), J. Kay (JK), G. E. Keiser (GEK), R. C. Kenyon (RCK), K. Kertell (KK), B. Kessel (BK), P. Koehl (PK), J. Leifester (JL), Todd Mabee (TM), B. J. McCaffery (BJM), S. O. MacDonald (SOM), D. B. McDonald (DBM), C. Markon (CM), P. D. Martin (PDM), R. H. Meehan (RHM), G. Milke (GM), W. D. Morgan (WDM), R. Mullen (RM), S. M. Murphy (SMM), J. P. Myers (JPM), K. Persons (KP), M. A. Pruett (MAP), R. Rodrigues (RR), K. D. Rose (KDR), D. Rosenberg (DR), D. G. Roseneau (DGR), T. C. Rothe (TCR), D. P. Rudholm (DPR), R. L. Scher (RLS), C. T. Schick (CTS), D. R. Schmidt (DRS), P. Scorup (PS), W. D. Shuford (WDS), D. Tillotson (DT), T. G. Tobish (TGT), D. M. Troy (DMT), N. Warnock (NW), D. Wetzel (DW), J. Wickliffe (JW), D. Wimpfheimer (DWi), C. M. White (CMW), J. Young (JY).

Other abbreviations: University of Alaska Museum (UAM), United States Fish and Wildlife Service (USFWS), ARCo (Atlantic Richfield Corporation), BP (British Petroleum), MOC (BP's Main Operation Center), PBOC (ARCo's Prudhoe Bay Operations Center), PS-3 and PS-4 (pump stations), and TAPS (Trans-Alaska Pipeline System).

Gavia stellata. Red-throated Loon. PB: Common breeder. Arrives first week of June; latest record 1 October 1989 (EEB). FB: Uncommon and local breeder. For example, one pair found nesting opposite Franklin Bluffs in 1980 and 1981 (CJH). CF: Rare; two records of breeding, of nests in Atigun Valley in 1980 (GE, PK, JK) and between TAPS PS 4 and Dalton Highway in 1981 (DRS).

Gavia pacifica. Pacific Loon. PB: Common breeder. Earliest arrival 3 June 1991; latest record 2 October 1989 (EEB). Peak abundance 3–9 June (Johnson and Richardson 1981). FB: Uncommon, probable breeder. Earliest arrival date 4 June 1981 (CJH). CF: Common breeder. Earliest arrival date late May 1981 (DRS).

Gavia immer. Common Loon. PB: Rare migrant, observed in small numbers along the coast (Bergman 1974, Pitelka 1974, Derksen et al. 1981, Johnson and Richardson 1981, Garner and Reynolds 1986). Johnson and Richardson (1981) reported small numbers near Simpson Lagoon in spring, suggesting an eastward movement. CF: Uncommon and local breeder. For example, Sage (1974) reported a pair seen in Ribdon Valley in the upper Sagavanirktok basin 29 June 1970. DRS noted the species breeding at Toolik Lake 1977–79, Pamplin (1979) recorded it in Atigun Valley, and GE, PK, and JK saw an individual there on 26 July 1980.

Gavia adamsii. Yellow-billed Loon. PB: Uncommon breeder and migrant onshore, common migrant offshore in spring and fall (Bailey 1948, Johnson and Richardson 1981, Woodby and Divoky 1982, Divoky 1983). Earliest spring record 31 May 1982 and 1983 (Simpson et al. 1982, Renken et al. 1983). Peak abundance 3–9 June (Johnson and Richardson 1981). FB: Rare. Occasional breeder; for example, one pair nested 16 km south of Franklin Bluffs in 1969 (Sage 1974). CF: Rare and local breeder; for example, a pair nested in Ribdon Valley in the upper Sagavanirktok basin in June 1970 (Sage 1971). Nonbreeders occur in the Lupine and Sagavanirktok valleys and on lakes between Franklin Bluffs and White Hills (Sage 1971, 1974).

BIRDS OF PRUDHOE BAY

Podiceps auritus. Horned Grebe. PB: Three records, of single birds seen near East Dock in Prudhoe Bay on 9 June 1980 (TCR), near PBOC 1–14 June 1987 (DRH et al.), and at Flaxman Island at the eastern edge of the region in July 1930 (Bailey 1948). CF: Rare breeder; for example, a nest with two eggs found between PS 3 and 4 on 7 and 8 July 1981 (JH).

Podiceps griseigena. Red-necked Grebe. PB: One record, of a bird near Wellpad M near MOC 23–25 May 1992 (EEB, KK). CF: One record of a bird in Lupine Valley in the upper Sagavanirktok basin 3 July 1970 (Sage 1974).

Fulmarus glacialis. Northern Fulmar. PB: Uncommon migrant offshore. Near shore, one bird near Oliktok Point, Harrison Bay, 24 August 1983 (TAC).

Puffinus tenuirostris. Short-tailed Shearwater. PB: Bodfish (1936) reported large concentrations in the autumn near shore near Flaxman Island, yet we have only two recent records, of a bird seen in Prudhoe Bay 11 August 1983 (DRS) and a mummified carcass (not preserved) found near Point Storkersen 5 July 1984 (PDM, DRH, CJH, BAC). No fewer than 10 million Short-tailed and Sooty (*P. griseus*) move into the Bering Sea each summer (Sanger and Baird 1977). A very small proportion of the Bering Sea population of *P. tenuirostris* migrates through the Bering Strait into the Beaufort Sea from late July through September, but the species is rarely seen east of Pitt Point (Divoky 1983).

Cygnus columbianus. Tundra Swan. PB: Common breeder. Banding studies indicate that the Prudhoe Bay birds winter in Chesapeake Bay (Sladen 1973). Earliest arrival date at Prudhoe Bay 20 May (AG), although recorded 15–17 May in the Colville River delta by Simpson et al. (1982), Renken et al. (1983), and North et al. (1984). Latest record 27 September 1991 (EEB). FB: Uncommon breeder. CF: Rare visitant. Observed along Dalton Highway when coastal plain is still frozen. In 1980 the species occurred occasionally from late June to early August in Atigun Valley (GE, PK, JK).

Cygnus buccinator. Trumpeter Swan. PB: Two records, of two molting adults seen 0.5 km offshore near the east side of West Dock on 22 July 1981 (DRS) and one adult seen on a freshwater pond 30 September–2 October 1989 (EEB). The only other records for Alaska's north slope come from the Simpson Lagoon, Camden Bay, and Canning River regions, where the species is a rare breeder (Kessel and Gibson 1978).

Anser albifrons. Greater White-fronted Goose. PB: Common breeder, the most common breeding goose in the region. Earliest arrival date (20 birds) 6 May 1991; latest record 1 October 1989 (EEB). FB: Common breeder. CF: Uncommon migrant in spring and fall. Rare local breeder between Franklin Bluffs and White Hills (Sage 1974).

Chen caerulescens. Snow Goose. PB: Locally common on islands in the Sagavanirktok River delta, especially Howe Island, where a substantial colony regularly nests (SJH,RMB). In the spring of 1993, 475 pairs attempted to nest on Howe and Duck islands (SRJ); 408 of these nests successfully fledged young. Approximately 1700 adults and goslings were banded in the Sagavanirktok River delta in late July 1993 (SRJ, CJH). Earliest arrival date (30 birds) 20 May 1990 (EEB). FB: Common migrant; for example, on 27 May 1981, 100 birds were seen near the bluffs (CJH et al.). CF: Common migrant (SRJ).

Chen rossii. Ross' Goose. PB: One record of a pair in the Howe Island Snow Goose colony in summer 1983 and single adult male seen in the same location in late July of the same year. The pair nested, the first confirmed breeding by Ross' Goose in the U.S. (Johnson and Troy 1987).

BIRDS OF PRUDHOE BAY

Chen canagica. Emperor Goose. PB: One record, of a bird in a flock of Brant in the Colville River delta 26 July 1988 (Johnson and Herter 1989).

Branta bernicla. Brant. PB: Common breeder. Earliest spring record 22 May 1989; latest record 9 October 1989 (EEB). FB: Uncommon migrant (spring). CF: We have no records, though Irving (1960) listed it as uncommon migrant.

Branta canadensis. Canada Goose. PB: Fairly common, local breeder. Earliest arrival date 7 May 1972 (AG); latest record 18 September 1989 (EEB). FB and CF: Uncommon migrant (spring and fall). Earliest arrival in CF 13 May 1976 (WCH, KLB).

Anas crecca. Green-winged Teal. PB: Uncommon as a visitant; rare and local as a breeder. For example, one nest (7 eggs) in moist tundra at Prudhoe Bay on 20 June 1980 (WCH). Earliest arrival date 21 May 1991; latest record one female near West Dock 16 September 1991 (EEB). FB and CF: Uncommon and local breeder. Seen as early as 17 May 1980 at TAPS PS 4 (TCR). Three nests found between PS 3 and 4 on 7 and 8 July 1980 (JH); several young on lakes throughout CF in 1970 (Sage 1974). A nest with eggs and adults with young were discovered in Atigun Valley in 1980 (GE, PK, JK, CM, DRS).

Anas formosa. Baikal Teal. PB: One record. One male found 14 June 1993 near Milne Point near the Kuparuk River mouth and stayed into mid-July (TM et al.; photo UAM). The only other record for Alaska's north slope is of one bird at Cape Sabine 28 May 1959 (Maher 1960).

Anas platyrhynchos. Mallard. PB: Uncommon breeder. Earliest arrival date 7 May 1991 (EEB); latest record 16 September 1991 (EEB). FB: Uncommon migrant (spring and fall). CF: Uncommon visitant; for example, pairs were seen on the Sagavanirktok River near its junction with the Lupine River 6 June 1970 and on Galbraith Lake 20 May and 23 June 1970 (Sage 1974). Recorded regularly late May to late August in Atigun Valley (GE, PK, JK, et al.).

Anas acuta. Northern Pintail. PB: Abundant breeder, one of the most abundant ducks on Alaska's north slope. Influxes of nonbreeders, especially males, occur during droughts farther south (Derksen and Eldridge 1980). Bergman et al. (1977) reported that 80% of the Pintails at Point Storkersen were males, apparently nonbreeders. Earliest arrival date 8 May 1981; latest record 1 October 1989 (EEB). FB: Common. Probable breeder. CF: Fairly common. Probable breeder. Earliest arrival date 11 May 1970 (Sage 1974).

Anas discors. Blue-winged Teal. PB: Rare visitant; for example, a pair was at Deadhorse 24–26 June 1981 (DPR, CJH) and a male was near PBOC 3–6 July 1993 (RF, NW, et al.). FB: Rare; for example, a pair 17–25 July 1979 (CJH, SGJ, MAP, AH). CF: Rare; for example, a pair at Galbraith Lake 7 July 1980 (JH) and one bird in Atigun Valley 5 June 1980 (GE, PK, JK, CM, DRS).

Anas clypeata. Northern Shoveler. PB: Uncommon visitant and rare breeder; for example, adults with brood reported 7 August 1971 (AG). Earliest arrival date 16 May 1990; latest record 17 September 1989 (EEB). FB: Uncommon spring migrant. During 1981 numbers were exceptionally high in the region (BJM, RMB), where the species had previously been rare. CF: Rare visitor. Earliest observation of 21 birds between TAPS PS 3 and 4 on 17 May 1980 (TCR). Reported from same area on 7 July 1980 (JH) and near TAPS PS 3 in 1981. Regularly seen in Atigun Valley during June 1980 (GE, PK, JK, CM, DRS).

Anas strepera. Gadwall. PB: Rare visitant. A carcass was found 8 June 1971 (Childs 1972), a male was seen near West Dock 2 June 1984 (DMT, DRH, et al.), three birds were seen in the same location 11 June 1984 (DDG, DW), two pairs were

BIRDS OF PRUDHOE BAY

in Deadhorse 2–3 June 1987, a pair was seen there 1–2 June 1990 (KK, DR, NW), and a male was observed near PBOC 8 June 1991 (RR, NW). CF: One record, of a bird between TAPS PS 3 and 4 in July 1980 (JH).

Anas penelope. Eurasian Wigeon. PB: Two records, of a pair on a small pond near Kuparuk Base Camp near MOC 22 May 1981 (AG) and a male seen near Deadhorse 14 June 1989 (RR).

Anas americana. American Wigeon. PB: Uncommon visitant and rare breeder. Two breeding records from the Colville River delta (West and White 1966, AG). Earliest arrival date 22 May 1973 (AG); latest record 28 September 1989 (EEB). FB: Uncommon migrant. CF: Uncommon migrant, rare and local breeder; for example, two young were seen between TAPS PS 3 and 4 on 7 July 1980 (JH).

Aythya valisineria. Canvasback. PB: Six records, of one male seen near East Dock 6 June 1981, a pair near West Dock 7 June 1981 (AG), a pair near the West Beach State drill site near the Sagavanirktok River delta 7 June 1981 (AG), an adult male near the Kuparuk River 26 June 1989 (CTS, JW), two males near MOC 7–12 June 1990 (RR, KK, et al.), and a pair near Deadhorse 1 June 1992 (EEB et al.). CF: One record, of a female seen between TAPS PS 3 and 4 on 7 July 1980 (JH).

Aythya americana. Redhead. CF: One record of a male between TAPS PS 3 and 4 on 7 July 1980 (JH). There are two other published records for Alaska's north slope, both from Umiat on the Colville River, of a pair 13 June 1953 (Kessel and Cade 1958) and a single male 6 June 1964 (West and White 1966).

Aythya collaris. Ring-necked Duck. CF: Two records, of one male and one probable female at the junction of the Lupine and Sagavanirktok rivers 24 May 1976 (Kessel and Gibson 1978) and a male near TAPS PS 3 on 31 May 1980 (DPR, CJH).

Aythya marila. Greater Scaup. PB: Uncommon, breeding rarely and locally. Earliest arrival date 22 May 1991 (EEB); latest record of one bird 3 October 1993 (EEB). FB: Uncommon. Probable breeder. CF: Common breeder, one of the most common breeding ducks in this region (Sage 1974).

Aythya affinis. Lesser Scaup. PB: Rare visitant. One recorded during four years of study (1981–1984) at Colville River delta (Simpson et al. 1982, Johnson and Herter 1989). A pair at Prudhoe Bay 4 June 1988 (RHD, SMM) and a female at the same location 1 October 1989 (EEB). Up to three males and two females seen near PBOC 27 June–7 July 1993 (RF, NW). Latest record, five birds at West Dock 3 October 1993 (EEB). FB: Rare visitant; for example, a pair on a tundra pond 17 June 1972 (B. Bartels et al.). CF: Rare visitant. Nine separate sightings in Atigun Valley 30 May–2 July 1980 (GE, PK, JK, CM, DRS).

Somateria mollissima. Common Eider. PB: Common breeder on offshore islands and outer coast. Eastward spring migration occurs mostly offshore (Schamel 1974). Flock (1973) recorded a substantial eastward migration at sea in late May 1972. Westward postbreeding migration begins passing offshore islands in early July (Schamel 1978). Aerial surveys and shipboard observations between Barrow and the Sagavanirktok River delta revealed the greatest concentrations of eiders 13–16 km offshore (Bartels 1973). Earliest onshore arrival date 22 May 1973 (AG), latest record 28 October 1991 (EEB).

Somateria spectabilis. King Eider. PB: Common breeder along coast between the Colville and Shaviovik rivers, especially near Oliktok Point (Hall 1975). Farthest inland nesting recorded 14 km south-southwest of Deadhorse during summer 1981 (DPR, CJH). Earliest arrival date 10 May 1990 (dead adult male); latest record 15 October 1989 (EEB). FB: Three records of single birds on 8 and 18 June and 16 July 1981 (RMB, BJM).

BIRDS OF PRUDHOE BAY

Somateria fischeri. Spectacled Eider. PB: Uncommon breeder, restricted primarily to the outer coast. Nesting populations throughout Alaska have fallen 96% since 1971 (USFWS). In June of 1993, the U.S. Fish and Wildlife Service listed the species as threatened. Earliest arrival date 31 May 1972 and 1973 (AG).

Polysticta stelleri. Steller's Eider. PB: Rare. Seen sporadically along the outer coast; for example, near West Dock, one bird on 21 June 1976 (TCR), three pairs on 10 June 1984 (CJH), one pair 23 June 1990 (CJH), and three males and one female 12–14 June 1993 (RF et al.). Probable breeder but no confirmed breeding records.

Histrionicus histrionicus. Harlequin Duck. PB: Three records, of one male and a pair on the Sagavanirktok River near Prudhoe Bay summer 1969 (AG), a male observed off West Dock 5 July 1991 (NW), and two males and one female seen there again 28 June 1992 (RM). CF: Rare; for example, one male near the mouth of the Ribdon River in the upper Sagavanirktok basin 5 June 1970, and another on a lake in same valley 27 June 1970 (Sage 1974). Several reports from Atigun Valley in June 1980 (GE, PK, JK, DRS). Probably a regular local breeder.

Clangula hyemalis. Oldsquaw. PB: Abundant breeder, alternating with the Northern Pintail as the most common duck of the region. By mid- to late July, up to 50,000 molting birds, mostly males, gather on the leeward sides of offshore islands. Females gather to molt in early August, and by late September over 100,000 birds may be staging on Simpson Lagoon (Johnson and Richardson 1980). Earliest spring record 20 May 1991; latest fall record 26 October 1991 (EEB), both at Prudhoe Bay. FB and CF: Common breeder.

Melanitta nigra. Black Scoter. PB: Rare migrant; for example, four flocks totaling 127 birds migrating west off Point McIntyre 30 June 1976 (TCR), and a female found dead at Oliktok Point 14 June 1971 (Hall 1975). CF: One record, of one in Atigun Valley 11 June 1980 (GE, PK, JK, DRS).

Melanitta perspicillata. Surf Scoter. PB: Uncommon migrant, occurring primarily offshore and on outer coast. Most onshore sightings are from the Point Storkersen area. Schamel (1978) saw a group of 200–300 in Harrison Bay near Oliktok Point in August 1971. Earliest arrival date 7 June 1971 (Bergman et al. 1977). CF: Rare migrant; for example, reported from a single lake during late July and early August 1969 (Sage 1974), and one was seen in Atigun Valley 13 June 1980 (GE, PK, JK, CM, DRS).

Melanitta fusca. White-winged Scoter. PB: Uncommon, breeding rarely on offshore islands. Earliest record 1 June 1984 at Colville River delta (North et al. 1984). FB: Rare migrant and possible breeder. CF: Rare breeder; for example, female with eight young near Sagwon in mid-August 1974 (JC, UAM) and female with four young 14 km south of TAPS PS 3 on 9 August 1977 (WDS, JPM).

Bucephala clangula. Common Goldeneye. PB: Three records, of one bird at Prudhoe Bay drill site 2 June 1980 (AG), a female near MOC 29 September 1989 (EEB), and a female near PBOC 11 June 1991 (JL et al.). CF: One record, of a female between TAPS PS 3 and 4 in July 1980 (JH). The only other records for Alaska's north slope are from the Colville River, where Kessel and Cade (1958) listed the species as accidental.

Bucephala islandica. Barrow's Goldeneye. PB: One record, of a female observed near Prudhoe Bay on 10 July 1991 (RF, NW).

Bucephala albeola. Bufflehead. PB: Two records, of one bird near Deadhorse 16 July 1989 (CTS) and a female near PBOC 30 June 1992 (JL). CF: Two records, of a female observed between TAPS PS 3 and 4 in July 1980 (JH) and another individual in Atigun Valley 8 June 1980 (GE, PK, JK, DRS).

BIRDS OF PRUDHOE BAY

Mergus serrator. Red-breasted Merganser. PB: Rare migrant. Earliest record of one pair on the Kuparuk River 31 May 1973 (AG); latest record of two birds at Prudhoe Bay 30 September 1991 (EEB). FB: Rare breeder. Sage (1974) reported broods just north of the bluffs. CF: Rare breeder; for example, Sage (1974) reported broods in Atigun Valley and near Galbraith Lake.

Haliaeetus leucocephalus. Bald Eagle. PB: One record, of one immature seen near Prudhoe Bay 10 June 1993 (KTK). CF: One record, of an adult reported at the east end of Atigun Valley 8 May 1970 (Sage 1974).

Circus cyaneus. Northern Harrier. PB: Rare migrant. FB: Uncommon migrant. CF: Uncommon migrant, probable breeder. Territorial pairs seen at the confluence of the Sagavanirktok and Lupine rivers 31 July 1975 and 22 July 1977 (Kessel and Gibson 1978). Several sightings of adults and juveniles in Atigun Valley during June and July, 1977–1981 (DRS, GE, PK, JK).

Accipiter striatus. Sharp-shinned Hawk. PB: One record, of a first-year female (UAM 3831) found at Prudhoe Bay 21 May 1980 (MA). CF: One record, of a bird sighted in Atigun Valley 17 August 1980 (GE, PK, JK).

Buteo lagopus. Rough-legged Hawk. PB: Uncommon visitant. Postbreeding birds wander to the coast during summer and early fall. FB: Uncommon breeder; for example, a recently abandoned nest on tundra along the Sagavanirktok River 60 km south of the Arctic Ocean 17 August 1985 (Ritchie 1991). CF: Uncommon breeder; for example, nest and two fledglings at Happy Valley, 30 July 1981 (Ritchie 1991). Earliest arrival date 15 May 1976 (WCH, KLB).

Aquila chrysaetos. Golden Eagle. PB: Rare summer and early fall visitant. FB: Uncommon visitant. CF: Uncommon but widespread breeder. Several sightings in Atigun Valley during June and July, 1977–1981 (DRS).

Falco sparverius. American Kestrel. PB: Three records. Several sightings of presumably one bird in Prudhoe Bay environs July–September 1981 (DRS), one male seen near the Kuparuk River 11 June 1992 (CJH, MB, et al.), and a female seen near West Dock on 15 June 1992 (JD). CF: One record, of a bird seen in Atigun Valley on 13 and 15 August 1980 (GE, PK, JK).

Falco columbarius. Merlin. PB: Six records, of one bird in the Prudhoe Bay area 28 May 1973, one seen near the Kuparuk River 6 June 1991 (DR), another there 14 June 1992 (CJH, KC, JL), a female seen there 29 June 1991 (RF), one at Endicott 27 May 1993 (SRJ), and another near Prudhoe Bay 24 August 1993 (RF). FB: One record, of a bird near Franklin Bluffs in July 1978. CF: Two records, of birds sighted in foothills near Toolik Lake 16 June and 2–3 August 1980.

Falco peregrinus. Peregrine Falcon. PB: Uncommon migrant and visitant. Most records are during spring and fall along outer coast, probably of migrants and postbreeding wanderers. Earliest arrival date 12 May 1991 (EEB). FB and CF: Uncommon breeder.

Falco rusticolus. Gyrfalcon. PB: Uncommon visitant. Occasional postbreeding wanderers noted in summer and fall along coast. FB: Uncommon visitant from nearby nesting sites. CF: Uncommon breeder; for example, nest with three nearly fledged young in above-ground portion of the trans-Alaska pipeline 150 km south of Prudhoe Bay 15 July 1988 (Ritchie 1991).

Lagopus lagopus. Willow Ptarmigan. PB: Fairly common breeder. Less common in coastal areas than inland. Earliest record 2 March 1989 (EEB), but, according to oil-field personnel, some birds remain throughout the winter (Sage 1974). FB and CF: Common breeder. Large flocks in spring (150 birds) and fall (400 birds) (Sage 1974).

BIRDS OF PRUDHOE BAY

Lagopus mutus. Rock Ptarmigan. PB: Common breeder. More common along coast than inland (Irving 1960, Sage 1974, DMT). FB and CF: Fairly common breeder.

Fulica americana. American Coot. PB: One record, of a carcass found in the Colville River delta 10 June 1970 (Kessel and Gibson 1978).

Grus canadensis. Sandhill Crane. PB: Uncommon migrant and visitant. One breeding record, for the spring of 1971, 30 miles north of Umiat on the east side of the Colville River (AG). Earliest arrival date 10 May 1971 (AG). Examples of other records: one pair at Prudhoe Bay study site 26 June 1973 (WCH), one adult at Point Storkersen 26 July 1977, a single juvenile at the same location 2 June 1980 (TCR), and single adults seen on Endicott Causeway 24 May 1991 and 23 May 1992 (EEB). FB and CF: Rare visitant; for example, a single adult seen at Sagwon Bluffs 2 May 1973 (TCR).

Pluvialis squatarola. Black-bellied Plover. PB: Uncommon breeder. Earliest arrival date 15 May 1990 (EEB); latest record 2 October 1989 (EEB). FB: Uncommon breeder. CF: Uncommon probable breeder (Sage 1974).

Pluvialis dominica. American Golden-Plover. PB: Common breeder. Earliest arrival date 20 May 1991 (EEB). Nesting densities are lower along coast than farther inland (McCaffery et al. 1982). During fall migration (mid-July to August), it is not uncommon to see flocks ranging from 10 to 50 birds flying east along the coast (CJH, DPR). On 18 August 1978, 132 birds were seen flying east from Point Storkersen (DBM, UAM). Latest record 11 September 1989 (EEB). FB: Common breeder. Earliest arrival date 16 May 1976 (WCH). CF: Common breeder.

Charadrius semipalmatus. Semipalmated Plover. PB: Uncommon breeder, nesting along several rivers. Earliest arrival date 20 May 1972 (AG). FB and CF: Uncommon breeder. Sage (1974) found Semipalmated Plovers to be rare in the CF, observing them on only two occasions in 1970, but DRS saw them often near Toolik Lake. Confirmed breeding records for the region come from Atigun Valley, where Rothe (1979) found five nests on floodplain gravel on the upper river 26–28 June 1979. Flightless young and adults were seen at same location during summer 1980 (GE, PK, JK).

Charadrius vociferus. Killdeer. PB: Four records, of one bird reported from Colville River delta 19 June 1975 (Kessel and Gibson 1978), one seen at Oliktok Point 12 June 1977 (Johnson and Richardson 1980), one at Prudhoe Bay 9 June 1984 (DMT), and one near West Dock 10–11 June 1993 (KTK).

Charadrius morinellus. Eurasian Dotterel. PB: Two records, both for near Point Storkersen, of pairs 10 June 1983 (BAC, DMT) and 10 June 1992 (RF).

Tringa flavipes. Lesser Yellowlegs. PB: Rare visitant; for example, single birds noted at Point Storkersen 6 June 1973 (Bergman 1974) and at Prudhoe Bay 27 July 1979 and 8 June 1980 (TCR). FB: Rare visitant. CF: Uncommon visitant. Sage (1974) reported the Lesser Yellowlegs once, about 48 km south of Franklin Bluffs on 26 July 1969. DPR and CJH recorded seven between TAPS PS 3 and 4 on 7 July 1980, while GE, PK, JK, and DRS saw the species frequently in Atigun Valley from late May to early August 1980.

Heteroscelus incanus. Wandering Tattler. PB: One record, of a single bird in the Colville River delta on 6 June 1975 (Kessel and Gibson 1978). CF: Uncommon probable breeder; for example, single birds seen near the end of Atigun Valley 2 July 1970 (Sage 1974) and in upper Atigun Valley 30 May 1981 (DPR, CJH, DRS). Tattlers were observed regularly in Atigun Valley 26–28 June 1979 (Rothe 1979) and from 10 June to late July 1980 (GE, PK, JK, DRS).

BIRDS OF PRUDHOE BAY

Actitis macularia. Spotted Sandpiper. CF: Uncommon breeder; for example, a pair seen displaying in Atigun Valley 23 June 1970 (Sage 1974), one bird observed between TAPS PS 3 and 4 on 10 July 1980 (JH), and adults with flightless young observed in Atigun Valley during spring 1980 (GE, PK, JK, CM, DRS). Kessel and Cade (1958) reported this species to be fairly common in the Colville River valley.

Bartramia longicauda. Upland Sandpiper. PB: One record, of a bird seen near West Dock 4 June 1978 (CJH, PGC). CF: Two records, of one heard calling near TAPS PS 4 on 7 July 1980 (JH) and one seen in Atigun Valley on 2 June 1980 (GE, PK, JK). Reported breeding on upper Canning River (Kessel and Gibson 1978).

Numenius phaeopus. Whimbrel. PB: Uncommon visitant and migrant. Sporadic sightings throughout summer, apparently of postbreeding birds arriving from inland nesting sites, are the norm. FB: Uncommon breeder. Earliest arrival date 25 May 1979 (CJH). CF: Uncommon breeder. Earliest arrival date 26 May 1976 (WCH).

Limosa limosa. Black-tailed Godwit. PB: One record, of one bird seen along lake shore near PBOC on 24 July 1993 (RF). This is the first record for Alaska's north slope, though the species is casual in western Alaska.

Limosa haemastica. Hudsonian Godwit. PB: Six records, four for Prudhoe Bay, of one on 6 August 1977 (WDS, JPM), one on 6 and 8 June 1978 (CJH), one on 31 May 1979 (CJH), and two on 8 August 1979 (CJH, AG). In 1986 near the Colville River, three birds were reported 6 and 18 August (Garner and Reynolds 1986). One juvenile was seen near West Dock 4 August 1993 (RF).

Limosa lapponica. Bar-tailed Godwit. PB: Rare visitant, primarily in spring and fall; for example, one bird was at the Prudhoe Bay study site 9 June 1972 (WCH), one was at Point Storkersen 16 June 1977 (TCR), and another was at PBOC on 2 September 1990 (EEB). We have no evidence of breeding although in spring 1981 two pairs displayed and defended territories 13 km south of Prudhoe Bay (CJH, DPR). FB: Uncommon breeder. Earliest arrival date 26 May 1979 (CJH). CF: Uncommon probable breeder; for example, single birds seen at Galbraith Lake 20 May 1970 (Sage 1974) and in Atigun Valley 31 May 1980 (GE, PK, JK).

Arenaria interpres. Ruddy Turnstone. PB: Fairly common breeder and migrant, restricted primarily to the outer coast, including offshore islands. For example, a pair had a nest with two eggs at the Prudhoe Bay study site on 7 June 1975 (WCH, KLB). Earliest arrival date 19 May 1979 (AG); latest date 16 September 1991 (EEB). FB and CF: Rare spring migrant; for example, a pair was at Toolik Lake during late May 1978 (DRS) and a single bird was in Atigun Valley 30 May and 3 June 1980 (DPR, WCH, CJH, GE, PK, JK).

Arenaria melanocephala. Black Turnstone. PB: Three records, of single birds seen in the Colville River delta 29–31 May 1979 (JWH), at the mouth of the Kuparuk River 3 June 1980 (RHM, GEK), and at Point Gordon just west of the Canning River delta 9 June 1980 (SRJ). FB: One record of a bird near Franklin Bluffs 9 June 1980 (DGR). This species is very rare north of the Brooks Range.

Aphriza virgata. Surfbird. PB: One record, the first for Alaska's north slope, of a bird seen in the MOC gravel pad on 20 August 1981 (EEB).

Calidris canutus. Red Knot. PB: Rare visitant and migrant; for example, two juveniles were seen on the beach east of Point Storkersen 16 August 1977 (WDS, JPM), one bird was seen at Point Storkersen 21 June 1978 (DBM, UAM), and one was seen near West Dock during mid-June 1982 (DPR). The Red Knot is a rare migrant on the Chukchi Sea coast and was unknown east of Barrow until recently (Pitelka 1974). It is a rare breeder on Cooper Island and at Barrow (Bailey 1948, Pitelka 1974).

BIRDS OF PRUDHOE BAY

Calidris alba. Sanderling. PB: Uncommon migrant. Two summer records, of a pair actively displaying at the study site 13 km south of Prudhoe Bay 1–8 June 1981 (CJH, DPR), and one bird observed near Oliktok Point 8 July 1993 (PDM, JB, USFWS). Latest record 16 September 1991 (EEB). FB: One record, of one bird along the Sagavanirktok River 28 July 1969 (Sage 1974). The Sanderling's nearest breeding sites (irregular) are at Barrow to the west (Pitelka 1974) and in the Arctic National Wildlife Refuge to the east (Garner and Reynolds 1986).

Calidris pusilla. Semipalmated Sandpiper. PB: Abundant breeder, the most numerous shorebird in the region. Earliest arrival date 10 May (AG); latest record 25 August 1991 (EEB). Peak migration of juveniles along coast is about 29–30 July each year (Connors and Risebrough 1978). FB: Fairly common breeder. CF: Uncommon breeder. Not recorded by Sage (1974) but observed regularly along Dalton Highway (CJH, DPR, WCH, RMB, BJM) and at Toolik Lake in May and June 1981 (DRS).

Calidris mauri. Western Sandpiper. PB: Uncommon migrant; one record of breeding. A nest found 21 June 1992 on the outer coast near Point Storkerson constitutes the first breeding record east of the Meade River (NW). FB: Rare migrant. CF: One record, of a pair in Atigun Valley 20 June 1970 (Sage 1974).

Calidris ruficollis. Rufous-necked Stint. PB: Ten records. This species is now being recorded nearly annually. One bird on 9 June 1969, a pair on 12 June 1975 (JWH), and a pair on 2 June 1977 (Johnson and Richardson 1980) were all in the Colville River delta. A single bird was near Point Storkersen 28 June 1990 (RF, JL, et al.). On the west side of Prudhoe Bay, one was seen 20 June 1991 (NW, RF), a second was seen 20 July 1991 (RF), and in 1992 there were four separate sightings of up to three individuals from 6 to 22 June (RF, JL, et al.). One bird was found near West Dock 14 June 1993 (KK, DPR). The species' nearest breeding locality is Barrow (Pitelka 1974).

Calidris minuta. Little Stint. PB: One record, the third for Alaska's north slope, of a bird on the west side of Prudhoe Bay 19 June 1991 (RF, NW, DMT, et al.).

Calidris minutilla. Least Sandpiper. PB: Rare migrant and visitant. FB: Rare visitant; for example, two juveniles seen at study site 8 August 1979 (CJH, SGJ, MAP, AH). CF: Uncommon breeder. Sage (1974) reported at least nine pairs from a census of 10 km² in the Ribdon Valley in the upper Sagavanirktok basin, with one nest with eggs on 29 June 1970. Rothe (1979) reported one bird in Atigun Valley on 27 June 1979. GE, JK, PK, CM, and DRS discovered a nest with eggs in Atigun Valley during spring 1980. BJM and RMB found several nests at Sagwon Bluffs during spring 1981 and subsequently confirmed regular nesting of small numbers at that location.

Calidris fuscicollis. White-rumped Sandpiper. PB: Rare, breeding irregularly and at variable densities (SGJ, DMT). The Prudhoe Bay region appears to be at the western end of the White-rumped Sandpiper's normal breeding range, though the species has nested as far west as Barrow.

Calidris bairdii. Baird's Sandpiper. PB: Fairly common breeder, mainly along the outer coast and in the Sagavanirktok River delta (DMT, Johnson and Herter 1989). In 1980, Baird's Sandpiper was one of the commonest breeding shorebirds at Point Storkersen (DRS). Earliest arrival date 28 May 1982 at Colville River delta (Simpson et al. 1982). FB and CF: Uncommon breeder.

Calidris melanotos. Pectoral Sandpiper. PB: Common to abundant breeder. One of the most widespread and conspicuous birds of the region. Earliest arrival date 21 May 1991 (EEB). Most adult males depart the region by the first week of July; latest record 13 September 1991 (EEB). FB: Fairly common breeder. CF: Uncommon migrant. Pairs have been observed but we have no nesting records.

BIRDS OF PRUDHOE BAY

Calidris acuminata. Sharp-tailed Sandpiper. PB: Two records, of one immature in the Colville River delta 7 August 1982 (Simpson et al. 1982) and another immature photographed near MOC on 11 September 1991 (EEB; photo UAM).

Calidris alpina. Dunlin. PB: Common breeder. Found primarily along the coast, although the species nests at least 13 km inland south of Prudhoe Bay. Earliest arrival date 24 May 1979 (TCR); latest record 23 September 1993 (EEB). FB: One record, of a bird seen near study site 12 July 1981 (BJM, RMB).

Calidris ferruginea. Curlew Sandpiper. PB: Three records, of three juveniles seen near Oliktok Point 8–9 August 1972 (Kessel and Gibson 1978), one at Deadhorse 5 June 1984 (KDR), and one adult at Endicott 3 June 1993 (SRJ). The Curlew Sandpiper is a very rare breeder at Barrow (Pitelka 1974, Kessel and Gibson 1978).

Calidris himantopus. Stilt Sandpiper. PB: Fairly common and very conspicuous breeder. Earliest arrival date 24 May 1991 (EEB). FB: Fairly common breeder. About 100 juveniles in one group on 29 July 1979 (CJH). CF: Rare visitant in spring and fall.

Tryngites subruficollis. Buff-breasted Sandpiper. PB: Fairly common breeder. Nesting densities vary widely from year to year; in 1978 Buff-breasted Sandpipers were common and widespread, but subsequently their numbers have varied greatly. Earliest arrival date 23 May 1985 (EEB). Males emigrate about the first week of July; flocks of fall migrants have been noted in the Canning River delta during early August (Martin and Moitoret 1981). FB: Fairly common breeder. CF: Rare migrant and visitant; for example, Sage (1974) saw one bird near the confluence of the Sagavanirktok and Lupine rivers on 9 June 1970. Pamplin (1979) recorded this species in Atigun Valley in spring 1979.

Philomachus pugnax. Ruff. PB: Eleven records. This species is now being recorded almost annually. A male near Prudhoe Bay study site 18–28 June 1978 was presumably the same seen there again 20–21 June 1979. A different male at the same location 14–21 June 1980 chased female Pectoral Sandpipers and was repeatedly chased by other shorebirds (WCH, CJH, DPR, SGJ, TCR; photo UAM). One male in breeding plumage was seen near Kuparuk River 5 July 1982 (DMT), a single male was near the Prudhoe Bay study site 11 June 1984 (WDM), a juvenile male was near Sagavanirktok River delta 13–15 August 1989 (CTS, KK, RF), a male was near Endicott 29 June 1991 (JY), a male was near Point Storkerson 12 June 1992 (JL, RF), and two males were near PBOC 24 June 1992 (NW et al.). To the west of the region, one bird was seen in the Colville River delta 17 August 1978 (JWH).

Limnodromus scolopaceus. Long-billed Dowitcher. PB: Uncommon breeder. Earliest arrival date 25 May 1979 (CJH); latest record 3 September 1989 (EEB). Large numbers of juveniles appear in early August and reach peak numbers by the third week of August, as they move east (Connors and Risebrough 1979, Johnson and Herter 1989, DMT). FB and CF: Uncommon breeder.

Gallinago gallinago. Common Snipe. PB: Uncommon migrant (probable breeder); for example, single birds were noted 30 May 1979, 13 June 1980 (TCR), and 17 June 1991 (EEB). Each spring, snipes display in the region, but no nests have been found. FB and CF: Uncommon migrant (probable breeder).

Phalaropus lobatus. Red-necked Phalarope. PB: Common breeder (Figure 5). Earliest arrival date 20 May 1991 (EEB); latest record 3 October 1993 (EEB). Large flocks of females congregate on tundra ponds and along the coast in late June. By late July and early August, males begin migration staging, and juveniles reach peak numbers in mid-August along the outer coast. FB: Common breeder. CF: Fairly common breeder.

BIRDS OF PRUDHOE BAY



Figure 5. Male Red-necked Phalarope (*Phalaropus lobatus*) brooding young at a nest on the wet coastal plain.

Photo by Craig Hohenberger



Figure 6. Male Red Phalarope (*Phalaropus fulicaria*) brooding young at a nest on the wet coastal plain.

Photo by Craig Hohenberger

BIRDS OF PRUDHOE BAY

Phalaropus fulicaria. Red Phalarope. PB: Common breeder (Figure 6). Status similar to that of *P. lobatus* except during fall, when migrating flocks of *P. lobatus* greatly outnumber *P. fulicaria* along the outer coast. The Red Phalarope is rare, mainly a visitant, inland. Earliest arrival date 29 May 1982 in the Colville River delta (Simpson et al. 1982); latest record 9 October 1991 at West Dock (EEB). FB and CF: Rare visitant.

Stercorarius pomarinus. Pomarine Jaeger. PB: Common spring migrant (on-shore); common fall migrant (offshore) during August, decreasing by early September (Divoky 1983). Earliest record 20 May 1991 (EEB). The Pomarine Jaeger's distribution varies unpredictably from year to year because of the species' dependence on small mammals for prey (Pitelka et al. 1955a,b, Maher 1974, Johnson and Herter 1989). It is rare onshore after the third week of June though recorded as late as 17 August in 1991 (RF). FB: Common spring migrant. CF: Uncommon spring migrant.

Stercorarius parasiticus. Parasitic Jaeger. PB: Common breeder. Earliest spring record 24 May 1974 (WCH); latest fall sighting 27 September 1991 (EEB). FB and CF: Common breeder.

Stercorarius longicaudus. Long-tailed Jaeger. PB: Fairly common but scattered; probably breeds at southern edge of coastal plain. No confirmed nesting records from this region. Earliest arrival date 25 May 1979 (CJH). Long-tailed Jaegers constituted 10% of all birds seen offshore from 3 to 15 August 1969 (Frame 1973). FB and CF: Fairly common breeder.

Larus philadelphia. Bonaparte's Gull. PB: Four records, of adults in breeding plumage near Prudhoe Bay on 6 June 1970 (SOM, UAM), 9 June 1976 (AG), 31 May 1991 (NW), and 1–3 June 1992 (NW). CF: One record, of a bird sighted in Atigun Valley 5 June 1980 (GE, PK, JK, DRS).

Larus canus. Mew Gull. PB: Rare migrant and visitant; for example, one bird at Prudhoe Bay study site 13 June 1975 (KLB), two individuals near Oliktok Point 13 July 1977 (Johnson and Richardson 1980), one adult near MOC on 11 May 1990 (EEB), and an adult near PBOC 11 June 1992 (CJH, DR, JL, RF). CF: Uncommon breeder. Sage (1974) found it scarce in his study area, but DRS found several, including nests, from May to August in 1977, 1978, and 1979. JH found a few nests and saw many birds between TAPS PS 3 and 4 during 1980, while GE, PK, JK, and DRS confirmed nesting in Atigun Valley the same year.

Larus californicus. California Gull. PB: One record, of an adult carefully studied near Deadhorse after strong southern storm on 7 July 1981 (DPR, BJM, RMB, CJH).

Larus argentatus. Herring Gull. PB: Uncommon migrant and visitant, being fairly common in September during some years (LGL). The nearest breeding record is from the Colville River in 1964 (West and White 1966). Latest fall record 27 September 1990 (EEB). Divoky (1983) reported large gulls with dark wing-tips on 3% of all pelagic surveys. FB: Rare visitant.

Larus thayeri. Thayer's Gull. PB: Uncommon to rare pelagic and nearshore migrant (Divoky 1983, Johnson and Herter 1989). Johnson and Richardson (1980) reported flocks of *L. thayeri* and/or *argentatus* in Prudhoe Bay and Simpson Lagoon. Latest record 23 September 1993 (EEB).

Larus schistisagus. Slaty-backed Gull. PB: Rare visitant; for example, subadults were in Prudhoe Bay 31 July 1977 (WDS, JPM) and 26–27 June 1990 (KK, NW), and another was 13 km south of there 15 June 1981 (CJH, DPR). One third-year bird was near West Dock 13–16 June 1993 (RF), and an adult was there 17 June 1993 (RF, KTK). One was recorded in the Colville River delta August 1977 (Kessel

BIRDS OF PRUDHOE BAY

and Gibson 1978). At West Dock, an individual was seen from 8 July to 18 August 1991 (DWI, NW, RF) and two birds were observed on 11 June 1992 (JL, RF). FB: One record, of a bird flying north along Dalton Highway 20 June 1981 (DPR, CJH).

Larus glaucescens. Glaucous-winged Gull. PB: One record, of a bird at Deadhorse 28–30 July 1977 (WDS, JPM). FB: One record, of a bird at the study site 20 June 1981 (BJM, RMB).

Larus hyperboreus. Glaucous Gull. PB: Common breeder. One of the most abundant seabirds in pelagic and nearshore areas of Beaufort Sea in summer (Divoky 1983, 1984). Breeds commonly on offshore islands and on islands in tundra lakes and ponds. Earliest arrival date 30 April 1992 (EB); noted in late November 1975 (GM, UAM). FB and CF: Uncommon breeder.

Rissa tridactyla. Black-legged Kittiwake. PB: Common visitant offshore, rare onshore. Most kittiwakes recorded during pelagic surveys of the Beaufort Sea (Frame 1973, Watson and Divoky 1974a,b, Divoky 1983, Johnson and Herter 1989) were subadult or nonbreeding, although Divoky (1983) reported that about half were adults. The species is more common in the western Beaufort Sea than farther east. Small numbers were in the Beaufort Sea of central Alaska (Simpson Lagoon to Barter Island) 18 September–7 October 1985 (LGL).

Rhodostethia rosea. Ross' Gull. PB: Rare visitant in our study area but a common fall migrant in the far western Beaufort Sea between Cape Halkett and Point Barrow (GJD). One immature female was at the Prudhoe Bay study site 9 August 1975 (KLB), and another bird was near the same area 25 August 1975 (AG). Two birds were in the Colville River delta 21–22 June 1978 and again 8 May 1981 (JWH); one bird was there 15 June 1982 (LGL). A group of 21 adults and 8 immatures was at West Dock 29 and 30 September 1990 (EEB). An immature was in Prudhoe Bay 25 July 1991 (RF), and a breeding-plumaged bird was near the Kuparuk River 15 June 1992 (CJH, KTK).

Xema sabini. Sabine's Gull. PB: Uncommon breeder on barrier islands and locally along the coast but makes little use of nearshore or pelagic zones of the Beaufort Sea during the nesting season (Divoky 1983, Johnson and Herter 1989). Sabine's Gulls move to the open sea in August and are most common in the Beaufort Sea east of Barrow. Frame (1973) reported the species to be the second most common migrant offshore. Its westward migration is most pronounced during late August and early September. Latest date 28 October 1991 (DT). FB: Two records, of one bird at the north end of the bluffs 31 July 1969 and a flock of seven there 9 June 1970 (Sage 1974).

Pagophila eburnea. Ivory Gull. PB: Uncommon migrant offshore. Frame (1973) encountered two birds about 86 km northeast of Oliktok Point 14 August 1969. Watson and Divoky (1972) and Divoky (1976) considered the Ivory Gull an uncommon pelagic migrant in the Beaufort Sea and an uncommon summer visitant associated with leads in pack ice in the Chukchi and Beaufort seas. There is little evidence of concentrated migration by this species in Beaufort Sea area (GJD, Johnson and Herter 1989). One record from Colville River delta (Anderson 1913).

Sterna paradisaea. Arctic Tern. PB: Fairly common breeder. Earliest arrival date 31 May 1982 in the Colville River delta (Simpson et al. 1982). FB: Uncommon (probable breeder). CF: Uncommon breeder. Widely distributed along the Sagavanirktok River and its tributaries, where it nests on gravel bars (Sage 1974). Nesting pairs recorded in Atigun Valley in spring 1980 (GE, PK, JK, DRS).

Uria lomvia. Thick-billed Murre. PB: Four records of single birds, three near Point Storkersen, 20 July 1971 (Bergman et al. 1977), 18 July 1976 (TCR), and 20 May–

BIRDS OF PRUDHOE BAY

12 August 1972 (Schamel 1978), and one from Milne Point near the Kuparuk River mouth, 17 August 1978 (Johnson and Richardson 1980).

Cephus grylle. Black Guillemot. PB: Uncommon migrant and breeder. Observed offshore (Egg Island) 20 May–early August 1972 (Schamel 1978). Since 1978 Black Guillemots have nested annually on barges in Prudhoe Bay, with up to 50 on barges along West and East docks (AG, DRS, et al.). At the eastern edge of the region, two birds were at Flaxman Island 6 August 1972 (Divoky et al. 1974). The species is an uncommon local breeder in burrows and beach flotsam along the Chukchi and Beaufort Sea coasts from the Seahorse Islands and Barrow east to Igalik Island (MacLean and Verbeek 1968, Divoky et al. 1974, Kessel and Gibson 1978, Divoky 1984).

Aethia pusilla. Least Auklet. PB: Three records, of one bird near Atigaru Point just west of the Colville River delta in summer 1988 (RR), a pair near Point Brower 9 September 1988 (Johnson and Herter 1989), and two birds near Point Brower 7–14 September 1989 (RR).

Fratercula cirrhata. Tufted Puffin. PB: Two records, of one bird at Point Storkersen 12 August 1972 (Bergman et al. 1977) and one bird near West Dock 12 August 1981 (KP). The species is accidental along the Chukchi and Beaufort Sea coasts (Pitelka 1974, Johnson and Herter 1989).

Fratercula corniculata. Horned Puffin. PB: Two records from barges offshore Prudhoe Bay, of a pair on 15 August 1981 (DRS) and one bird on 22 August 1981 (DMT). West of the region, Divoky (1982) found a few pairs occupying Black Guillemot nests and incubating their eggs on Cooper Island (east of Barrow). From 1986 to 1988 several pairs attempted to nest in boxes installed there for Black Guillemots, and one pair fledged one young in 1986 (Johnson and Herter 1989).

Nyctea scandiaca. Snowy Owl. PB: Highly cyclic breeder, closely correlated with lemming populations; fairly common in some years. Nested in region in 1969 (AG), 1972 (WCH), 1988, 1989, and 1992 (Figure 7). Earliest arrival date 5 May 1971 (AG). Seen annually but only a few birds present some years. FB: Uncommon occasional breeder; for example, four birds south of bluffs 17 September 1969 (Sage 1974). CF: Uncommon occasional breeder (Sage 1974).

Surnia ulula. Northern Hawk-Owl. PB: Two records, of one bird in the Colville River delta 8 May 1981 (JWH) and another photographed at Endicott Island on 21 August 1991 (DT; photo UAM).

Strix nebulosa. Great Gray Owl. PB: One record, of a bird at Prudhoe Bay 29 May 1989 (PS, EF). This species is very rare north of the Brooks Range.

Asio flammeus. Short-eared Owl. PB: Rare visitant. Earliest arrival date 5 May 1989 (EEB); latest record of a loose flock of seven birds 11 September 1990 (EEB). FB and CF: Uncommon visitant (probable breeder).

Chordeiles minor. Common Nighthawk. PB: Two records, of one female hawking insects near Point Storkersen 4 and 6 July 1984 (CJH, DPR, REH, PM, BAC) and one bird at Prudhoe Bay 17–21 June 1990 (JW, KK).

Ceryle alcyon. Belted Kingfisher. FB: Only record is of feathers found in a Peregrine Falcon eyrie on the bluffs during early July 1974 (CMW, Sage 1974). CF: One record, of a bird observed in Atigun Valley 23 August 1980 (GE, PK, JK).

Colaptes auratus. Northern Flicker. PB: One record, of a carcass found at a fox den 1 June 1979 (HF, PSG). CF: One record, of a bird at the eastern end of Atigun Valley 21 May 1970 (Sage 1974). Kessel and Cade (1958) recorded this species along the Colville River in 1937.

BIRDS OF PRUDHOE BAY

Contopus sordidulus. Western Wood-Pewee. PB: One record, of an individual calling near Oliktok Point on 1 July 1993 (PDM, JB, USFWS). This constitutes only the fourth record for Alaska's north slope.

Sayornis saya. Say's Phoebe. PB: One record, of a dead bird found in a building at Point Storkersen 19 July 1978 (DBM). CF: Uncommon local breeder. Sage (1974) found Say's Phoebes nesting in Atigun Canyon on 23 June 1970. Kessel and Gibson (1978) reported evidence of its nesting at Sagwon Bluffs. Cade and White (1973) found it nesting as far north as 69°05' N on the Lupine River in the upper Sagavanirktok basin during summer 1970.

Tyrannus tyrannus. Eastern Kingbird. PB: Three records, of one bird near Deadhorse 31 July–3 August 1970 (AG), one bird at the mouth of the Colville River 1 July–3 August 1975, and one at same location 27–28 June 1978 (JWH). FB: One record, of a bird at the bluffs 22 July 1976 (Kessel and Gibson 1978).

Eremophila alpestris. Horned Lark. PB: Rare breeder; for example, nest and fledglings in 1989 in the Sagavanirktok River delta (RMB). Single birds were seen at Point Storkersen 6 June 1973 (Bergman et al. 1977) and 25 July 1977 (TCR), at West Dock 20 June 1978 (CJH), and near MOC 2 July 1991 (EEB). FB: Rare visitant; for example, single birds were at the study site 24 June and 30 June 1981 (BJM, RMB). CF: Uncommon but widespread; probably breeds (Sage 1974, GE, PK, JK, CM, DRS).

Progne subis. Purple Martin. PB: The single record, of a female near Deadhorse 12 June 1986 (DMT), is the only record for Alaska's north slope.



Figure 7. Female Snowy Owl (*Nyctea scandiaca*) at a nest in tundra of the wet coastal plain.

Photo by Craig Hohenberger

BIRDS OF PRUDHOE BAY

Tachycineta bicolor. Tree Swallow. PB: Three records, of two birds at Point Storkersen 21 June 1976 (TCR), one bird near Deadhorse 7 June 1984 (DMT), and one at Prudhoe Bay 20 June 1991 (KK). FB: Two records, of a juvenile at study site M12 on 7 August 1979 (CJH, SGJ, MAP, AH) and an adult at the same location on 10 June 1981 (BJM, RMB). CF: One record, of several birds seen perched on antenna at Toolik Lake camp in late May and June 1979 (DRS).

Riparia riparia. Bank Swallow. PB: Seven records, of one along the Canning River during spring 1970 (AG), one near the Kuparuk River 30 May 1971 (AG), single birds at Point Storkersen 9 June 1972 and 5 June 1975 (Bergman et al. 1977), one 13 km south of Prudhoe Bay 6 June 1981 (DPR, CJH), one at Prudhoe Bay 21 June 1990 (KK), and one near Prudhoe Bay 2 June 1993 (KTK et al.). FB: One record, of a bird at the study site 29 June 1981 (BJM, RMB). CF: One breeding record, the only one for Alaska's north slope. A colony of 8–10 birds was discovered on 4 July 1989 nesting near Sagwon Bluffs along the Sagavanirktok River (CTS, TAC), where none had nested from 1986 to 1988.

Hirundo pyrrhonota. Cliff Swallow. PB: Seven records, of single birds at Point Storkersen 7 June 1971 and 7 June 1975 (Bergman et al. 1977), near Deadhorse in early June 1978 (SGJ), near West Dock 12 June 1984 (DPR, DMT, PDM, REH), 8 miles east of Prudhoe Bay 9 June 1993 (MI), and in the Colville River delta 27 May 1964 and 4 May 1975 (JWH; photos UAM). CF: Rare breeder, known from two sites. Irving (1960) reported that during the winter of 1908 or 1909 Simon Paneak of Anaktuvuk Pass found frozen young birds in over 100 nests built against cliffs near the end of the west fork of the Kuparuk River at 68°35' N, 149°20' W. Sage (1973, 1974) located a colony of 7–10 pairs on a tributary of the Atigun River on 24 June 1970.

Hirundo rustica. Barn Swallow. PB: Ten records. Single birds were reported at Oliktok Point 15 June 1971 (Hall 1975), at Point Storkersen 14 and 20 June 1978 (DBM; photos UAM), near West Dock 12 and 24 June 1984 (PDM, DPR, BAC) and 10 June 1992 (RF, JL, et al.), near the PBOC 7 July 1992 (KTK, CJH), and at Prudhoe Bay 21 June 1990 (KK), 19 June 1991 (RF), and 16 July 1991 (JL).

Delichon urbica. Common House Martin. One record, of one bird observed at Spy Island just east of the Colville River delta on 11 June 1983 (SRJ). This is the first record for Alaska's north slope and one of four total for the state (D. D. Gibson pers. comm.).

Perisoreus canadensis. Gray Jay. CF: One record, of a bird seen near TAPS Happy Valley camp 25 May 1976 (WCH). West and White (1966) reported, "It is reasonable to believe this species is not rare along the Colville River, and probably breeds there."

Pica pica. Black-billed Magpie. PB: One record, of three birds seen at Oliktok Point 27 May 1977 (Johnson and Richardson 1980). CF: One record, of a bird seen near the mouth of Accomplishment Creek in the Sagavanirktok River valley 29 July 1970 (Sage 1974).

Corvus corax. Common Raven. PB: Fairly common resident, nesting uncommonly on buildings and other man-made structures throughout the oil field. FB and CF: Fairly common breeder; for example, a pair nested on the trans-Alaska pipeline near TAPS PS 3 during summer 1980 (CJH).

Phylloscopus borealis. Arctic Warbler. CF: Rare and local breeder; for example, a pair was feeding four young in a nest on the east bank of the Sagavanirktok River 24 July 1970, and another was nesting 3 km from that site 5 July 1971 (Sage 1974). The Sagavanirktok River is probably at the eastern edge of the species' breeding range.

BIRDS OF PRUDHOE BAY

Luscinia svecia. Bluethroat. PB: One record, of a female 13 km south of Prudhoe Bay 9 June 1980 (CJH). FB: Rare and local breeder; for example, one female with a juvenile was near the Toolik River just west of Franklin Bluffs 16 July 1981 (BJM). CF: Rare and local breeder. A breeding colony of eight to ten pairs discovered at Mile 368 along the Dalton Highway, near Happy Valley, during the mid-1980s has been monitored annually since. The Bluethroat's breeding locations become progressively rarer east of the Sagavanirktok River (Gabrielson and Lincoln 1959, Johnson and Herter 1989).

Oenanthe oenanthe. Northern Wheatear. PB: Five records, of single birds at Point Storkersen 8 June 1972 and 1 July 1975 (Bergman et al. 1977), at Prudhoe Bay 23 August 1981 (DMT), and in the Colville River delta 7 June 1975 and 28 May 1976 (Kessel and Gibson 1978). FB: Rare visitant; for example, one bird at the study site in late July 1980 (WCH, RAG, DAG). CF: Uncommon local breeder; for example, Sage (1974) reported a pair above 900 m elevation near Section Creek, a tributary of the upper Sagavanirktok River, on 29 July 1969 and two pairs at different locations in Atigun Valley 20 June 1970. DRS reported several sightings and nests in the Toolik Lake area and numerous sightings at the headwaters of the Atigun River from May to August in 1977, 1978, 1979, and 1981. WDS and JPM reported Wheatears to be common in Atigun Valley on alpine tundra, 9 August 1977.

Catharus minimus. Gray-cheeked Thrush. PB: Rare visitant; for example, single birds were seen 13 km south of Prudhoe Bay 7 June 1972 (WCH) and 31 May 1976 (WCH, KLB); another was in an oil-company camp early in June 1980 (SGJ). FB: Rare local breeder; for example, one adult with a juvenile near the Toolik River 16 July 1981 (BJM). CF: Rare (probable breeder). Breeds regularly in willows along many streams draining Alaska's north slope (Kessel and Gibson 1978).

Catharus ustulatus. Swainson's Thrush. PB: Two records. One bird first seen at an oil-company camp 3 June 1978 was found dead 7 June (SGJ); another was at Prudhoe Bay 31 May 1990 (KK et al.).

Turdus migratorius. American Robin. PB: Rare visitor, observed primarily in spring. For example, a pair was at an oil-company camp 2 June 1972 (WCH), one bird was at Point Storkersen prior to and on 30 May 1973 (Bergman et al. 1977), apparently one bird was seen repeatedly at an oil-company camp 31 May–4 June 1978 (SGJ), and one was observed at Oliktok Point from 9 June to 16 July 1993 (PDM, JB, USFWS). CF: Uncommon breeder (Sage 1974, DPR, CJH).

Ixoreus naevius. Varied Thrush. PB: Rare visitant; for example, one bird was seen at Point Storkersen 22 July 1978 (RCK, DBM, UAM) and another was at Simpson Lagoon 7 September 1977 (Johnson and Richardson 1980).

Motacilla flava. Yellow Wagtail. PB: Uncommon visitant (occasional breeder). Pairs were found nesting on the banks of the Kuparuk River in June 1986 (DMT, CJH et al.) and on 13 July 1992 (CJH). Earliest spring arrival date 31 May, in 1983 in the Colville River delta (Renken et al. 1983) and in 1975 on the Sagavanirktok River (Kessel and Gibson 1978). FB: Fairly common breeder, nesting regularly along the Sagavanirktok River. CF: Fairly common breeder (Sage 1974, DRS, TCR).

Anthus cervinus. Red-throated Pipit. PB: Two records, of one female seen near Point Storkersen 15 June 1992 (JL) and a male observed at Heald Point 10–15 June 1993 (KTK et al.). The Red-throated Pipit is very rare on Alaska's north slope, breeding uncommonly only in western Alaska (Kessel and Gibson 1978).

Anthus rubescens. American Pipit. PB: Rare visitant. Late records for the Canning River delta 25 August 1979 and 28 August 1980 (Martin and Moitoret

BIRDS OF PRUDHOE BAY

1981). FB: Rare visitant (possible breeder on bluffs). Five birds seen in late July 1979 (CJH, SGJ, MAP, AH) but no evidence of breeding. CF: Uncommon visitant (possible breeder). Locally common along Dalton Highway from Atigun Pass to 20 km north of Toolik Lake 9 August 1977 (WDS, JPM).

Lanius excubitor. Northern Shrike. CF: Uncommon breeder. Sage (1974) reported four juveniles on the Sagavanirktok River near the mouth of the Ivishak River on 24 July 1969 and single adults near confluence of the Lupine and Sagavanirktok rivers on 19 September 1969, in Ivishak Valley on 5 June 1970, in Atigun Valley on 20 June 1970, and at the east end of Atigun Valley on 23 June 1970. DRS saw one attacking a passerine near Happy Valley in September 1980. TCR saw a single bird in same area 9 May 1983. BJM saw one between TAPS PS 3 and 4 on 24 June 1981. GE, PK, JK, CM, and DRS found an abandoned nest with eggs and another nest with an adult attending young in Atigun Valley in spring 1980.

Sturnus vulgaris. European Starling. PB: One record, of a bird that summered in the Colville River delta in 1979 (JWH).

Vermivora celata. Orange-crowned Warbler. PB: One record, of a bird in the Colville River delta during mid-September 1975 (Kessel and Gibson 1978). CF: One record, of a bird at Happy Valley 27–28 May 1976 (Kessel and Gibson 1978).

Dendroica petechia. Yellow Warbler. PB: Two records, of two birds in the Colville River delta 6 June 1974 (Kessel and Gibson 1978) and one bird at Simpson Lagoon 5 September 1977 (Johnson and Richardson 1980). CF: One record, of a male at Mile 68 of the Trans-Alaska pipeline 23 June 1981 (LGB, TGT, UAM).

Dendroica coronata. Yellow-rumped Warbler. PB: Three records, of one bird near Deadhorse 7–13 June 1975 (WCH, KLB), one female at Oliktok Point 17 June 1971 (Hall 1975), and one Myrtle Warbler at Oliktok Point 9 June 1993 (PDM, JB, USFWS).

Dendroica palmarum. Palm Warbler. PB: Two records, of one bird at West Dock 24–25 September 1991 (Gibson and Kessel 1992) and one bird on the outer coast near Point Storkerson 3 June 1992 (MB, JY).

Dendroica striata. Blackpoll Warbler. PB: Three records, of one bird in the Sagavanirktok River delta 10 September 1981 (RLS), one adult male near West Dock 11 and 15 June 1984 (DMT, CJH, DPR), and another male at Oliktok Point 6 July 1993 (PDM, JB, USFWS).

Mniotilta varia. Black-and-white Warbler. PB: One record, of an immature bird seen in the Colville River delta 10–12 October 1977 and found dead a week later (Kessel and Gibson 1978).

Setophaga ruticilla. American Redstart. PB: One record, of one in the Colville River delta 21 September 1979 (SRJ, JWH).

Seiurus aurocapillus. Ovenbird. PB: Two records. One Ovenbird seen in Sagavanirktok River delta 10 September 1981 was the first for Alaska (Gibson and Kessel 1992). Another was reported near Prudhoe Bay 29 June 1992 (RM).

Seiurus noveboracensis. Northern Waterthrush. PB: Two records, of one bird in the Colville River delta 19–26 May 1974 (Kessel and Gibson 1978) and another near West Dock 30 May 1984 (DMT, PDM).

Wilsonia pusilla. Wilson's Warbler. PB: Two records, of one bird at Point Storkersen 1 September 1973 (Bergman et al. 1977) and a female near Prudhoe Bay 11 August 1993 (RF). Probably breeds in tall shrubs along the Colville River (Kessel and Gibson 1978).

BIRDS OF PRUDHOE BAY

Wilsonia canadensis. Canada Warbler. PB: One record, of a bird in the oil field 24 September 1981 (RCC).

Spizella arborea. American Tree Sparrow. PB: Rare visitant; for example, single birds 13 km south of Prudhoe Bay 3–6 June 1975 (WCH, KLB) and 3–4 June 1976 (WCH), and at West Dock 23 September 1991 (EEB) and 16 June 1993 (RF). Anderson (1913) reported a nest in the Colville River delta in the early 1900s. FB and CF: Uncommon breeder.

Passerculus sandwichensis. Savannah Sparrow. PB: Uncommon breeder. Earliest arrival date 29 May 1982 in the Colville River delta (Simpson et al. 1982). FB: Fairly common breeder. Earliest arrival date 25 May 1979 (CJH, SGJ). CF: Fairly common breeder. Earliest arrival date 24 May 1976 (WCH).

Passerella iliaca. Fox Sparrow. PB: Three records, of single birds at Point Storkersen 9 June 1972 (Bergman et al. 1977), at the oil-company camp 31 May 1978 (SGJ), and at Prudhoe Bay 30 September 1989 (EEB). Hall (1975) reported the Fox Sparrow to be common in dense brush between Umiat and Ocean Point on the Colville River from 23 to 27 June 1971.

Melospiza lincolni. Lincoln's Sparrow. PB: Three records, of one bird in the Colville River delta 21 July 1982 (Simpson et al. 1982), one at West Dock 25 and 29 September 1991 (EEB), and another near West Dock 12 June 1992 (RF).

Zonotrichia albicollis. White-throated Sparrow. PB: Two records, of an adult photographed in the Colville River delta 5 July 1973 (Kessel and Gibson 1978) and another observed at Brownlow Point at the eastern edge of the region 17–28 August 1980 (PDM).

Zonotrichia atricapilla. Golden-crowned Sparrow. PB: Two records, of one bird in the Colville River delta 6 June 1976 (Kessel and Gibson 1978) and one seen near Point Storkersen 12 June 1992 (RF, JL). CF: Two records, of one bird in Atigun Valley 17 July and possibly another individual in the same general area 17–18 August 1980 (GE, PK, JK).

Zonotrichia leucophrys. White-crowned Sparrow. PB: Uncommon visitant. Several records, mostly during spring and fall. FB and CF: Uncommon breeder.

Zonotrichia querula. Harris' Sparrow. PB: Two records, of a female in the Colville River delta 19–25 June 1958 (Kessel and Gibson 1978) and a bird observed on Spy Island just east of the Colville River delta 4 and 6 June 1983 (SRJ).

Junco hyemalis. Dark-eyed Junco. PB: Rare spring and fall migrant and visitant. Most records are for spring, with earliest date 24 May 1981 (EEB).

Calcarius lapponicus. Lapland Longspur. PB: Abundant breeder. Typically the most common nesting passerine on Alaska's north slope (Pitelka 1974, Derksen et al. 1981, Hanson and Eberhardt 1981, Johnson and Herter 1989). Earliest arrival date 15 May 1984 in the Colville River delta (North et al. 1984); latest records 2 September 1989 and 1990 (EEB). FB: Abundant breeder. Nesting densities lower than along coast but the species still outnumbers other nesting passerines. CF: Abundant breeder.

Calcarius pictus. Smith's Longspur. CF: Uncommon breeder. Scattered nesting pairs found in the Atigun, Sagavanirktok, and Ribdon river valleys in June 1970 (Sage 1974). Several sightings in Atigun Valley in late May 1979 and 1980 (CJH, DPR, SGJ). Smith's Longspurs nested as far north as Sagwon Bluffs during July 1978 (SGJ, KH).

Plectrophenax nivalis. Snow Bunting. PB: Abundant to common breeder. Especially abundant in construction camps, which offer numerous nest sites. Earliest

BIRDS OF PRUDHOE BAY

arrival date 25 April 1992; latest record 11 October 1991 (EEB). CF: Uncommon breeder. Found at higher elevations, usually above 900 m (Sage 1974).

Agelaius phoeniceus. Red-winged Blackbird. CF: One record, of a female reported at the confluence of the Sagavanirktok and Ivishak rivers 4 June 1976 (Kessel and Gibson 1978).

Euphagus carolinus. Rusty Blackbird. PB: Eight records. A pair was reported at PBOC 20–30 May 1973 (Kessel and Gibson 1978). Single birds were in the Colville River delta 10 June 1969, 17 May 1971, 25 May 1976, 18 and 21 September 1976, and October 1976 (Kessel and Gibson 1978). One bird was at Prudhoe Bay 2 June 1990 (KK). A pair was seen at West Dock on 24 September 1991, and the male remained until 27 September 1991 (EEB; photo UAM). CF: One record, of one bird in Atigun Valley 3 and 8 June 1980 (GE, PK, JK, CM, DRS).

Molothrus ater. Brown-headed Cowbird. PB: One record, of an adult male in the oil field 26 June 1980 (PGC).

Leucosticte tephrocotis. Gray-crowned Rosy Finch. CF: Uncommon breeder; for example, several were seen in the upper Atigun Valley during the summers of 1979, 1980, and 1981 (CJH et al.).

Carduelis flammea and *hornemanni*. Redpoll. PB: Uncommon breeder. The unsettled status of redpoll taxonomy (Troy 1985, Knox 1988) and inconsistent separation of the two species suggested lumping of reports. Single males were 13 km south of Prudhoe Bay 21 June 1973 (WCH) and 15 June 1976 (WCH). FB and CF: Fairly common breeder.

ACKNOWLEDGMENTS

These records were compiled through funds provided by U.S. Department of Energy Contract DE-AC06-76RLO-1830, through Battelle Pacific Northwest Laboratory, the Bureau of Land Management, and the National Oceanic and Atmospheric Administration as part of the Outer Continental Shelf Environmental Assessment Program.

We extend special thanks to the several people who contributed field notes and observations and to Brina Kessel and Daniel D. Gibson for access to University of Alaska Museum records. Peter Stettenheim, George Divoky, Stephen R. Johnson, Daniel D. Gibson, and Philip Unitt made many constructive comments on earlier drafts of this paper.

LITERATURE CITED

- Anderson, R. M. 1913. Report on the natural history collections. Birds, in *My Life with the Eskimo* (V. Stefansson, ed.), pp. 456–499. Macmillan, New York.
- Bailey, A. M. 1948. Birds of arctic Alaska. *Colo. Mus. Nat. Hist. Popular Ser.* 8.
- Bergman, R. D. 1974. Wetlands and waterbirds at Point Storkersen, Alaska. Ph.D. dissertation, Iowa State Univ., Ames.
- Bergman, R. D., Howard, R. L., Abraham, K. F., and Weller, M. W. 1977. Water birds and their wetland resources in relation to oil development at Storkersen Point, Alaska. U.S. Fish and Wildlife Service Resource Publication 129.
- Black, R. F., and Barksdale, W. L. 1949. Oriented lakes of northern Alaska. *J. Geol.* 57:105–118.
- Bodfish, H. H. 1936. *Chasing the Bowhead*. Harvard Univ. Press, Cambridge, MA.

BIRDS OF PRUDHOE BAY

- Brink, K. L. 1978. The effects of the trans-Alaska oil pipeline on breeding bird and microtine rodent populations at Franklin Bluffs, Alaska. M.S. thesis, Univ. Montana, Missoula.
- Britton, M. E. 1957. Vegetation of the arctic tundra, in *Arctic Biology* (H. P. Hansen, ed.), pp. 67–130. Ore. State Univ. Press, Corvallis.
- Broad, A. C., Dunton, K. H., Koch, H., Mason, D. T., Schneider, D. E., and Schonberg, S. V. 1980. Annual report, environmental assessment of selected habitats in arctic littoral systems. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Brown, J., and Berg, R. L., eds. 1980. Environmental engineering and ecological baseline investigations along the Yukon River–Prudhoe Bay haul road. U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory Report 80-19. Cold Regions Research and Engineering Laboratory, Hanover, NH 03755.
- Cade, T. J., and White, C. M. 1973. Breeding of Say's Phoebe in arctic Alaska. *Condor* 75:360–361.
- Childs, K. N. 1972. A new distributional record for the Gadwall. *Can. Field-Nat.* 86:291–292.
- Connors, P. G. 1984. Ecology of shorebirds in the Alaskan Beaufort littoral zone, in *The Alaskan Beaufort Sea, Ecosystems and Environments* (P. W. Barnes, D. M. Schell, and E. Reimnitz, eds.), pp. 403–416. Academic Press, Orlando.
- Connors, P. G., Myers, J. P., and Pitelka, F. A. 1979. Seasonal habitat use by arctic Alaskan shorebirds. *Studies Avian Biol.* 2:107–112.
- Connors, P. G., and Risebrough, R. W. 1978. Shorebird dependence on arctic littoral habitats, in Annual reports of principal investigators. Environmental assessment of Alaskan continental shelf. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program 2:84–167. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Connors, P. G., and Risebrough, R.W. 1979. Shorebird dependence on arctic littoral habitats, in Annual reports of principal investigators. Environmental assessment of Alaskan continental shelf. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program 1:271–329. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Derksen, D. V., and Eldridge, W. D. 1980. Drought displacement of Pintails to the arctic coastal plain, Alaska. *J. Wildlife Mgmt.* 44:224–229.
- Derksen, D. V., Rothe, T. C., and Eldridge, W. D. 1981. Use of wetland habitats by birds in the National Petroleum Reserve—Alaska. U.S. Fish and Wildlife Service Resource Publication 141.
- Divoky, G. J. 1976. The pelagic feeding habits of Ivory and Ross' Gulls. *Condor* 78:85–90.
- Divoky, G. J. 1978a. Identification, documentation and delineation of coastal migratory bird habitat in Alaska. 1. Breeding bird use of barrier islands in the northern Chukchi and Beaufort Seas, in Annual reports of principal investigators. Environmental assessment of Alaskan continental shelf. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration,

BIRDS OF PRUDHOE BAY

- Outer Continental Shelf Environmental Assessment Program 1:482-548. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Divoky, G. J. 1978b. The distribution, abundance and feeding ecology of birds associated with pack ice, in Annual reports of principal investigators. Environmental assessment of Alaskan continental shelf. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program 2:167-509. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Divoky, G. J. 1982. The occurrence and behavior of non-breeding Horned Puffins at Black Guillemot colonies in northern Alaska. *Wilson Bull.* 94:356-358.
- Divoky, G. J. 1983. The pelagic and nearshore birds of the Alaskan Beaufort Sea, in Environmental assessment of Alaskan continental shelf. Final report of principal investigators. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program 23:397-513. U.S. Dept. Commerce, NOAA, Juneau, AK 99802.
- Divoky, G. J. 1984. The pelagic and nearshore birds of the Alaskan Beaufort Sea: Biomass and trophics, in *The Alaskan Beaufort Sea, Ecosystems and Environments* (P. W. Barnes, D. M. Schell, and E. Reimnitz, eds.), pp. 417-437. Academic Press, Orlando.
- Divoky, G. J., Bartonek, J. C., and Watson, G. E. 1974. The breeding of the Black Guillemot in northern Alaska. *Condor* 76:339-343.
- Flock, W. L. 1973. Radar observations of bird movements along the arctic coast of Alaska. *Wilson Bull.* 85:259-275.
- Frame, G. W. 1973. Occurrence of birds in the Beaufort Sea, summer 1969. *Auk* 90:552-563.
- Gabrielson, I. N., and Lincoln, F. C. 1959. *The Birds of Alaska*. Stackpole, Harrisburg, PA.
- Garner, G. W., and Reynolds, P. E. (eds). 1986. 1985 update report of baseline study of the fish, wildlife and their habitats. Alaska Fish and Wildlife Research Center, U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503.
- Garrott, R. A., Garrott, D. A., and Hanson, W. C. 1981. Breeding bird census: inland coastal tundra. *Am. Birds* 34:94.
- Gibson, D. D., and Kessel, B. 1992. Seventy-four new avian taxa documented in Alaska 1976-1991. *Condor* 94:453-467.
- Hall, G. E. 1975. A summary of observations of birds at Oliktok Point and notes on birds observed along the Colville River—summer 1971, in Environmental studies of an arctic estuarine system—final report. U.S. Environmental Protection Agency Report EPA-660/3-75-026:505-533. U.S. Environmental Protection Agency, 200 SW 35th St., Corvallis, OR 97333.
- Hanson, W. C., and Eberhardt, L. E. 1976. Ecological investigations of Alaskan north slope oil development, in Biomedical and environmental research program of the LASL Health Division (D. F. Petersen and E. M. Sullivan, compilers), pp. 32-33. Los Alamos Scientific Laboratory Report LA-6452-PR. Univ. Calif., Los Alamos, NM 87504.
- Hanson, W. C., and Eberhardt, L. E. 1977. Ecological consequences of north slope oil development, in Biomedical and environmental research program of the LASL Health Division (D. F. Petersen and E. M. Sullivan, compilers), January-December 1976, pp. 58-60. Los Alamos Scientific Laboratory Report LA-6898-PR. Univ. Calif., Los Alamos, NM 87504.

BIRDS OF PRUDHOE BAY

- Hanson, W. C., and Eberhardt, L. E. 1978. Ecological consequences of petroleum developments in northern Alaska, in Biomedical and environmental research program of the LASL Health Division (D. F. Petersen and E. M. Sullivan, compilers), pp. 17–22. Los Alamos Scientific Laboratory Report LA-7254-PR. Univ. Calif., Los Alamos, NM 87504.
- Hanson, W. C., and Eberhardt, L. E. 1979. Ecological consequences of energy resource developments in northern Alaska, in Pacific Northwest Laboratories annual report for 1978 to U.S. Department of Energy Assistant Secretary for Environment. PNL Report PNL-2850, Part 2, Supplement:12.3–12.16 Battelle-Northwest, Battelle Memorial Institute, Richland, WA 99352.
- Hanson, W. C., and Eberhardt, L. E. 1980. Ecological investigation of Alaska resource development, in Pacific Northwest Laboratories annual report for 1979 to U.S. Department of Energy Assistant Secretary for Environment. PNL Report PNL-3300, Part 2:23–37. Battelle-Northwest, Battelle Memorial Institute, Richland, WA 99352.
- Hanson, W. C., and Eberhardt, L. E. 1981. Ecological investigation of Alaska resource development, in Pacific Northwest Laboratories annual report for 1980 to U.S. Department of Energy Assistant Secretary for Environment. PNL Report PNL-3700, Part 2:31–37. Battelle-Northwest, Battelle Memorial Institute, Richland, WA 99352.
- Hohenberger, C. J., Hendrick, A., and Hanson, W. C. 1980. Breeding bird census: Wet coastal plain tundra. *Am. Birds* 34:83–84.
- Hohenberger, C. J., Rudholm, D. P., and Hanson, W. C. 1981. Breeding bird census: Wet coastal plain tundra. *Am. Birds* 35:95–96.
- Hohenberger, C. J., Rudholm, D. P., and Hanson, W. C. 1982. Breeding bird census: Wet coastal plain tundra. *Am. Birds* 36:96–97.
- Irving, L. 1960. Birds of Anaktuvuk Pass, Kobuk, and Old Crow: A study in arctic adaptation. *U.S. Nat. Hist. Mus. Bull.* 217:1–409.
- Jeffries, R. L. 1977. The vegetation of salt marshes at some coastal sites in arctic North America. *J. Ecol.* 65:661–672.
- Johnson, S. R., and Herter, D. R. 1989. *The Birds of the Beaufort Sea*. Br. Petroleum Exploration (Alaska), Anchorage.
- Johnson, S. R., and Richardson, W. J. 1980. Beaufort Sea barrier island–lagoon ecological process studies: Avian ecology in Simpson Lagoon, Beaufort Sea, 1976–1978. Final report, Research Unit 467, in Annual reports of principal investigators. Environmental assessment of Alaskan continental shelf. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program 1:1–678. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Johnson, S. R., and Richardson, W. J. 1981. Beaufort Sea barrier island–lagoon ecological process studies: Final report, Simpson Lagoon, in Final reports of principal investigators. Environmental assessment of Alaskan continental shelf. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program 7:109–383. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Johnson, S. R., and Troy, D. M. 1987. Nesting of the Ross' Goose and blue-phase Snow Goose in the Sagavanirktok River delta, Alaska. *Condor* 89:665–667.
- Jones, S. G. 1980. Abundance and habitat selection of shorebirds at Prudhoe Bay, Alaska. M.S. thesis, Brigham Young Univ., Provo, UT.

BIRDS OF PRUDHOE BAY

- Jones, S. G., Pruett, M. A., and Hanson, W. C. 1980. Breeding bird census: Inland coastal tundra. *Am. Birds* 34:82.
- Kessel, B., and Cade, T. J. 1958. Birds of the Colville River, northern Alaska. *Univ. Alaska Biol. Papers* 2.
- Kessel, B., and Gibson, D. D. 1978. Status and distribution of Alaska birds. *Studies Avian Biol.* 1.
- Knox, A. G. 1988. The taxonomy of redpolls. *Ardea* 76:1-26.
- MacLean, S. F., Jr., and Verbeek, N. A. M. 1968. Nesting of the Black Guillemot at Point Barrow, Alaska. *Auk* 85:139-140.
- McCaffery, B. J., Burgess, R. M., and Hanson, W. C. 1982. Breeding bird census: Inland coastal tundra. *Am. Birds* 36:96.
- Maher, W. J. 1960. Another record of the Baikal Teal in northwestern Alaska. *Condor* 62:138-139.
- Maher, W. J. 1974. Ecology of Pomarine, Parasitic and Long-tailed Jaegers in northern Alaska. *Pac. Coast Avifauna* 37.
- Martin, P. D., and Moitoret, C. S. 1981. Bird populations and habitat use, Canning River delta, Alaska. Unpublished report to Arctic National Wildlife Refuge, U.S. Fish and Wildlife Service, 101 12th St., Fairbanks, AK 99701.
- Myers, J. P., and Pitelka, F. A. 1980. Seasonal abundance and habitat use patterns of shorebirds at two sites in northern Alaska. *Wader Study Group Bull.* 29:28-30.
- North, M. R., Schwerin J. L., and Hiemenz, G. A. 1984. Waterbird studies on the Colville River delta, Alaska, 1984 summary report. Unpublished progress report, U.S. Fish and Wildlife Service, Office of Special Studies, 1011 E. Tudor Rd., Anchorage, AK 99503.
- Pamplin, L. 1979. Environmental assessment of the TAPS' crude oil spill into the Atigun River system. Memorandum to Environmental Protection Agency from Office of Special Studies, U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503.
- Pitelka, F. A. 1974. An avifaunal review for the Barrow region and north slope of arctic Alaska. *Arctic and Alpine Research* 6:161-184.
- Pitelka, F. A., Tomich, P. Q., and Treichel, G. W. 1955a. Breeding behavior of jaegers and owls near Barrow, Alaska. *Condor* 57:3-18.
- Pitelka, F. A., Tomich, P. Q., and Treichel, G. W. 1955b. Ecological relations of jaegers and owls as lemming predators near Barrow, Alaska. *Ecol. Monogr.* 25:85-117.
- Renken, R., North, M. R., and Simpson, S. G. 1983. Waterbird studies on the Colville River delta, Alaska, 1983 summary report. Unpublished progress report, U.S. Fish and Wildlife Service, Office of Special Studies, 1011 E. Tudor Rd., Anchorage, AK 99503.
- Ritchie, R. J. 1991. Effects of oil development on providing nesting opportunities for Gyrfalcons and Rough-legged Hawks in northern Alaska. *Condor* 93:180-184.
- Rothe, T. C. 1979. Birds associated with the Atigun River crude oil (TAPS) spill. Administrative report, Office of Special Studies, U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503.
- Sage, B. L. 1971. A study of White-billed Divers in arctic Alaska. *Br. Birds* 64:519-528.
- Sage, B. L. 1973. Cliff swallow colony in arctic Alaska. *Condor* 75:356.

BIRDS OF PRUDHOE BAY

- Sage, B. L. 1974. Ecological distribution of birds in the Atigun and Sagavanirktok river valleys, arctic Alaska. *Can. Field-Nat.* 88:281-291.
- Sanger, G. A., and Baird, P. A. 1977. Aspects of the feeding ecology of Bering Sea avifauna, in Annual reports of principal investigators. Environmental assessment of Alaskan continental shelf. U.S. Bureau of Land Management/National Oceanographic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program 12:372-417. U.S. Dept. Commerce, NOAA, Boulder, CO 80303.
- Schamel, D. L. 1974. The breeding biology of the Pacific Eider (*Somateria v.-nigra* Bonaparte) on a barrier island in the Beaufort Sea, Alaska. M.S. thesis, Univ. Alaska, Fairbanks.
- Schamel, D. L. 1978. Bird use of a Beaufort Sea barrier island in summer. *Can. Field-Nat.* 92:55-60.
- Simpson, S. G., Barzen, J., Hawkings, L., and Pogson, T. 1982. Waterbird studies on the Colville River delta, 1982 summary report. Unpublished progress report, U.S. Fish and Wildlife Service, Office of Special Studies, 1011 E. Tudor Rd., Anchorage, AK 99503.
- Sladen, W. J. L. 1973. A continental study of Whistling Swans using neck collars. *Wildfowl* 24:8-14.
- Taylor, R. J. 1981. Shoreline vegetation of the arctic Alaska coast. *Arctic* 34:37-42.
- Troy, D. M. 1985. A phenetic analysis of the redpolls, *Carduelis flammea flammea* and *C. hornemanni explipes*. *Auk* 102:82-96.
- Walker, D. A., Everett, K. R., Webber, P. J., and Brown, J. 1980. Geobotanical atlas of the Prudhoe Bay region, Alaska. U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory Report 80-14. Cold Regions Research and Engineering Laboratory, Hanover, NH 03755.
- Watson, G. E., and Divoky, G. J. 1972. Pelagic bird and mammal observations in the eastern Chukchi Sea, early fall 1970, in An ecological survey in the eastern Chukchi Sea, September-October 1970. U.S. Coast Guard Oceanographic Report CG-50.
- Watson, G. E., and Divoky, G. J. 1974a. Pelagic bird and mammal observations in the western Beaufort Sea, late summer 1971 and 1972. U.S. Coast Guard Oceanographic Report CG-373.
- Watson, G. E., and Divoky, G. J. 1974b. Marine birds of the western Beaufort Sea, in *The Coast and Shelf of the Beaufort Sea* (J. C. Reed, and J. F. Slater, eds.), pp. 681-695. Arctic Inst. N. Am., Washington, D.C.
- West, G. C., and White, C. M. 1966. Range extensions and additional notes on the birds of Alaska's arctic slope. *Condor* 68:302-304.
- Woodby, D. A., and Divoky, G. J. 1982. Spring migration of eiders and other waterbirds at Point Barrow, Alaska. *Arctic* 35:403-410.

Accepted 24 December 1993