

The avifauna of Hazen Camp, Ellesmere Island, N.W.T.

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Summary: Observations of the avifauna in the vicinity of Hazen Camp (81°49' N, 71°18' W) recorded in 1965 and 1966 are presented and discussed in relation to previous knowledge of the area to shed light on the relative stability of the species populations present in this high arctic locality.

Based on data from five seasons over a span of eight years the 21 bird species recorded can be divided into the following categories: (1) regular breeders — Red-throated Loon, Snow Goose, Oldsquaw, King Eider, Gyrfalcon, Rock Ptarmigan, Ruddy Turnstone, Knot, Long-tailed Jaeger, Arctic Tern, Hoary Redpoll, Snow Bunting, (2) irregular breeders — Glaucous Gull, Snowy Owl, (3) accidentals — Pintail, Sandhill Crane, Common Snipe, and (4) birds of uncertain status — Ringed Plover, Baird's Sandpiper, Sanderling, Lapland Longspur.

Zusammenfassung: Beobachtungen zur Avifauna der Umgebung des Hazen Camp (81°49' N, 71°18' W) aus den Jahren 1965 und 1966 werden zusammengestellt und in Beziehung zur bisherigen Kenntnis des Bereichs diskutiert, um die relative Stabilität der Artenzahl dieses hocharktischen Standortes aufzuzeigen.

Auf der Grundlage von fünf Untersuchungsperioden über einen Zeitraum von 8 Jahren werden die 21 nachgewiesenen Arten folgendermaßen untergliedert: 1. Regelmäßige Brutvögel — Sterntaucher, Schneegans, Eisente, Prachteiderente, Gerfalke, Alpenschneehuhn, Steinwälzer, Knutt, Kleine Raubmöve, Küstenseeschwalbe, Polarbirkenzeisig, Schneeammer; 2. Unregelmäßige Brutvögel — Eismöve, Schneeeule; 3. Irrgäste — Spießente, Sandkranich, Bekassine; 4. Nicht einzuordnen — Sandregenpfeifer, Baird-Strandläufer, Sanderling, Spornammer.

Introduction

Longterm observations of bird populations at the same locality in the high arctic are rare, and most observations which have been made are from coastal localities. Since its establishment in 1957 by the Defense Research Board of Canada, Hazen Camp (81°49' N, 71°18' W) has provided an opportunity for the accumulation of repeated observations on high arctic bird populations at an inland site. There are now data available which extend to five seasons over a span of eight years; there is nothing comparable to it from any other high arctic locality. Previous longterm observations are from investigations made in north Greenland, typically encompassing fewer than two complete summer seasons (e. g. Bird and Bird, 1941; Johnson, 1953; Manniche, 1910; Pedersen, 1930, 1934). Observations on the avifauna of Hazen Camp made by J. S. Tener in 1958, D. R. Oliver in 1961, and Oliver and D. B. O. Savile in 1962 have been published (Savile and Oliver, 1964). The purpose of this paper is to report observations made by ourselves in that locality between 3 June and 15 August in 1966 and by M. H. Colbo between 2 June and 2 August in 1965, and comment on the relative stability of the common members of the avifauna. Observations by us at Fort Conger, Lady Franklin Bay, (81°46' N, 64°50' W) between 26 and 31 July are included where significant. Our work was incidental to studies of the Ruddy Turnstone and Knot by Nettleship and the Long-tailed Jaeger by Maher.

General Environment

Hazen Camp is situated on the northwest shore of Lake Hazen, a large deep lake, 47 miles long and 7 miles wide. The lake is bounded on the north by the United States Range which reaches an elevation of 9000 feet. Outlying foothills of this range are within 2.5 miles of the camp.

The climate of the area is cold and dry. The daily mean temperature is above 32°F from the first half of June to the latter part of August. Seasonal maximum daily mean temperatures are usually in early August. The mean temperature in July is 42.7°F and the frost free season (days with mean temperature above 42°F) averages 55 days; 22 June to

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15 August. Temperatures differ greatly between years, thus the July mean temperature from 1962 to 1966 ranged from 39.7°F (1964) to 46.7°F (1962) and the frost free season in the same years ranged from 41 days (1964) to 75 days (1962). Based on the five for which there are good climatic data, 1962 to 1966, 1965 was slightly cooler than average and 1966 slightly warmer than average. Temperature data are from Corbet (1967).

Annual precipitation at Eureka, Ellesmere Island, averages about 1.74 inches 70 per cent of which falls in the summer. The precipitation total compares with that in the driest desert regions (Dunbar and Greenaway, 1956).

Vegetation is low and sparse; it appears to be limited more by aridity than by low temperatures. The protective mountains to the north and the southern exposure probably cause the benign summer climate commented on by several authors (Parmelee and MacDonald, 1960; Savile, 1964). Rich marsh vegetation develops only where moisture persists through the summer, i. e. pond margins, marshes, springy slopes and permanent and semi-permanent streams. Mesic areas are covered with extensive stands of *Dryas integrifolia*, either in almost pure stands or mixed predominately with *Kobresia* or *Salix* sp. Sand, gravel and clay soils support very sparse vegetation of several xerophytic species. Detailed descriptions of vegetation, habitats and the general ecology of an 8.6 square mile study area around Hazen Camp are in Savile (1964) and Oliver and Corbet (1966). Place names and pond numbers used in this paper (Figure 1) are from Savile (op. cit.).

The Hazen Camp study area is a south facing slope of the Garfield Range which ascends from the lake (518 feet above sea level) to the crest of Mt. McGill (3280 feet elevation)

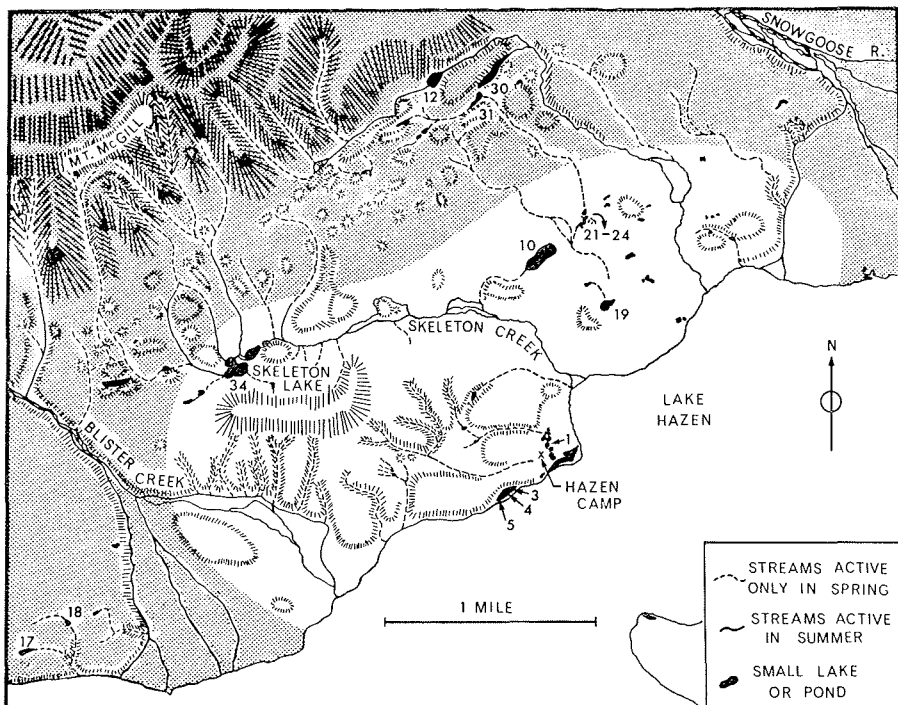


Fig. 1: Map of the Hazen Camp study area showing topography and distribution of water bodies. Numbered ponds are mentioned in the text. The portion of the area covered intensively in 1966 is not shaded. (After Savile, 1964.)

Abb. 1: Karte des Hazen Camp-Untersuchungsgebietes mit Relief und Verteilung der Wasserflächen. Die nummerierten Seen werden im Text erwähnt. Das 1966 intensiv untersuchte Gebiet ist nicht schraffiert. (Nach Savile 1964)

in slightly over two miles. There are three topographic areas: boulder and talus slopes of Mt. McGill, foothills, and the lowlands. Observations reported here are almost entirely from foothills and lowlands (Figure 1).

Species Accounts

Gavia stellata Red-throated Loon

Loons were not present on 3 June 1966, and none were seen on a flight over the Ruggles River on 6 June. One was heard on 10 June. Two pairs nested on the study area on Ponds 30 and 34. Both pairs produced two eggs and all four chicks hatched. The chicks of one pair (Pond 34) hatched on 22 and 23 July; egg dates were approximately 24 and 25 June. The second nest (Pond 30) had two recently hatched chicks in it when found on 31 July.

Loons also nested on Ponds 30 and 34 in 1965. The former pair had two eggs which hatched by 1 August. The latter pair had laid the first of two eggs on 26 June. The nest was destroyed by drifting ice on 11 July, and the pair renested. The first of two eggs was noted on 26 July.

Loons nested on Pond 34 in 1961 and 1962 and on Pond 30 in 1962 (Savile and Oliver, 1964).

Chen hyperborea Snow Goose

In 1966 a total of 50 birds were seen from 5 June to 8 July generally flying northeastward. They were usually in pairs or groups of four or six and one group of 11. Only one group landed on the study area and none bred there.

On 23 July two pairs of geese were seen from the air ten miles northeast of Hazen Camp with three and one recently hatched chicks, respectively. The pilot informed us that newly hatched chicks were first seen about 19 July.

Fifty-seven birds were recorded from 5 to 24 June in 1965. They were in pairs and small groups up to eleven. None bred on the study area.

Savile reported a pair breeding on Pond 10 in 1962 (Savile and Oliver, 1964). They apparently rarely breed on the study area either because of the presence of humans or because the ponds are not suitable for them. Several pairs bred between Hazen Camp and Gilman River in 1966 in an area with several large ponds and extensive marsh. They probably breed regularly in the vicinity of Lake Hazen where habitat is suitable.

Anas acuta Pintail

One pair of Pintails, which bred on the study area in 1966 near Pond 21—24, was the first breeding record of the species from the high arctic (Maher and Nettleship, 1968) and the first sighting at Hazen Camp.

Clangula hyemalis Oldsquaw

A pair visited Pond 1 on 10 June in 1966. Pairs also frequented Ponds 10, 19 and 21—24 in June, but only three pairs bred. A nest at Pond 10 had one egg on 19 June and six on 1 July. The nest was empty on 17 July. A female with 10 chicks was on Pond 10 on 23 July and 8 August. A second female with two young was with her on the latter date. The nest sites of these two females were not known. The first flock, two males and three females, was seen on 23 July.

Oldsquaws were recorded from 12 June to 11 July in 1965. They were seen on Ponds 1, 3, 4, 5, 10, 17, and 18. One female collected on 24 June had an egg in the oviduct.

This species is known to have bred on the study area only in 1962 and 1966, and possibly in 1965.

Somateria spectabilis King Eider

Four males on 19 June were the first eiders seen in 1966. Pairs were seen occasionally until the end of June, but no males were observed after 1 July. Two, possibly three, pairs bred on the area. A nest with three eggs was near Pond 31 on 1 July. A female with five newly hatched chicks was on Pond 1 on 18 July. P. S. Corbet reported two females and two chicks on Pond 30 on 30 July. These were possibly from the nest near Pond 31. A female with four half grown chicks on Pond 10 on 6 and 8 August was probably from Pond 1; last seen there on 19 July.

The only breeding recorded in 1965 was an unsuccessful nest with five eggs west of Pond 17.

One to three pairs bred on the area in 1962, 1965, and 1966. There was no evidence of breeding in 1958 or 1961 (Savile and Oliver, 1964).

Falco rusticolus Gyrfalcon

One pure white Gyrfalcon was seen flying up Skeleton Creek on 17 June in 1966 harassed by a pair of Long-tailed Jaegers.

Single birds, believed to be this species, were seen on 12 and 13 June near Skeleton Lake (Pond 34) and the north side of Snow Goose delta in 1965.

The Gyrfalcon is known to breed on Ellesmere Island (Parmelee and MacDonald, 1960). Probable sightings of the species in 1965 and 1966 suggests that it breeds near Lake Hazen, but no eyrie is known.

Lagopus mutus Rock Ptarmigan

Ptarmigan were scarce in 1966, probably only one pair nested on the study area. A female in summer plumage was seen on 8 June. One male called in Skeleton Creek Valley on 15 June. A female with ten chicks two to three days old was seen 6 July; she had five chicks when last seen on 14 July. The only other observations are of a male close to camp for several days in early August, and a flock of about a dozen juveniles near camp on 8 August.

The species was apparently very scarce in 1965 as only four individuals were recorded and apparently no breeding occurred.

The species has been scarce to absent in the five seasons for which observations are available.

Charadrius hiaticula Ringed Plover

In 1966 one was seen on the study area on 28 June and one other was on the beach at Fort Conger on 30 July. One was also recorded on the delta of Blister Creek on 22 June in 1965. The species probably breeds rarely on Ellesmere Island (Parmelee and MacDonald, 1960).

Arenaria interpres Ruddy Turnstone

Turnstones were present at Lake Hazen on 3 June in 1966, but they arrived at Tanquary Fiord on 29 May; most birds were paired on arrival. Egg laying (13 nests) was from 10 to 22 June. The hatch of 11 nests was between 4 and 14 July. Family groups fed at pond margins by 20 July. The first flying young was seen on 2 August. Flocks of adults observed in late July may have been females which usually depart before the young fledge. Adult males depart after the young fledge, and most young depart by mid-August.

Present on 4 June in 1965. Copulation was observed 9 June. Four nests with 4 eggs each were found in late June and early July and young were seen on 7 July. One nest hatched

8 July. The species was rare on the tundra by 21 July and presumably individuals had moved to marshy pond margins. The first flying young was observed on 1 August. A flock of 80—100 was seen on 30 July.

Further details on the breeding ecology of turnstones are given in Nettleship (1973).

Calidris canutus Knot

Knots were present on 3 June in 1966. The main influx was on 5 June when many flocks ranging from 6 to 60 individuals were seen. Pairs were distributed over the tundra by 7 June. Egg laying (4 nests) was from 15 to 28 June and the hatch between 12 and 20 July. The incubation period at one nest was between 21.5 and 22.4 days (Nettleship, 1968). Families fed near bodies of water. Females departed before fledging, which was first noted on 3 August. Most adult males departed in early August, and the majority of juveniles by 15 August.

Observations in 1965 were similar. Knots were present and abundant on 4 June. Several flocks on 8 June suggested new arrivals. Nests with four and three eggs were found on 30 June and 14 July. By 21 July they were very rare on tundra and had probably moved to marshy feeding areas. Two flying young were seen on 1 August.

The Knot and Ruddy Turnstone have been the two most abundant and widely distributed shorebirds each year and are apparently the only two shorebirds that nest regularly.

Erolia bairdii Baird's Sandpiper

Not observed in 1966. Three were seen in 1965, but there is no report of breeding.

This species was also present but apparently not breeding in 1962 (Savile and Oliver, 1964). Tener (1961) reported the only breeding record, an adult with one chick on the study area. It probably breeds irregularly in small numbers.

Crocethia alba Sanderling

No Sanderling bred on the study area in 1966 or 1965. They were first seen on 4 June in 1966. Two or three fed regularly with a flock of Ruddy Turnstones on the camp garbage until the weather moderated on 14 June and they and the turnstones departed. The only other record is of two on 11 July. One of these was calling with a group of four turnstones which apparently had young.

One was recorded on 22 June in 1965.

The species bred in small numbers in 1962 and 1958; it is probably a scarce, regular, breeding species in the vicinity.

Stercorarius longicaudus Long-tailed Jaeger

This species arrived at Eureka on 30 May and Tanquary Fiord on 31 May in 1966. They were already present at Lake Hazen on 3 June. Territorial defense began on 5 June. Twelve pairs established territories on the area and ten pairs bred. Fourteen eggs of first clutches were laid from 10 to 27 June. One second clutch was laid on 8 and 9 July. Hatching of first clutches (12 eggs) was from 4 to 20 July. One egg of the late clutch hatched on 3 August. Young began to fly about 3 August.

Jaegers were present on 2 June in 1965. Only one pair nested; near the camp. Copulation was observed on 11 June, although the one egg was laid on 22 June. Hatching occurred between 14 and 16 July. The pair was noted about camp until 1 August, but fate of the chick is not known. Territorial behaviour was noted between two pairs on 6 June on the Snow Goose delta and a single pair was observed in the delta of Blister Creek. This suggests that several additional pairs became established, but did not breed. Flocks of 9 and 5 birds were seen on 10 June and 7 or 8 birds on 18 June.

Data available suggest that the breeding population of jaegers fluctuates irregularly at Hazen Camp. "Some" nesting was noted in 1958, none in 1961, 6 pairs in 1962, one in 1965 and a suggestion of several territorial pairs, and ten of twelve established pairs bred in 1966. These variations may be related to changes in population size of Collared Lemmings (*Dicrostonyx groenlandicus*), but almost nothing is known of lemming numbers on the Hazen Camp study area. However, qualitative differences between years suggest that the high population of jaegers in 1966 was associated with a relatively high lemming population. Further details on the ecology of the jaeger population have been published elsewhere (Maher, 1970).

Jaegers are important predators on Knot and turnstone chicks (Maher, 1970; Nettleship, 1967; Nettleship, 1973; Savile and Oliver, 1964) and probably other birds as well.

Larus hyperboreus Glaucous Gull

This species was seen frequently, singly or in two's or three's, from 3 June to the end of the month in 1966. Only three were seen after 1 July, the last on 19 July. None bred on the study area.

In 1965 single birds, two's or three's, were seen occasionally from 17 June to the end of the month. Sixteen were seen on 8 July and one on 26 July. There was no evidence of breeding.

The species breeds regularly in low numbers near the coast (Parmelee and MacDonald, 1960) and although there is no record, it may also breed very rarely in the Hazen Camp area as a few pairs were discovered nesting on islets at the far west end of Lake Hazen in 1968 (P. Kevan, pers. comm.).

Sterna paradisaea Arctic Tern

This was the last of the regular breeding species to arrive in 1966; it was first observed on 16 June. The species was uncommon and was usually observed singly, in pairs or groups of three. Three pairs bred on the study area. One pair on the Snow Goose delta had two eggs on 7 July and one flying chick on 12 August. A second nest with one egg near Hazen Camp hatched on 10 August. A third pair, on the delta of Blister Creek, probably bred.

Two pairs bred in 1965. One nest near the lake shore in Blister Creek delta had two eggs on 29 June and hatched in mid-July. A second nest on the gravel point near Hazen Camp hatched both eggs on 28 and 29 July. One chick was noted with the adults on 1 August.

This species probably breeds in low numbers each year. At least one pair has bred on the sandy point near Hazen Camp in 1961, 1962, 1965, and 1966. This suggests that pairs or small groups return repeatedly to the same breeding site.

Nyctea scandiaca Snowy Owl

A nest on a mound above Skeleton Creek was freshly excavated to a depth of three inches and surrounded by a few dozen contour feathers. No birds were seen near it, and the lack of regurgitated pellets suggested that it was from a breeding attempt which failed early.

On 8 August three recently fledged chicks and a pair of adults were observed on gravel terraces east of Pond 21. The number of feathers and regurgitated pellets suggested that they had been there for several days. The nest may have been above Pond 12 where a male was seen on 19 July. An adult male with 4 chicks barely able to fly was seen at Fort Conger on 29 July.

Three owls were observed on the study area in 1965 on 8 June, 9 and 24 July. They

have been seen in 1958 and 1961, but none were observed in 1962 (Savile and Oliver, 1964).

The breeding in 1966 is apparently the first reported from the Hazen area, although rare breeding in the past is suggested by one very old nest scrape on the study area. Breeding in 1966 was apparently related with a relatively high lemming population which also supported the high jaeger population that season.

Acanthis hornemanni Hoary Redpoll

This species was first observed on 7 June and there are scattered records of single birds in June in 1966. Juveniles were seen with adults on 7 and 10 July and the first flock on 19 July.

One adult and three young were collected on 11 July in 1965.

This is a regular breeding species. It is scarce on the lowlands and foothills and appears to be common on talus slopes.

Calcarius lapponicus Lapland Longspur

None bred on the area in 1966 and none were seen until 5 August when a juvenile was collected. Juveniles were seen again on 6 and 10 August, the latter with a flock of juvenile Snow Buntings.

The species apparently breeds irregularly and very rarely in this area. They have been noted in 1958, 1961, 1962, and 1966. A pair apparently bred on the study area in 1958 (Tener, 1961).

Plectrophenax nivalis Snow Bunting

The first flock was noted on 5 June in 1966, but the species was possibly present before our arrival. Singing began on 6 June and by that afternoon the birds were widely dispersed, singly or in groups of six to eight. Numbers declined noticeably the next day. They were usually seen in pairs, and an occasional flock, in the first half of June.

Breeding distribution of the Snow Bunting was influenced by availability of suitable nest cavities. Nests were in crevices in steep banks along the lake shore and Skeleton Creek, among oil drums near camp, and boulders along the lake and in deep cracks in dry clay. They were sparsely distributed, an unusual density was six pairs located along one mile of Skeleton Creek.

Four nests had 5, 5, 5, and 7 eggs or young (mean 5.5). Hatch occurred between 1 and 10 July. Chicks were flying on 14 July and on 17 July the first post-breeding flock was noted. Flocks of juveniles stayed around camp in late July and early August.

First noted on 4 June in 1965. Two nests were found with 4 and 5 eggs on 24 and 25 June. Hatched young were seen on 5 July and the first fledgling on 8 July.

This is probably the most common passerine bird in the entire area. Its breeding density on foothills and lowlands appears to be limited by shortage of suitable nest crevices.

Discussion

Observations on the avifauna in the Hazen area are now available for five seasons (1958, 1961, 1962, 1965, and 1966) over a span of eight years and so the composition and relative stability of the avifauna is becoming clear. Twenty-one species have been recorded, of which only one species, the Rock Ptarmigan, is permanently resident. Twelve of the species have bred in at least four of the five seasons, or probably breed regularly in the vicinity of Lake Hazen on the basis of their known breeding range. The regular breeding species, in addition to the Rock Ptarmigan, include four aquatic birds (Red-throated Loon, Snow Goose, Oldsquaw, and King Eider), one rare raptor (Gyr Falcon), two moderate

sized shorebirds (Ruddy Turnstone and Knot), a common predatory bird (Long-tailed Jaeger), an aquatic feeding bird (Arctic Tern), and two small passerines (Hoary Redpoll and Snow Bunting).

Two other species, which may be important predators in the ecosystem, visit the area but apparently breed very rarely (Glaucous Gull and Snowy Owl). The Glaucous Gull is present regularly each year with most observations in June and a few in July. Although a few pairs bred in 1968, most sightings may still be of birds simply foraging inland in early summer until the ocean ice breaks up. The Snowy Owl has occurred in four of five seasons, but it is known to have bred only in 1966.

The status of several small shorebirds is uncertain. The Sanderling and Baird's Sandpiper may be found to breed regularly when we know more about the Hazen area. The Ringed Plover appears to be on the very edge of its range. Lapland Longspurs may also be regular, if rare, breeders. The Pintail (Maher and Nettleship, 1968), Common Snipe and Sandhill Crane (Savile and Oliver, 1964) seem to be accidental visitants, even though the Pintail bred once.

The qualitative differences in numbers of each species present in the Hazen area between years suggest that the occurrence of fluctuations in population size of the common members of the avifauna is minimal. The exceptions are species like the Ringed Plover and Lapland Longspur, which are obviously beyond their normal range, and the lemming predators. Although only a long term study using a quantitative census approach could determine the precise stability or equilibrium of the Hazen bird populations, less comprehensive surveys of the breeding species recorded in different years are still important contributions to the preliminary understanding of this high arctic ecosystem.

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