A STUDY OF THE GYRFALCONS WITH PARTICULAR REFERENCE TO NORTH AMERICA [1]

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THIS paper is in essence a combination of two papers written independently by the two authors a dozen years ago which they refrained from publishing, each in deference to the other. The results, which were from the start in close agreement, have here been brought together as a contribution to our understanding of one of the most puzzling of North American birds.

The gyrfalcons have probably given more trouble to taxonomists than any other group of arctic birds. The confusion centers around the question of the number of recognizable forms and the name properly applicable to each. Some writers have indeed declined to commit themselves one way or the other. To review the work of all the students who have attempted to deal with this subject would require much space and would not be particularly profitable. We shall confine our comments, therefore, mainly to a discussion of the remarks of more recent writers insofar as their conclusions seem to have a bearing on our own studies of this group. With an incomparable series of 190 specimens brought together by Friedmann for use in his continuation of Ridgway's "Birds of North and Middle America," we have been able to examine and compare ample material from various parts of Arctic America, as well as a smaller amount from the Old World.

L. Stejneger (1885:184–188) presented his views on the gyrfalcon question after a study of the series (then 75 skins) in the U. S. National Museum and an examination of the literature. He decided that there were two distinct species, the white and the brown, the latter divisible into three geographic races, all of which were represented in Arctic America. His arrangement was forthwith adopted by the American Ornithologists' Union, and so appears in the first three editions of the A.O.U. Check-List. The fourth (1931) edition, however, presents an arrangement entirely different, although with reservations and critical comments which, in a measure, seem to support Stejneger's views.

The main stumbling block to an understanding of the gyrfalcons is the occurrence in the same geographical area of both light and dark birds. So different are these two types at first glance that the impression is that two perfectly distinct species are concerned—just as Stejne-

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ger claimed. Moreover, the variation exhibited within both types—to whatever cause attributed—is striking, and comparable to that shown by certain species of *Buteo*. The real significance of these variations is the key to the whole situation, but many authors have been forced by lack of material to content themselves with simply describing them.

The gyrfalcon of Greenland has been the subject of sundry dissertations by various authors, and probably more specimens are now available from that country than from any other part of the Arctic. It thus affords a convenient starting-point. For the purposes of the present study we have examined 70 Greenland specimens—mostly from the west coast, from Etah on the north to Frederikshaab on the south. Among these are a number of the important key specimens discussed and figured by Walter Koelz (1929). Koelz, like Hartert (1913:1064) states that the gyrfalcons of Greenland are of three types; unlike Hartert he tries to distinguish these three types as subspecies. He is not successful, however, in assigning a separate range to each of the three forms and even suggests that this is not necessary for their recognition as subspecies ! He restricts the name *candicans* to the white birds from farthest north and from the east coast but refers to a "dark phase" of *candicans* which we find indistinguishable from individuals he assigns to other races.

There is, of course, a possibility that a large enough series of *breeding specimens* might show geographical differences between the birds of north Greenland and those of south Greenland, as Koelz claims. Not enough is known about the migrations of these birds to justify a positive statement on this point. However, the table of distribution he gives (page 215) is certainly suggestive. If the several types are segregated during the breeding season it is astonishing how soon they become intermingled. Examination of our own series seems to bear out the impression that we are dealing here with one extremely variable form rather than with several races. Every character upon which reliance might be placed for the discrimination of geographic races breaks down when tested by this series. In general, there are two phases, a light and a dark. Some of the light birds are pure white below, and from this condition there is a gradual transition to birds that are heavily spotted below with dusky or brown (the spots being drop- or tear-shaped, as a rule). The upper parts, including wings and tail, are even more variable than the under parts in light birds, ranging from heavy barring above to dark markings that are clearly lengthwise; in a few specimens the upper parts are nearly immaculate. The head is pure white in some light individuals, conspicuously streaked in others. The tail varies from pure white to heavily barred. The point to be emphasized is that none of these variations can be shown to be correlated with others or with the locality of capture.

The dark birds, considered as a group, are equally variable in color characters. In general size and proportions they are like the light birds. Koelz has shown (page 209) that some young birds taken from the nest are as white as any adult. This point is important, because it definitely disposes of the idea that the dark birds might be the young of the light ones. In other words, light birds are light from the first, and dark birds dark from the first. (*Cf.* in this connection Hancock, 1854, and Newton, 1862:45.) Koelz's statement that light birds are confined to north Greenland directly contradicts Hartert (1915:184), who says: "It is, however, not true that the darker birds alone breed in Southern Greenland, where white ones nest also, nor that the dark form is restricted to the southern parts of Greenland, because it ranges as far north as any Falcons have been shot, and that during the breeding season. There is therefore no question of there being two subspecies, but the light and dark birds from Greenland can only be either two species or one and the same." To us, Hartert's argument appears conclusive, and it is borne out by the series we have examined. But if any further evidence were needed, it is supplied by the statement of R. Luff Meredith (in a letter to Friedmann) that two young (from a brood of three) were taken from a nest in Tissaluk Fjord, north of Ivigtut, and raised by hand. One of these is light, the other dark. The parents were "rather dark." The case suggests the need of further scientific field observations.

Coming now to the Labrador bird, of which we have examined 40 specimens—an incomparable series—we find a similar situation, but with this difference, that dark birds greatly outnumber the light ones. Todd's field party secured 21 specimens at and near Fort Chimo in September 1917. All but three of these were dark birds. As a special effort was made to secure light birds, the actual proportion was probably smaller still. The concentration of these birds in that area in 1917 was evidently due to the extraordinary abundance that year of the Hudsonian lemming (*Dicrostonyx hudsonius*). The chances greatly favor their having been birds reared in northern Labrador. It was at first supposed that the Labrador form of the gyrfalcon was *always* dark, like the bird figured by Audubon in his "Birds of America" (1831:pl.196) under the name *Falco labradora.* Later, Audubon himself, in the "Ornithological Biography" (1834:552), put the name in synonymy, but it was reinstated by Dresser (1876). Dresser acknowledged the presence of light birds in the Labrador Peninsula, but thought that they were stragglers (migrants) and that the dark birds were resident.

The fact is that both light and dark birds breed on the Labrador Peninsula (in Ungava), as we learn from L. M. Turner's notes reproduced by Bendire (1892:282, 286). The U. S. National Museum collection contains a specimen taken by Turner at Fort Chimo, April 1,

1884, and the Carnegie Museum another, shot at Red Bay, Labrador, April 9, 1934. Both of these are white birds, without any spotting below. The dates are a little too early to postulate breeding, but it is highly improbable that these birds were far from their breeding grounds. How far south this form breeds is problematical. Audubon's circumstantial account would indicate a breeding range extending to the Gulf of St. Lawrence, but his record has not been confirmed by any other observer. It may have represented an outlying pair of gyrfalcons which for some reason remained far south of their usual summer home. That the gyrfalcon is a regular breeding species on the north shore of the Gulf of St. Lawrence we do not for a moment believe.

At first sight, it would seem that a fairly good case can be made out for the racial distinctness of the Labrador birds as compared with those of Greenland. However, the differences are obvious only in the dark phase; birds in the light phase are indistinguishable. Breeding specimens in the dark phase average somewhat darker (both above and below) than Greenland birds. In this phase the relationship of these birds to *Falco rusticolus rusticolus* of northern Europe and *F. r. islandus* is obvious. (Apparently neither of these forms has a light phase.) It is in the immature stage of plumage, however, that the differences stand out best. The bird at this stage tends to be dark—a dark brownish black. The extreme is well represented by Dresser's first figure in his article above cited. U. S. National Museum No. 94312, Fort Chimo, September 3, 1883, closely approaches this plate. Our series of September specimens from Fort Chimo show every possible gradation between this particular type of plumage, in which the upper parts, tail, and wings are uniform brownish black, and the under parts similar, with only a few buffy spots and streakings, to the type in which the upper parts are dusky brown with buffy edgings, particularly in evidence on the crown, while the under parts are streaked dusky brown and buffy white, the latter predominating. We regard all these birds as birds of the year; their variations are extraordinary, it is true, but no more so than those shown by birds from Greenland. Dresser, on the contrary, figured and described the darkest birds as adults and the lighter colored ones as immature. His error in this respect was first pointed out by Menzbier and Sushkin (1903).

None of the dark-phase Greenland specimens in the collection of the U. S. National Museum shows any approach to the darkest Labrador birds, but in other plumage phases Greenland and Labrador birds are indistinguishable. In other words, if we were to keep *"candicans"* (Greenland) and *"obsoletus"* (Labrador) as separate races, we would have to admit that only one plumage out of six of *"obsoletus"* would be identifiable and none of *"candicans."* It seems to us, therefore, better to consider them as one form (for which the name *obsoletus* must be

used), explaining that there is a geographical variation in the frequency of white and dark phases and that the darkest immature birds occur only in Labrador.

Some authors attribute considerable taxonomic significance to the variation in color of the bill and feet. But this is apparently an age character (see Witherby *et al.*, 1939, vol. 3, p. 4), the bill and feet of the immature being bluish gray, those of the adult yellow. Carnegie Museum specimens Nos. 57511 and 57512 (both light birds) shot two days apart (September 12, 14) were compared in the flesh. In 57511 the dark markings were streaks (as in immatures) and the bill and feet bluish gray; in 57512 the dark markings were bars (as in adults) and the bill and feet yellow. There are scattered references in the literature to the color of the soft parts as a clue to age (*cf.* Gurney, 1882: 593), but more information is sadly needed.

Swann (1929) tries to show that five plumages of the Greenland bird can be recognized, according to age. He claims that the bird gains its fully adult plumage (the *holbölli* of Sharpe) very slowly. We do not agree. The indications are that the first four stages he describes are merely individual variations of the juvenal plumage. The adult plumage is gained at the first full molt (as in *Falco peregrinus* and other allied species), whether the bird happens to be dark or light. While there may be a tendency toward more decided barring in older birds, Witherby's statement (1921:102, 104, 106) that the adult plumage comes in with the postjuvenal molt seems to us correct.

With Swann's recognition of the European race (*rusticolus*) and Iceland race (*islandus*) we are in full accord. On the other hand, he argues that the Greenland and Arctic American race should be called *sacer,* based on Forster's bird from Severn River, Hudson Bay. In this we do not agree. Forster's bird is not certainly identifiable; very possibly it was *Accipiter atricapillus,* as suggested by Newton—see the preface to the Willughby Society reprint (1882) of Forster's "Animals of Hudson Bay" (1772), p. iv—particularly in view of the bird's breeding at Severn River. It is highly improbable that any gyrfalcon breeds as far south as this point. Swann groups the Labrador birds with those of Arctic America in general, and here we agree.

Discussion

The gyrfalcons are a conspecific group of arctic and subarctic distribution. Inasmuch as the genus *Falco* is cosmopolitan in its distribution, it would seem that the peripheral members of the group probably originated in less peripheral areas than they now occupy. This would imply that the gyrfalcons may well have been originally birds of the north temperate regions. Furthermore, inasmuch as the dark coloration is more widespread in the genus than is extreme whiteness,

it would seem reasonable to assume that the "original stock form" of the gyrfalcons was a dark-colored bird, and that its spread towards the north has been correlated with a tendency towards whitening which reaches its maximum in Greenland and Arctic America. Here there are two color phases, a light and a dark, the relative abundance of which is geographically variable. Inasmuch as the white phase is less developed in Eurasia than in America and Greenland, it seems likely that the ancestral homeland of the gyrfalcons was in temperate Eurasia.

The gyrfalcons of all of North America except for the Bering Sea coast of Alaska are but a single, highly variable subspecies, the picture being complicated by geographical variation, not in the color phases themselves, but in their relative frequency. On the Bering Sea coast a slightly marked, but recognizably distinct race, *uralensis,* occurs. It wanders southward in winter to Washington. It differs from *obsoletus* only in having the seventh primary (fourth from the outside) longer than the tenth (outermost one) whereas in *obsoletus* the seventh is shorter than the tenth.

In Scandinavia (and northern Europe generally) and in Iceland the dark phase only is known as a breeding bird. In Greenland (and Arctic America generally) both light and dark phases occur, the former predominating (except in Labrador). Both phases are highly variable in pattern of plumage. Since they are known to breed in the same area, they must belong to the same race. In Labrador the dark phase predominates, and Labrador birds may be "on the way" to becoming a distinct racial entity.

The evidence that more than one molt is required for the change from immature to adult plumage is not satisfactory. In general, adult birds of both phases tend to be barred crosswise, while the immatures are streaked lengthwise.

Since we consider the name *sacer* of Forster to be doubtfully identifiable, we accept *obsoletus* of Gmelin as the earliest valid name for the race inhabiting Greenland, Labrador, and Arctic America in general. A detailed description of *Falco rusticolus obsoletus* (in the sense here used) is given below. It shows the great complexity and variability of the plumages of this highly interesting bird, and may serve to emphasize the fact that lone specimens or small series are hopelessly inadequate as a basis for judgment of its taxonomic problems.[2]

Falco rusticolus obsoletus

Adult, white phase: Sexes alike. Plumages extremely variable, but generally fall into one or the other of two types. While these two types are well marked, individual birds may combine the characters of the two. Thus, some specimens have some bars on the rectrices but only

[2] The capitalized color terms used in the description are taken from Ridgway's "Color Standards and Color Nomenclature" (1912).

longitudinal streaks on the back and upper wing coverts, and others have some bars on the upper parts and few or none on the tail. Hartert (1913:1065) has suggested that the bar-tailed birds with transverse markings on the back are the older adults, but this not necessarily the case. We have seen nestlings of both the bar-tailed and the plain-tailed types, which, except for the color of the bill and feet, were very similar to adult birds. On the other hand, we have also seen plain-tailed young molting into bar-tailed plumage. The two types may be described as follows:

a. bar-tailed: Entire head, body, wings, and tail white, usually with a faint creamy tinge, the top of the head with narrow Chætura-Black shaft stripes which, on the feathers of the nape, broaden into tear-shaped subterminal spots; interscapulars, scapulars, upper wing coverts, back, rump, upper tail coverts, remiges, and rectrices broadly barred with dark Sepia to Chætura Drab, or even Chætura Black, with only the subterminal band, often somewhat broadly crescentic in shape, visible on the scapulars, interscapulars, and upper wing coverts; the rump and upper tail coverts more narrowly barred; the primaries with broad Chætura-Black apical areas very narrowly edged with white, the dark bars disappearing on the inner webs, which are largely white; the seventh primary (fourth from the outside) shorter than the tenth (outermost); 9 to 11 dark bars, about 10 mm. broad, crossing both webs of the median pair of rectrices, reducing to spots on the other pairs of feathers (where they appear chiefly on the outer webs), and (on the outermost pairs) decreasing in number; lores, cheeks, and auriculars with some fine dusky shaft streaks; chin and throat immaculate white; breast, middle of abdomen, sides, and flanks immaculate white or with a few small tear-shaped spots of Chætura Drab; thighs either flecked or immaculate white; under tail coverts usually unmarked; under wing coverts white with a few tear-shaped Chætura-Drab spots; iris dark brown; eyelid pale flesh; cere light yellow; bill pale yellowish gray, more yellowish at base, and dusky at the tip; tarsi and toes light yellowish gray, claws pale horn color.

b. plain-tailed: Similar to the preceding but with tail immaculate white, the remiges unbarred but with Chætura-Drab shaft stripes broadening into a wide dark apical area as in the barred variety; scapulars, interscapulars, upper wing and tail coverts, back, and rump unbarred but with broad terminally spatulate shaft stripes of Chætura Drab; under parts as in the barred variety.

Adult, gray phase: Sexes alike. Entire upper parts of head, body, wings, and tail Deep Neutral Gray, with or without a dark Sepia tinge, the head feathers with darker gray shaft stripes and often whitish edges, producing a white-streaked appearance; scapulars, interscapulars, back,

rump, and upper coverts of wing and tail with dark shafts and edged narrowly with grayish white to pale buffy white and barred with the same, the light bars widely spaced and variable in their extent, some being reduced to mere spots on the two webs of individual feathers; remiges dark Sepia with a grayish wash, the primaries indistinctly barred or mottled with grayish white on the outer webs and crossed by 15 or more broad white bars on the inner webs, the dark, narrower interspaces becoming incomplete dark bars not always quite reaching the margin of the web, but confluent along the shaft; the ninth primary (second from the outside) the longest, then the eighth, tenth, and seventh; the primaries, with a long terminal unbarred Sepia area on both webs, narrowly tipped with whitish; secondaries incompletely barred with pale grayish to buffy white on both webs, the pale bars not always reaching the shaft; rectrices crossed by 10 to 12 whitish or grayish bands about equal in width to the dark interspaces, the pale bands freckled with Slate-Gray to grayish Sepia; rectrices tipped with white; lores, cheeks, and auriculars whitish, with a creamy wash in some cases, the feathers with Chætura-Drab shaft streaks of variable width (in some cases a pronounced malar stripe results from the widening of the shaft streaks, in others no well-defined malar stripe is present); chin, throat, breast, abdomen, sides, flanks, thighs, and under tail coverts white, generally with a wash of Cartridge Buff or Cream Color, the chin and upper throat usually immaculate, sometimes with dusky shaft streaks; lower throat, breast, and abdomen with dark Sepia shafts widening apically into tear-shaped spots; sides, flanks, and thighs usually with the shaft streaks more pronounced and apical broadening more extensive, even forming transverse bars in some instances; under tail coverts immaculate or marked like abdomen; under wing coverts white, barred broadly with dark Sepia to Fuscous; unfeathered parts as in white phase.

Juvenal, white phase: Sexes alike. As mentioned earlier in this paper, it has been suggested by Swann and other writers that the gyrfalcons pass through a number of plumages between the juvenal and adult stages, but we have seen no slightest evidence of this in a very long series of skins or in the literature or in accounts of birds raised in captivity. To attempt to correlate plumage phases with age is purely arbitrary and pointless.

a. bar-tailed: Variable; similar to the adult but with the Chætura-Black to dark Sepia subterminal crescentic marks on the feathers of the upper surface of the body and wings enlarged to deep wedge-shaped areas covering most of the exposed portions of the feathers, especially of the scapulars, interscapulars, and upper back, producing almost a scalloped effect on these feathers; the shaft streaks on the crown and cheeks generally heavier than in the adult and the tear-

shaped streaks on the under parts heavier and more numerous; the under wing coverts more streaked (with dark Sepia to Chætura Black) than in adults; cere and bill pale Plumbeous; tarsi and toes pale bluish, claws black; orbital skin pale Plumbeous.

b. plain-tailed: Similar to adults but with the brown markings on the scapulars, interscapulars, and upper wing coverts broader; cere and bill pale bluish Plumbeous; tarsi and toes pale bluish.

Juvenal, gray phase: Sexes alike.

a. pale: Variable; entire top of head dark Sepia to Chætura Drab, the feathers with white to pale Avellaneous edgings, sometimes so broad as to reduce the dark color to a mere shaft stripe, in other cases narrow and relatively indistinct (the pale areas usually wider and more noticeable on the nape than on the crown); entire upper parts of body and the upper wing coverts Sepia to dark Sepia, edged narrowly with Drab on dirty white (in some birds these feathers are unmarked, in others they are transversely spotted, or incompletely banded, with buffy white to pale Avellaneous, thus producing two quite different types of coloration—a uniform and a spotted one); primaries with outer webs and tips dark Sepia (the outer webs sometimes faintly mottled with buffy white) and extreme tip whitish, the inner webs whitish except for the tip, the white area taking the form of a series of (about 15) incomplete white bars, which merge at the edge of the web but do not extend inwards as far as the shaft; secondaries plain dark Sepia in uniform-backed birds, marginally crossed by transverse spots of pale Avellaneous to buffy white in the case of spotted-backed birds; rectrices as in gray phase adults but more brownish—Sepia or Chætura Drab to Dark Olive Brown with the pale bars almost Hair Brown on the median pair of feathers and progressively lighter on the inner webs of the lateral feathers; in the case of uniform-backed birds the median pair of rectrices may be almost unbarred; sides of head and neck whitish to pale buff, heavily streaked with dark Sepia, the streaks narrower—merely pronounced shaft streaks—on the cheeks and auriculars, which are sometimes heavily tinged with Drab or Hair Brown; a more or less distinct malar stripe of dark Sepia usually present; chin and upper throat whitish with a cream or buff tinge and with fine dusky shaft streaks which become broader on the throat; rest of under parts whitish like the chin and upper throat but very broadly and abundantly streaked with dark Sepia to Fuscous, the markings usually darkest on the sides and flanks, narrower and paler on the thighs and under tail coverts; under wing coverts whitish, irregularly and incompletely barred or spotted with dark Sepia and usually with dark Sepia shaft streaks; iris dark brown; cere and bill pale Plumbeous; feet pale bluish or pale bluish green; claws black.

b. dark (only females examined): Markings similar to the pale type but much darker; entire upper parts Fuscous, the crown, occiput, and nape often streaked with buffy white; the feathers of the back and upper surfaces of wings edged with dull Sepia but not otherwise marked; primaries with the pale color on the inner webs much reduced, in some cases to a slight freckling, in others to marginal bars not extending more than halfway to the shaft; secondaries uniform Fuscous, unmarked; rectrices dull Fuscous, tipped narrowly with dirty white, the pale bars reduced to transverse spots and often absent save for one or more small subterminal spots on each feather; lores, cheeks, and auriculars dark Fuscous; entire under parts very dark Fuscous to Fuscous Black, the feathers edged with pale buffy white, the edgings often narrow, producing an appearance of narrow pale streaks on the dark background; in other cases much broader, usually broad on the chin and upper throat; the thighs and under tail coverts spotted or barred with buffy white; under wing coverts Fuscous Black or dark Fuscous, the distal median and lesser coverts and all the greater coverts spotted with buffy white. (This plumage phase appears to be confined to Labrador birds, not all of which, however, are of this type.)

Natal down: Said to be white with pale fulvous wash, becoming grayer with age.

Measurements. The average and extreme measurements of 42 adult males and 63 adult females from Alaska, northwest Canada, Baffin Island, Greenland, Southampton Island, and Labrador are shown in Table 1. It should be noted, however, that all the figures probably include a number of young birds in the white plumage in which the ages are indistinguishable.

Breeds from high arctic latitudes in Greenland (both coasts—Angmagsalik; Egedesminde; Etah; Godthaab; Jacobshavn; Kangamint; Nanortalik; Nordletd; Novasak; Oju; Sukkertoppen; Ymer Island); Ellesmere Island (East Bay) and Grinnell Land (Cape Hayes, Cape Frazer, Cape Napoleon—79° 47′ N. Lat.); Baffin Island (Magee Lake; Blacklead Island; Markham Bay; Cape Dorset; Lady Franklin Bay); Digges Island, Hudson Strait; Southampton Island; Victoria Island (Taylor Island); Northwest Territory (Franklin Bay; Cape Bathurst; Bernard Harbor; Coronation Gulf); northeastern and northern Alaska (Point Barrow; Ugashik; Nulato; Collinson Point; Yukon); south to northern Labrador (Fort Chimo; Fort Nascopie; Ungava Bay; Cape Chidley); and northern Newfoundland Labrador (Okak; Nain; Hopedale; Ramah) in the east and to the Atlin region of British Columbia in the west.

Winters more or less throughout its range but wanders very irregularly southward across Canada; Straits of Belle Isle; Nova Scotia; Quebec; Montreal; Ontario; Manitoba (Aweme); British Columbia

TABLE 1

EXTREME AND AVERAGE MEASUREMENTS (IN MM.) OF 105 ADULT * NORTH AMERICAN GYRFALCONS

Locality; number of specimens	Wing	Tail	Culmen from cere	Tarsus	Middle toe without claw
♂					
Alaska	**340**–349	203–215	21.6–23.3	53–58	**45**–48
(4)	(346.0)	(210.8)	(22.6)	(57.1)	(47.6)
n. w. Canada	357–365	**192**–229	**20.0**–23.0	60–**70**	47–50
(5)	(360.2)	(205.6)	(21.2)	(64.0)	(48.3)
Baffin Id.	361–365	195–240	23.0–23.0	**52**–56	50–**54**
(2)					
Greenland	355–**378**	215–241	22.8–24.1	58–68	47–53
(15)	(372.3)	(224.3)	(23.3)	(62.9)	(49.7)
Southampton Id.	355–370	215–235	24.0–**25.0**	60–64	48–49
(3)	(365.3)	(224.3)	(24.3)	(62.0)	(48.3)
Labrador	342–370	203–**244**	20.2–23.0	59–66	47–51
(13)	(360.5)	(221.1)	(21.9)	(62.5)	(49.4)
Series average (42 ♂♂)	364.3	221.5	22.8	62.0	49.2
♀					
Alaska	**368**–400	220–259	23.3–26.6	61–64	**48**–53
(4)	(389.6)	(243.8)	(25.2)	(63.4)	(52.0)
n. w. Canada	385–405	235–239	**23.0**–25.5	68–**73**	52–54
(4)	(395.2)	(237.2)	(24.0)	(70.7)	(53.4)
Baffin Id.	395–413	217–253	**23.0**–25.5	65–70	55–**57**
(2)					
Greenland	**368**–**423**	**215**–**266**	**23.0**–**27.9**	**58**–71	50–54
(23)	(410.5)	(227.8)	(25.7)	(62.4)	(52.7)
Southampton Id.	398–408	240–251	25.0–26.0	64–72	52–55
(4)	(404.0)	(244.4)	(25.4)	(68.5)	(53.8)
Labrador	370–412	228–**266**	**23.0**–26.0	63–68	51–54
(26)	(393.6)	(248.8)	(25.1)	(65.6)	(52.9)
Series average (63 ♀♀)	400.5	239.3	25.2	64.7	52.9

* All figures probably include a number of young birds in the white plumage in which the ages are indistinguishable.

The absolute extremes of the male and female series are given in boldface for each measurement.

(Fraser River; Sumas Prairie; Kelowna); and Vancouver Island (Comox) to Newfoundland and the northern United States from Maine (Eagle Island, East Waterford; South Winn; Cape Elizabeth; Katahdin Iron Works; North Deering; Rockland; Brunswick; Spruce Head); New Hampshire (Milford; Exeter); Massachusetts (Northampton; Boston; Breel's Island; Essex; Stowe; Wayland; Melrose; Newton; Ipswich); Rhode Island (Providence; Narragansett; Conanicut Island); Connecticut (Durham); New York (Auburn; Aurora; Bellport, Long Island; Canandaigua; Flushing, Long Island; Monroe Co.; New York City; Pond Quogue, Long Island; Rochester; Rome; Schenectady; Troy; Westchester Co.); and Pennsylvania (Lancaster Co.)

to Michigan (Sault Ste Marie); Wisconsin (Prairie du Sac; Skunk Island); Minnesota (Minneapolis; Madison); North Dakota (Red River Valley; Mandan); South Dakota (Vermillion); Nebraska (Elk Creek); Kansas (Manhattan); Montana (Collins, Teton Co.); Washington (Spokane; Chelan); Oregon (Scio); and the Queen Charlotte Islands, British Columbia. Also to Iceland; the Faeroes; England; Ireland; northern France; and Germany (rarely).

Type locality: Hudson Bay (*ex* Thomas Pennant, "Arctic Zool.," vol. 2, 1875, p. 208).

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