

CANADIAN RACES OF THE GREAT HORNED OWLS

BY P. A. TAVERNER

THE Great Horned Owl, *Bubo virginianus*, is a widespread and exceedingly variable species, occurring in the Americas from the northern tree limit to the Straits of Magellan. Though the largest and heaviest of American owls, it can be regarded as a smaller edition of the great Eagle Owl, *Bubo bubo*, of the Old World. So variable is it individually that it is difficult to find two perfectly matched specimens. The predominant colors are rusty red, black and white. The rusty is usually in background or under-coat upon which the black and white pattern is superimposed. This rusty may be strong and clear or reduced in any degree through cream to pure white. The pattern below is in many narrow bars, sharp and coarse, or finer, occasionally in part reduced to vermiculation. Above, the pattern is darker than below and finely intricate, occasionally refined almost to a pepper-and-salt effect. Below, either black, or white, or red may predominate and the black may coalesce into clouds that more or less conceal the pattern. The facial disks may be full red, rusty ochre, grayish, or white and may be immaculate or flecked in varying degree with black. The legs and feet may be anything between rusty and white, and immaculate to heavily barred with black. There is no appreciable difference in plumage with sex or that at present can be ascribed to age; the downy young moult directly into the colors of the adult. Because of this, quite immature specimens are of value in racial determination.

The great amount of individual variation, and the fact that most museum specimens are winter-taken when migration or wandering has inextricably mixed the races, have hitherto made detailed study of the species difficult. Some of the perplexing variation in the species has been ascribed to a black dichromatism, but the study herewith indicates that racial hybridism is a more probable explanation. The National Museum of Canada over a series of years has made special effort to collect breeding birds or those assumed to be breeding, from all parts of the Dominion and it seems that the number (about eighty-five in all) amassed, reinforced by other material, is now sufficient to fill out a reasonably accurate picture.

A cursory examination of this series shows that across the northern part of the continent there are three very distinct types,—a medium-colored one in which red more or less predominates, a very dark one saturated with much black, and a very white one. These have

broadly marked geographical distributions but show considerable variation and the sporadic occurrence of intrusions of more or less strongly marked extra-racial forms.

Probable causes of this high variability and heterogeneity are not far to seek. The Horned Owl as a species is generally sedentary, found on the same station summer and winter. But in winter there is much wide ranging of individuals, probably a wandering for food that may be nearly regular enough to be regarded as an incipient or relict migration. Much of this wandering is undoubtedly aimless and unoriented as indicated by the irregularity of immigrant occurrences, but the general shift of owl population is from severe to milder conditions and approximately, or ecologically, southward. Probably this seasonal movement is more marked in northern populations than in southern ones though in either, individuals may be born, live, and die within narrow geographical limits.

The species breeds very early in the season, in North America often while winter conditions still prevail, but not simultaneously over its great climatic range. The more-northern breeding areas are not open for the purpose until considerably after southern residents are well into incubation or even farther advanced in their breeding cycle. It follows that northern individuals as yet without necessity to return to their ancestral homes may find themselves still in foreign country and surrounded by an actively mating population. It is not at all unlikely that such a stranger, perhaps with somewhat advanced sexual development, may be excited by example and be 'seduced' into pairing with an aggressively amorous local mate. This might not happen often enough to mongrelize seriously entire populations but would set up permanent instability in local genetic structures that would explain the occurrence of anomalous specimens in generally homogeneous populations, and initiate a high degree of variability in succeeding generations. Foreign genes introduced into a strain are self-perpetuating and probably are never entirely eliminated. Probably most strains of Horned Owls are heterozygous and contain latent foreign genes that sporadically may become dominant. If we feel bound to name every possible genetic combination that may be developed, the possibilities therefore are infinite in the species but it would make our system so complicated that it would tend to conceal instead of reveal the fundamental structure.

In studying populations in such mobile forms as birds, breeding stock is practically essential, but it should be borne in mind that mere summer residence is not certainly indicative of local breeding though it may be favoring evidence. It is not known at what age

Horned Owls come to breeding maturity, but from analogy with other large species it is not unlikely that it may take more than a single year. If so, yearlings or sub-matures without reproductive urge may delay their return to their proper breeding habitat and may summer in foreign lands. This is true of some other species of prolonged adolescence that do not invariably return to nesting localities until sexually mature and ready to breed. However, in spite of this, it seems safe to assume that when numbers of a reasonably constant type are found summering together they represent the normal type of that area. In the following study this has been assumed where actually ascertained breeding specimens are lacking.

In the series at hand some 275 specimens have been available, mostly from the collection of the National Museum of Canada representing localities from The Labrador to the islands of British Columbia and from the International Boundary north to the tree limit. Besides these, numerous specimens have been examined in or from other collections, notably the U. S. National Museum (U.S.N.M.), The Royal Ontario Museum of Zoology (R.O.M.Z.), the Quebec Provincial Museum (Que. Prov. Mus.), the Carnegie Museum and others that the writer has been privileged to visit. He wishes to express his appreciation of these courtesies.

As said before, these specimens are divisible into three well-marked color types: a black, saturated type; a medium, reddish one; and a very white type, agreeing generally with the races recognized in the A. O. U. 'Check-list' (1931), the black with *heterocnemis*, *saturatus* and *lagophonus*; the red with *virginianus*; and the white with *subarcticus*. There is some variation in size between individuals but it does not seem consistently distinctive enough to be racially significant and is therefore disregarded.

Red specimens referable to virginianus:

- 1, Cape North, Nova Scotia, August 26, 1935.
- 4, Kings County, Nova Scotia, March 15; May 29; July 14; August 25.
- 1, Albert County, New Brunswick, August 21.
- 5, Prince Edward Island, (one downy) all June.
- 1, Pontiac County, Quebec, April 28.
- 9, Ottawa, Ontario, January 8, 18; February 2; March 13; April 8; October 14; November 14; December 7.
- 1, Kingston, Ontario, January 6.
- 1, Pictou County, Ontario, February 14.
- 1, Lanark County, Ontario, October 22.
- 1, Toronto, Ontario, winter.
- 1, Peel County, Ontario, September 28.
- 1, Middlesex County, Ontario, November 7.

- 1, Bruce County, Ontario, June 4 (R.O.M.Z.).
- 3, Kingsville, Ontario, January 4; April 14; December 28.
- 2, Point Pelee, Ontario, March 2, 30.
- 1, Kapuskasing, Ontario, June 20.
- 1, Manitoulin Island, Ontario, September 5.

35

Though there are few breeders or potential breeders in this series, they are so consistently similar that there is little doubt that they represent the dominant form for the respective localities. They grade into some very strongly red birds probably most markedly in the far-eastern Nova Scotia group of which the Cape North specimen is the extreme. In the same group some show a degree of darkening as if toward *heterocnemis* and seem to be the basis of *neochorus* Oberholser, postulated for Newfoundland and Nova Scotia, but not distinctively or consistently enough to validate the name.

White specimens referable to subarcticus

- 1, Bradford, Ontario, January 5 (R.O.M.Z.).
- 1, Algonquin Park, Ontario, October 12.
- 2, Toronto, Ontario, October; September (R.O.M.Z.).
- 6, Moose Factory, Ontario, one, July 12; five, winter (Carnegie Mus.).
- 2, Lake Nipigon, Ontario, both half-downy, June 23 (R.O.M.Z.).
- 1, Ingolf, Ontario, June 1 (R.O.M.Z.).
- 2, Lac Seul, Ontario, September 6, 20.
- 1, Wabigoon, Ontario, June 18 (R.O.M.Z.).
- 1, Favorable Lake, Ontario, November.
- 1, Ochre River, Manitoba, April 3 (R.O.M.Z.).
- 1, Lake St. Martin, Manitoba, June 26 (R.O.M.Z.).
- 7, Winnipeg, Manitoba, no date, probably winter.
- 1, Shoal Lake, Manitoba, September 1.
- 11, Oak Lake, Manitoba, juv. July 7; family both parents and two half-downies, July 11, 21; juv. and parent August 10; October 3, 13; November 27.
- 2, Mulvihill, Manitoba, March 15, 22.
- 2, Dauphin, Manitoba, nest mates half-downy, June 10.
- 3, Swan River, Manitoba, family parent and 2 half-downy, July 7.
- 1, Cormorant Lake, Manitoba, September 4.
- 5, Thicket Portage, Manitoba, family two parents and half-downy, August 23, 27, 29.
- 1, Herb Lake, Manitoba, November 2.
- 1, Eastend, Saskatchewan, June 21.
- 3, Cypress Lake, Saskatchewan, family two parents and half-downy.
- 1, Watrous, Saskatchewan, August 3.
- 1, White Bear Lake, Saskatchewan, September 18.
- 20, Red Deer River, Alberta, between Red Deer and Steeveville; June 14, 17; family parent and half-downy, June 26, 29; July 7, 8, 17, 29; mated pair July 31; August 22, 26; September 24, 25.

- 3, Rosebud, Alberta, March 22; May 26; February 21.
- 1, Camrose, Alberta, November 2.
- 2, Waterton Park, Alberta, downy, May 29; June 4.
- 1, Edmonton, Alberta, June 11.
- 6, Lac la Nonne, Alberta, May 25; June 11, 12, 14; half-downy, June 15; September 10.
- 4, Wood Buffalo Park, Alberta, April 25, 26; downy, June 17; October 27.
- 1, Tazin and Taltson Rivers, Northwest Territory, half-downy, June 19.
- 1, Chesterfield Inlet, Northwest Territory, June 10.

96

Many of these birds are assumed breeders and a considerable number are demonstrated as such. Several complete families are represented by one or more parents and their young. An interesting thing in these family groups is that the young are not always identical with their parents or even with their nest mates. In the case of the family, parents and two half-downies, Oak Lake, this is most marked, one of the juveniles, unlike the other members of its immediate family, being quite heavily red in the under coat. With its parentage or locality unknown it would easily pass for *occidentalis* to which a number of our mid-western specimens have been referred. A point of note is that this form does not seem to grow whiter northward; the whitest birds come not from the north where they might be expected, but from close to the International Boundary, Cypress Lake, Saskatchewan, and the lower Red Deer River, Alberta.

Of the dark birds there are two groups separated by the whole width of the continent making no contact with each other except through an entirely dissimilar intervening race. The one occupies The Labrador and an uncertain part of eastern Quebec and the Ungava Peninsula while the other occupies the trans-mountain region of British Columbia. The former is referable to *heterocnemis*, the latter is divided between *saturatus* and *lagophonus* of the 1931 A. O. U. 'Check-list.' Though we can find absolutely no consistent racial distinction in size or color between these widely separated groups they can be listed separately on the basis of geography.

Dark eastern birds referable to heterocnemis

- 4, Bonne Esperance, Quebec, north shore, Gulf of St. Lawrence, winter.
- 1, Harrington Harbor, Saguenay County, Quebec, March.
- 1, Johan Beetz Bay (= Piastre Bay), Saguenay County, Quebec.
- 2, Johan Beetz Bay, Quebec, no date (Que. Prov. Mus.).
- 1, Moisie River, Saguenay Co., Quebec, August.
- 1, Swamp River, central Ungava, August 7 (Carnegie Mus.).
- 1, Fort Nascapee, Labrador (locality?), no date (U.S.N.M.).

- 1, Ste. Anne de la Perade, Quebec, November 19 (Que. Prov. Mus.).
- 1, Portneuf, Quebec, March 8 (Que. Prov. Mus.).
- 1, Lac Tergent, Quebec, December 28 (Que. Prov. Mus.).
- 1, St. Eugene, Ontario, no date (Que. Prov. Mus.).
- 3, Ottawa, Ontario, two March, November 8.
- 1, St. Thomas, Ontario, December 21.
- 1, Peterborough County, Ontario, November 1 (R.O.M.Z.).
- 1, Peel Co., Ontario, December 15 (R.O.M.Z.).
- 1, Toronto, Ontario, no date (R.O.M.Z.).

22

In literature various authors unhesitatingly refer birds on the outer Labrador coast to *heterocnemis*. Little is known of the owls of the interior of Ungava and it is uncertain how far inland or westward this dark influence extends. Specimens in the United States National Museum from Chimo do not appear to be strongly dark and suggest intergradation, probably toward *subarcticus*. Newfoundland specimens not being available, no conclusion can here be reached regarding them. The proposed race *neochorus* Oberholser (Proc. Biol. Soc. Washington, 27: 46, 1914) seems by description, geography, and the specimen from Cape North, Nova Scotia, listed here as *virginianus*, to be an intergrade between that race and *heterocnemis* and seems to have been so accepted by other recent authors.

DARK WESTERN BIRDS, *saturatus* AND *lagophonus* OF THE 'CHECK-LIST'

These two races, as recognized by the 1931 'Check-list' and most authors, are separated by purely quantitative characters, according to the amount of blackness they exhibit. Some difference in average size has been postulated but on measuring the series this has been found immaterial. Being unable to correlate color with any pronounced geographical distinction, we cannot think that there is any valid taxonomic difference between them but, for the purpose of demonstration, they are here listed separately. As they intergrade, the divisional point between them is largely a matter of opinion and convention, but viewing them in mass the following seems a substantially correct separation.

Darkest birds, saturatus of 'Check-list':

- 2, Sayward, Vancouver Island, British Columbia, mated, August 17.
- 1, Campbell River, Vancouver Island, B. C., half-downy, July 4 (H. M. Laing).
- 1, Victoria, Vancouver Island, B. C., November 15 (Arthur Peake coll.).
- 1, Cape Lazo, Vancouver Island, B. C., January 3 (Arthur Peake coll.).
- 2, Victoria, Vancouver Island, B. C., November 15, December 7.
- 1, Craig Crossing, Vancouver Island, B. C., October 28.

- 1, Comox, Vancouver Island, B. C., February 16 (H. M. Laing).
- 1, Campbell River, Vancouver Island, B. C., half-downy, July 4.
- 1, Quatsino, Vancouver Island, B. C., December 16.
- 1, Stui, B. C., (coastal), July 21.
- 2, Hagensborg, B. C., (coastal), parent and half-downy, July 9.
- 1, River's Inlet, B. C., (coastal), August 31.
- 2, Lilloet, B. C., (interior), July 4; August 14.
- 1, Vaseaux Lake, B. C., (interior), May 27.
- 2, Okanagan Landing, B. C., (interior), half-downy, June 18; October 27.
- 1, Creston, B. C., (interior), August 16.
- 1, Cranbrook, B. C., (interior), October 6 (R.O.M.Z.).
- 1, Teslin Lake, B. C., (north interior), September 4.
- 1, Corvallis, Oregon, November 17.

 24

It can be stated that some of the most darkly characterized specimens breed in the farthest interior while some of the coastal breeders show decided tendency toward the next group. In other words interior birds are not necessarily intergrades.

Medium-Dark Birds, lagophonus of 'Check-list'

- 2, Comox, Vancouver Island, B. C., January 1; December 12.
- 1, Mittlenach Island, (coastal), May 23 (Carnegie Mus.).
- 1, Stillwater, B. C., (coastal), July 16.
- 1, Hagensborg, B. C., (coastal), July 5.
- 1, Brackendale, B. C., (coastal), half-downy, July 13.
- 1, Penticton, B. C., (interior), April 10.
- 1, Osoyoos, B. C., (interior), September 25.
- 3, Vaseaux Lake, B. C., (interior), May 31; two half-downy, June 1.
- 1, Westbridge, B. C., (interior), September 8.
- 1, Rossland, B. C., (interior), July 5.
- 2, Newgate, B. C., (interior), May 10, 26.
- 1, Creston, B. C., (interior), August 16.
- 2, Fort Nelson, B. C., (interior), half-downy, June 13, 14.
- 3, Teslin Lake, B. C., (north interior), half-downy, July 27; two August 27.
- 1, Duncan, Oregon, October 19.
- 1, Corvallis, Oregon, January 9.

 23

A comparison of these two series of occurrences shows that while heavily colored birds may predominate on Vancouver Island and adjacent coasts, similar ones appear and breed indiscriminately and with lighter ones in the interior of the province and the converse. Nowhere within the range of this examination is there a more than approximately pure population of either type. It seems better on these grounds therefore taxonomically to combine the two and as *saturatus* has priority, to relegate *lagophonus* to synonymy.

Besides these plainly marked birds that are easily referred to their proper races are a number that fit none of the categories and are best explained as intergrades or hybrids between them. The racial components of these mixtures are not always apparent and some are probably quite complicated involving various influences of more than two strains. This is particularly true in eastern Ontario and southern Quebec adjacent to the meeting of three forms, *virginianus*, *heterocnemis* and *subarcticus*. In general one can say that a predominance of red suggests *virginianus* influence; black, *heterocnemis*; and white, *subarcticus*; but the relative importance of each in some specimens is difficult of analysis and the exact parentage of a few of the following therefore may be open to reasonable question.

virginianus × *heterocnemis*

These show considerable red of *virginianus* and black of *heterocnemis*. Strangely enough they show sharper and clearer whites than either, suggesting that there may be a strain of *subarcticus* in them. The facial disks are more or less, to occasionally, strongly reddish. The feet are usually reddish but may be gray or cream and lightly to heavily barred. One specimen that might be included among them, the Cape North, Nova Scotia, bird in the *virginianus* list is dark but very strongly red with little white. The proposed *neochorus* Oberholser of Newfoundland may be of some such intermediate type.

- 5, Beaupré, Quebec, February 16; November 4, 7, 27 (Que. Prov. Mus.).
- 1, Charlesburg, Quebec, December 11 (Que. Prov. Mus.).
- 1, Isle de Orléans, Quebec, December 15 (Que. Prov. Mus.).
- 1, Prescott County, Ontario, December (Que. Prov. Mus.).
- 1, Toronto, Ontario, January 26 (R.O.M.Z.).

9

virginianus × *subarcticus*

These are largely white birds with more or less, to considerable, red in the under coat, but as *subarcticus* seems dominant over *virginianus* and the blacks are often conspicuous, a few are not to be certainly separated from *subarcticus* × *heterocnemis* stock. The red tendency however does appear in greater or less degree in much reasonably pure *subarcticus* population. In a family from Oak Lake, Manitoba, one nestling shows it strongly while nest mates and parents do not, suggesting genetic heterogeneity probably derived from the southeast through Minnesota rather than from the east by way of Ontario. These are doubtless the origin of the *occidentalis* that have been frequently ascribed to southern Canada.

- 6, Toronto, Ontario, January 12; February 25; October 24, 28; November 20;
December 28 (R.O.M.Z.).
1, Peel County, Ontario, October 28 (R.O.M.Z.).
1, Hastings County, Ontario, date ? (R.O.M.Z.).
1, Muskoka District, Ontario, September 7 (R.O.M.Z.).
1, North Bay, Ontario, October (R.O.M.Z.).
3, Winnipeg, Manitoba, no dates, probably winter.

13

There is a very uniform and common type of apparent intergrade or hybrid. It is strongly black and white, too dark for *subarcticus*, too white for any other race referred to here and with little or no red of *virginianus*. The facial disks are usually clear gray, often reddish gray, occasionally grayish red. The feet are white to light gray, occasionally slightly buffy and usually more or less barred with blackish. The type occurs practically in identical character on both sides of the continent, more rarely in the mid-section between. It is consistent and numerous but, except in northern British Columbia and the Yukon, without ascertained breeding locality. We refrain from attempting to raise it to the distinction of a separate race though many forms have been so described on slighter evidence. We prefer to regard them as hybrids between *subarcticus*, and *heterocnemis* and *saturatus* respectively and list them separately with distinction based upon geography.

subarcticus × *heterocnemis*

- 1, Brador Bay, Saguenay County, Quebec, December 11 (Que. Prov. Mus.).
2, Beaupré, Quebec, November 2, 4 (Que. Prov. Mus.).
1, Cap Rouge, Quebec, December 23 (Que. Prov. Mus.).
5, Ottawa, Ontario, November 19 (date?); December 3, 15, 28.
2, Prince Edward County, Ontario, January 13; December 2 (R.O.M.Z.).
2, Coldstream, Ontario, February 8, 26.
3, Toronto, Ontario, January 26; February 10; December 24 (R.O.M.Z.).
1, Collingwood, Ontario, November (R.O.M.Z.).
1, Preston, Ontario, March 21.
1, Sunbridge, Ontario, April 10 (R.O.M.Z.).
1, Favorable Lake, Ontario (near Manitoba line, half-way to Bay), July 24.
1, Savanne, Ontario (in Port Arthur, Lake Superior region), July 14 (R.O.M.Z.).

21

The first and last of this series are of well-marked character and of particular interest, both being far from their expected habitats, the latter summering in the midst of a strongly characterized population of practically pure *subarcticus*, the former occurring well within

the apparent stronghold of *heterocnemis*. They demonstrate the irregular wandering and lingering of individuals far afield and give evidence to the theories previously stated.

The next group is practically identical with the last but from geographical reasons is listed separately.

subarcticus × *saturatus*

- 1, Swift Current, Saskatchewan, September 7.
- 1, Red Deer, Alberta, July 5.
- 1, Rosebud, Alberta, May 26.
- 1, Beyon, Alberta, November 24.
- 1, Camrose, Alberta, December 19.
- 1, Waterton Lake Park, Alberta, February 1.
- 1, Lac la Nonne, Alberta, May 29.
- 2, Wood Buffalo Park, Alberta, April 1; May 11.
- 2, Mackenzie Delta, Northwest Territories, October 28; November 1.
- 1, Barter Island, Alaska (north coast), fall.
- 3, Teslin Lake, British Columbia (north interior), September 1, 28; half-downy, July 28.
- 1, Barriere, B. C., (central interior), June 13 (Carnegie Mus.).
- 1, Victoria, Vancouver Island, B. C., March 7.

17

Besides these, Bishop proposes a new form based upon several winter specimens from southern Vancouver Island under the name of *leucomelas* (Proc. Biol. Soc. Washington, 44: 93, 1931). By description this can hardly be separated from the above and, until a center of pure culture for it is located, can probably be regarded as an intergrade as above. Swarth in his 'Birds of Atlin' (Univ. California Pub. Zool., 30: 1926, and Proc. California Acad. Sci., 22: 1936) notes both *lagophonus* and *subarcticus* and states that both types can be found in the same nest brood,—a clear case of hybrid strain and conditions similar to those in the approximately adjacent Teslin Lake district.

The two groups of hybrids with *subarcticus* from opposite sides of the continent are so much alike that they are collectively, and individually, inseparable except by geography.

There are three other very puzzling specimens,—

- 1, Red Deer River, Alberta, no date.
- 1, Mouth of Salmon River, southern British Columbia, September 2.
- 1, Near Nanaimo, Vancouver Island, B. C., August 10.

3

These are as nearly identical with each other and with the Cape North, Nova Scotia, *virginianus* as Horned Owls ever are. They show little white, scarcely more than an average amount of black but are strongly and predominantly red. If it were not for their unexpected geography they would unhesitatingly be passed for ultra-typical *virginianus*. One hesitates to postulate eastern *virginianus* wandering across the whole continental width but the most reasonable alternative explanation seems to be that they may be dichromatic variants common to *heterocnemis* and *saturatus*. Not knowing just what to do with them we can only present them for consideration of the court.

The apparent similarity of the two dark races has been mentioned before. Divided as they are through the middle of the continent by intruding white *subarcticus* they are physically separate and distinct strains, but were they closely adjacent or in contact, no distinction between them would be suspected. Both hybridize with *subarcticus* producing similar progeny and both are suspected of a red dichromatism; all of which suggests that the gene complexes of the two groups are similar if not essentially identical. There seems no compelling reason to separate them any more than we have in the case of the Black-capped Chickadee, *Penthestes atricapillus*, and Barrow's Golden-eye, *Glaucionetta islandica*, that present the same distributional problem.

COMPARATIVE DESCRIPTION OF RACES RECOGNIZED

Bubo virginianus virginianus.—Neither darkly saturated nor strikingly pale. Its principal distinction is its comparatively large amount of rusty red. It is the reddest of the Canadian races of the species. The black and white bars below are in rather soft contrast, much less insistent than those of other races here treated. The facial disks are mostly clear rust-color, graying or gray intermixture being less usual. The feet are from reddish buff to cream, usually immaculate but often lightly barred with black.

Range in Canada.—Nova Scotia, New Brunswick, Prince Edward Island, southern Quebec, and southern Ontario north at least to about latitude 50° and west probably to eastern Lake Superior, but the contacts with other races have not been sharply defined.

Bubo virginianus saturatus (= *B. v. heterocnemis* + *B. v. saturatus* + *B. v. lagophonus* of A. O. U. 'Check-list,' 1931).—Very dark and saturated above and below, with black predominating, ultra-typically tending to coalesce and extinguish pattern. These are the blackest races of the species. Usually considerable ruddy under

coating. The black and white below usually sharply contrasted. The facial disks run from gray or reddish gray flecked with black occasionally to solid dark rusty. The feet gray to light buff more or less heavily barred with black.

Range in the east (heterocnemis of 'Check-list').—The Labrador and an uncertain distance westward through Ungava and eastern Quebec north of the St. Lawrence River.

Range in the west (saturatus and lagophonus of 'Check-list').—In Canada, British Columbia, coastal islands and the mainland, intergrading or hybridizing along the eastern slope of the Rocky Mountains and the Yukon with *subarcticus*.

Bubo virginianus subarcticus.—Very white, with little or no reddish ground or under coat below, and reds paled to shades of buff above. Mostly black and white with white predominating. The whitest of the Horned Owl races. The facial disks white to light ashy, rarely with tinge of rufous. The feet immaculate white, occasionally creamy or very light buff with light barring of blackish.

Range in Canada.—From southern James Bay, perhaps western Ungava, and northern Lake Superior district west to the Rocky Mountains, and from below the International Boundary north to the limit of trees.

In winter almost any of these races may appear within the range of another, may occasionally remain there through the summer and may rarely breed, setting up local foci of heterogeneity and producing intermediates or hybrids.

National Museum of Canada
Ottawa, Ontario