VARIATION IN THE AMERICAN GOSHAWK

By P. A. TAVERNER

The American Goshawk (*Astur atricapillus*) ranges in the Boreal Zone across the northern parts of the continent and southward along various mountain ranges. It is not strongly migratory and is usually resident wherever found though showing some seasonal shift of territory and occasional winter eruptions southward.

The Western Goshawk (*Astur atricapillus striatulus* Ridgway) was separated from the type form of the species principally on the basis of a more finely vermiculated breast and ventral pattern in the adult. The describer in his original diagnosis (*in* Baird, Brewer and Ridgway, Hist. N. Amer. Birds, vol. 3, 1874, pp. 238-240), expresses residual doubt as to the distinctiveness of the characters thus stressed, and his hesitation seems justified. A casual examination of a more ample series than he had available demonstrates that fineness of pattern has no particular geographical distribution. Both finely and coarsely marked birds appear indiscriminately throughout the specific range from coast to coast.

Further investigation indicates that this fineness of pattern is an age, not a racial character. In a series of 53 adult specimens taken across continent, a number are changing from striped juvenal to gray adult plumage, or are in practically complete adult gray habit with a few relict feathers of juvenility. In every such transitional plumage, east or west, the incoming or new gray pattern is of the coarsely vermiculated type and no finely vermiculated specimen that the writer has seen shows any trace of striped juvenal feathers. It is strongly suspected that fineness of vermiculation may progressively increase with age resulting in an extreme condition with advanced years. In any event, as has been pointed out before, this character must be abandoned in this species as distinctive of geographical race.

In the original description Mr. Ridgway designates no particular type but he lists and describes under *striatulus* four specimens, two adults and two juveniles, in comparison with an equal number of comparable birds that he ascribes to *atricapillus*. Under these conditions and the intent of the Code of Nomenclature, the first *striatulus* thus specified has been taken as the accepted type of the race and is so given in the A. O. U. Check-list. The two adults are, in order: Type, U. S. Nat. Mus., 8508, ♂, Ft. Steilacoom, Puget Sound, W. T. (= State of Washington), no date, Dr. Suckley; U. S. Nat. Mus., 58982, ♀, Colorado (loc.?, date?), Dr. F. V. Hayden.

Through the courtesy of Dr. Herbert Friedmann and the United States National Museum we have had the privilege of comparing these birds with a series of fully adult and finely vermiculated birds in the National Museum of Canada, and with those kindly loaned by the Royal Ontario Museum of Zoology and the Provincial Museum of British Columbia.

♂ Prince Edward Island, June 20, 1938 (breeding)
♂ Kingsville, Ontario, winter, 1926
♂ Point Pelee, Ontario, Nov. 8, 1916
♂ Lac La Nonne, Alberta, May 30, 1926
♀ Westmorland County, New Brunswick, 1928
♀ Ottawa, Ontario, Nov. 14, 1916
♀ Richmond, Ontario (near Ottawa), Dec. 15, 1918
♀ Treesbank, Manitoba, Jan. 24, 1927
♀ Lac La Nonne, Alberta, May 31, 1926

No material distinction between these birds and the type specimens can be made. The series shows a certain amount of variation that may be either individual or the result

of age, but both the type specimens in question can be matched perfectly in the series. It is evident that, as defined and thus exemplified, the races *striatulus* and *atricapillus* are indistinguishable.

The following cross-continental series of adults are available for review:

Canadian Labrador	1
New Brunswick	1
Prince Edward Island	2
Quebec	2
Ontario	11
Manitoba	5
Saskatchewan	1
Alberta	8
Mackenzie	2
British Columbia	16
Alaska (Chitna Glacier)	1
Colorado	1
California	1
Washington	1
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These arranged in geographical series exhibit no consistent departures from eastern types, but a group from the coastal islands of British Columbia and two that apparently are unusual variants stand out strongly from the rest:

♂ Victoria, Vancouver Island	Dec. 4
♂ Upper Campbell River, V. I.	July 22
♂ Nanoose, V. I.	Jan. 24
♂ Denman Island	Dec. 18
♀ ? Comox, V. I.	Mar. 12
♀ Quatsino, V. I.	Oct. 4
♂ Cape Scott, V. I.	Sept. 19
♂ Skidigate, Queen Charlotte Islands	Aug. 2
? Massett, Q. C. I.	?
♀ Skidigate, Q. C. I.	Aug. 2
? Queen Charlotte Islands	?
VARIANTS	
♀ Mackenzie Delta, N. W. T.	June 12
? Big Trees, California	?

These include both finely and coarsely marked birds, but all show degrees of darkening. Below, the gray is of darker (sootier) tint, especially across the breast, with heavy shaft streaking. Above, the black of the cap extends over the shoulders and the interscapulars. There is considerable variation. In extreme cases, shown by three coarsely vermiculated birds, the tendency is marked and conspicuous, almost amounting to melanism; in others the saturation is less and approaches occasional darker eastern specimens. Outstanding geographical exceptions are a male from Prince Edward Island that might easily fit into the darkened series and one from Cape Scott, Vancouver Island, that might fit among the lighter birds of the East. The coarsely vermiculated yearlings (?) show the darkening in most pronounced degree, although some finely marked adults retain it strongly. It seems to have a tendency to reduce with age and some very old birds may be uncertainly recognizable. It is notable that this darkening seems confined to the coastal islands; specimens from closely adjoining mainland localities (Kingcome Inlet; Stuie, Bella Coola region; Brackendale; Chitna Glacier, Alaska) do not show it. The bird from Big Trees, California, is well marked and may be a wandering migrant, but the Mackenzie Delta specimen is disturbing. It is very coarsely marked below,

with vermiculations broadened almost to regular bars that approach those of the European *A. gentilis*. The shaft streaking is very heavy and general appearance is typical of the dark island phase. It was mated with a perfectly normal fully adult male *atricapillus* which with the downy brood is in the collections of the National Museum of Canada. Under the circumstances it can be regarded only as a variant along with the dark Prince Edward Island breeding bird and a strange abnormal bird in the Museum of Vertebrate Zoology from Atlin, British Columbia, that is a pale extreme, almost suggestive of the Asiatic *A. gentilis albidus*.

Sixty-two specimens in striped juvenal plumage are available for examination. These divide into three well marked color groups:

5 from the Queen Charlotte Islands
19 from Vancouver Island
38 from the mainland east to Prince Edward Island, north to Chitna Glacier and Yakatuk Island, Alaska.

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The contrast between the Queen Charlotte and the mainland groups is marked and conspicuous. The former is consistently dark. Above, the brown is rich and deep with little or no trace of lighter feather-edging or variegation. Below, the ground color is exceptionally deep, varying from Cinnamon-Buff to Light Buff (Ridgway's nomenclature) with the stripes many, broad and very dark. In the mainland birds the browns are less rich; above there is much variegation with light feather-edging and semi-concealed spots. Below, the ground averages cream color and varies from almost white to as dark as the lightest of the island types. The stripes are slightly more sparse, narrow and less densely dark. It is not believed that the density of the ground color below is as significant as the other characters, for there is a suspicion that it is more or less evanescent as in the similar breast tint in juvenal buteos. Though young birds recently from the nest are always more deeply colored in this respect than older ones, especially those that have worn the livery for almost a year, these island juveniles are more heavily colored than other specimens of approximately the same age.

The nineteen birds from Vancouver Island are intermediate between the two extremes. In massed average, the intergradation is distinctly recognizable, though among them are individuals that might be included in either group without much violation of consistency.

From these comparisons it appears that there is a recognizable strain of goshawk on these islands distinct from *atricapillus* of the continental area. It is strongly characterized in some adults in both island groups though juveniles exhibit it more distinctly on the Queen Charlotte Islands than on Vancouver Island where the birds appear somewhat intermediate.

The nomenclature of this race is not clear. That Ridgway had some intention of defining a dark colored race is suggested by his remarks at the bottom of page 239 (*op. cit.*) of his description, but the fact remains that by neither diagnosis nor example did he succeed in doing so. The two adults he cites are straight *atricapillus*. His two juvenal *striatulus* are: U. S. Nat. Mus. 59892, Colorado (date?, loc.?; sex inferred to be ♂), F. V. Hayden; U. S. Nat. Mus., 11740 (should be 11790), Puget Sound, October 26, 1858, Dr. C. B. Kennerly.

The first of these may be ruled out on geographical considerations, Colorado being far removed from the area in which the dark race centers. It is evident that of the four specimens none of the first three can be taken as the type of the race now suggested. There remains only the fourth specimen from Puget Sound to represent the describer's

striatulus. By description and locality this may be a straggler or migrant from the islands. At my request, Dr. Friedmann has compared this specimen with typical examples of the insular form sent him for the purpose and he states that it agrees quite well with them, especially with the Vancouver Island type which is not as strongly marked as that from the Queen Charlotte Islands. The inclusion of this particular bird in Ridgway's *striatulus* seems to have been more or less accidental and the elimination of three other specimens having page priority over it seems to reduce its availability as a type of the described race. Much as we regret to change old and established names on nomenclatural technicality, this seems a case where it may be advisable. The literature has many references to the Western Goshawk founded on misconception of both characters and range. It seems best to allow these unfortunate records to be cancelled out through synonymy than to cause confusion by applying an old name to a new concept. I therefore propose

Astur atricapillus laingi new subspecies. Queen Charlotte Goshawk

(Named in honor of Hamilton M. Laing, who has been instrumental in uncovering the form.)

Type.—National Museum of Canada, 15899, adult (♀ ?), Masset, Queen Charlotte Islands, British Columbia, February, 1920. Collector, W. J. G. Hellier.

Diagnosis.—Like *A. a. atricapillus*, but faintly to distinctly darker especially in first and second year. Adult, sootier gray ventrally especially across breast, typically with many broad shaft streaks. Dorsally with the black of cap and nape extending over shoulders and the interscapulars. Juvenile, breast stripes very broad and heavy on a light ground that averages deeper in color than in *atricapillus*. Dorsally almost or quite solid rich dark brown with little or no light feather-edging or semi-concealed markings.

Range.—As far as now known, the islands of the British Columbian coast. Most typical on the Queen Charlotte Islands, the birds of Vancouver Island being more variable and less plainly characterized. Probably resident, with little migratory movement.

Ottawa, Ontario, January 12, 1940.