The Hudsonian chickadee and its allies

Samuel Nicholson Rhoads

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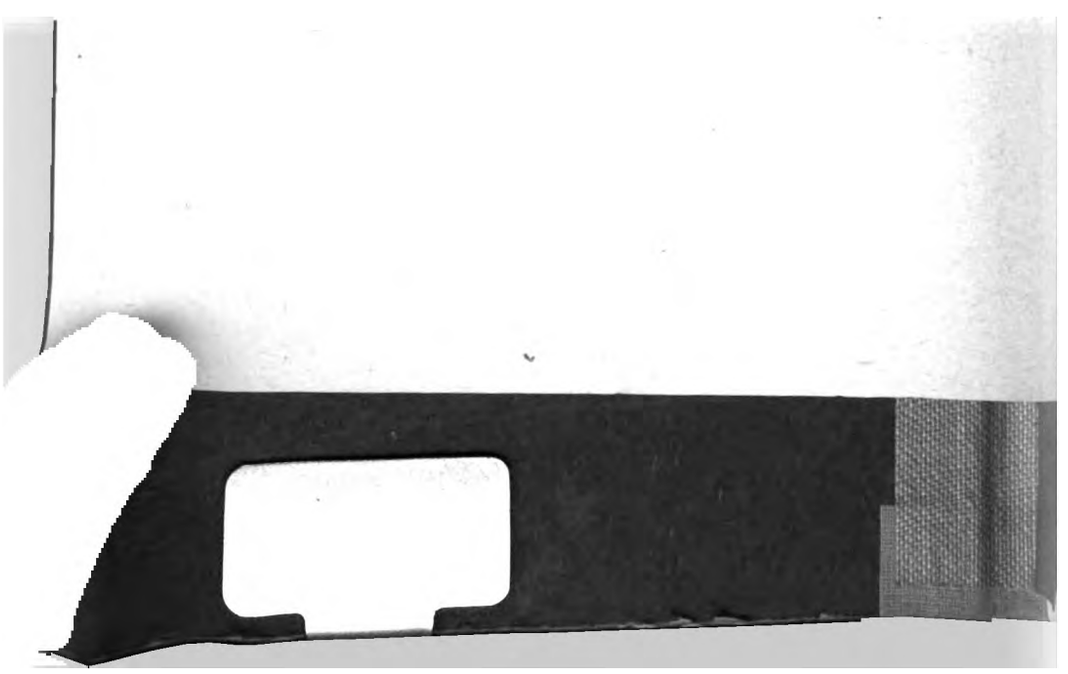
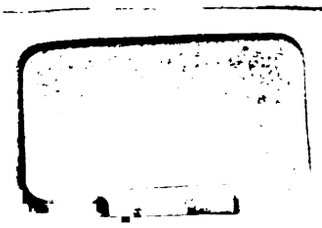
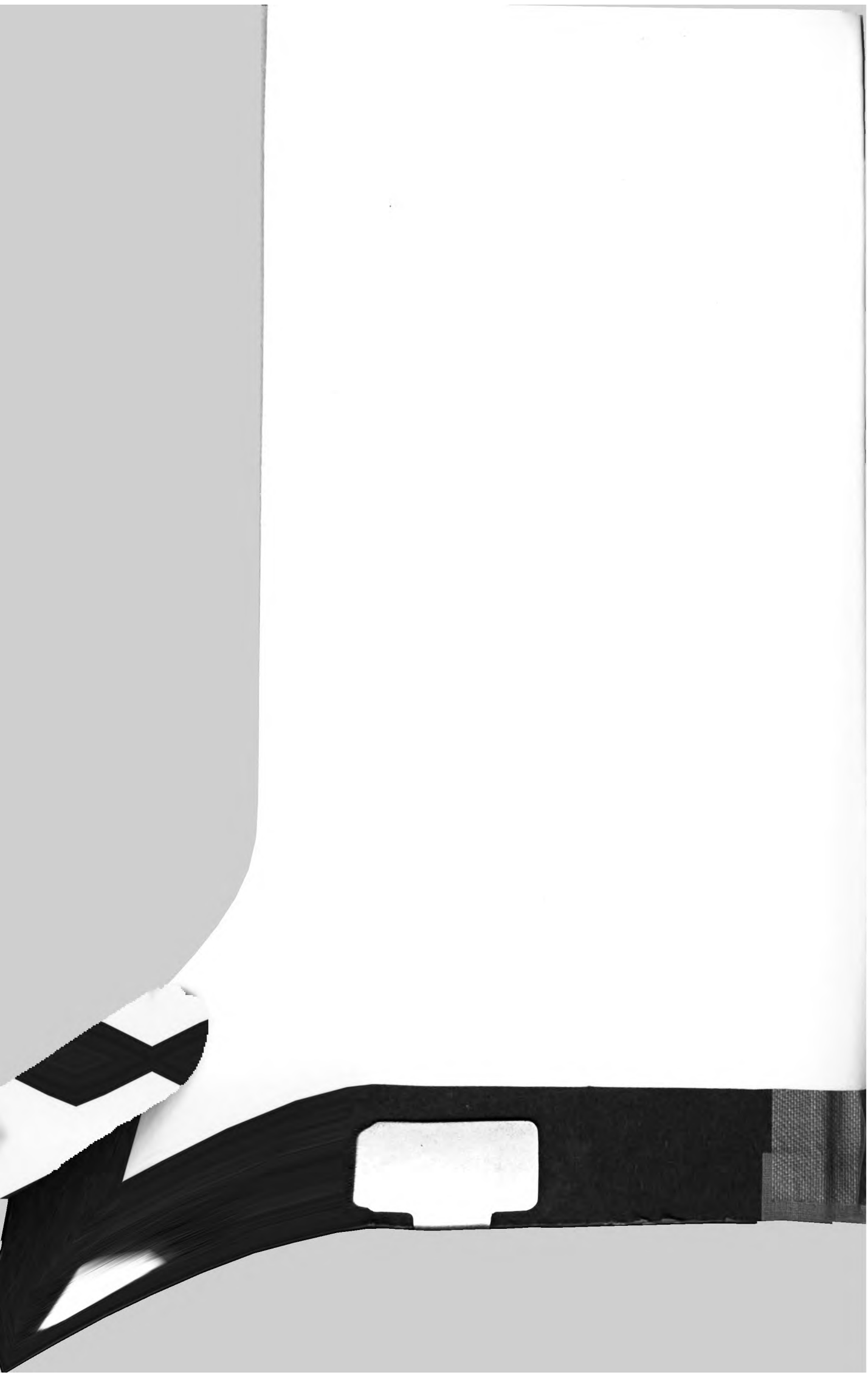






THE HUDSONIAN CHICKADEE AND ITS ALLIES, WITH REMARKS ON THE GEOGRAPHIC DISTRIBUTION OF BIRD RACES IN BOREAL AMERICA.

BY SAMUEL N. RHOADS.

WHILE examining the series of *Parus hudsonicus* at the Smithsonian Institution to determine the status of *Parus hudsonicus columbianus*, Mr. Ridgway suggested to me the desirability of a careful study of the affinities of the several members of this group described by authors. A request for specimens was made in my description of the British Columbian form of *hudsonicus* in 'The Auk' for January, 1893. No answers to this appeal were received, and after a lapse of two months I started a correspondence with several of the most prominent collectors for the loan of skins. From five of these I received, in all, twenty-five specimens, Mr. Brewster sending seventeen, Prof. J. Macoun two, Mr. K. C. McIlwraith four, Mr. A. G. Kingston one, and the Natural History Society of Toronto one. Several of my Canadian correspondents, from whom I had

expected substantial aid, had not seen the bird in life and their testimony develops the rather unexpected fact that this Chickadee is a rare visitor in Manitoba, Ontario and Quebec, and for that matter, in any non-mountainous locality south of Hudson's Bay.

The total result of my search for skins is a suite of eighty-one specimens, the collections of the Smithsonian Institution, the American Museum of Natural History, and the Academy of Natural Sciences supplying fifty-six, and private individuals twenty-five of these. To the gentlemen who have done me service in this connection I would here again express my sincere thanks.

The great extent of the habitat of *Parus hudsonicus* and the fact that three subspecies and one species, of slight differentiation from the type form, from Alaska, British Columbia and Nova Scotia, have been described by authors, make it imperative that a complete study series should contain many times the number I have collected, and come from many times the number of localities represented. Were it probable that any considerable additions of this kind would be made in the next decade it would be advisable to postpone this paper, but the regions from which specimens are most needed give no promise in this direction. There is, however, enough evidence in the present series to throw considerable light on points in question, and the value of such testimony, incomplete and circumstantial as much of it is, is too great to be thrown away and may justify some risks taken on the theoretical side. Undoubtedly there are many specimens of this bird in America which are yet available, and it is hoped that anyone having such will forward them to the Academy of Natural Sciences at an early date in order that they may be examined, with the original series, at the next meeting of the A. O. U. Committee on Nomenclature.

The Hudsonian Chickadee, *Parus hudsonicus*, was first described by J. R. Forster in the Transactions of the London Philosophical Society for 1772. His description was based on specimens sent him from the Hudson's Bay post at Fort Severn, on the southwest coast of Hudson's Bay, at the mouth of the Severn River. Since that time three races of *Parus hudsonicus* and one closely related species, now classed by the A. O. U. as a subspecies, have been described.

In 1863, Dr. Henry Bryant secured a family of Chickadees at Yarmouth, Nova Scotia, and gave a description of them in the ninth volume of the Proceedings of the Boston Society of Natural History under the name "*Parus hudsonicus*, var. *littoralis*." Dr. Bryant comments on certain differences of size and color between his Yarmouth birds and those from Hudson's Bay, as follows: "The specimens of *Parus hudsonicus* from Yarmouth and those from the Hudson's Bay Territory present as great, if not greater, differences in size than exist between *P. carolinensis* and *P. atricapillus*, and in color between *P. septentrionalis* and *P. atricapillus*." As Dr. Bryant goes into no definite comparisons of the two forms, we must conclude that he considered the Yarmouth birds smaller and darker than those from Fort Severn.

This brings us face to face with the important question as to what are the exact characters of typical *hudsonicus*. We have Forster's original Latin description, which is quite detailed. From it we can adduce only one or two decisive facts. One of these is the measurements; but even these are open to some doubt, owing to the different methods of measurement adopted by naturalists. We are, however, convinced that Bryant's measurements were taken from smaller birds than those of Forster. But these differences are no greater than those I have detected between individuals of a series of over twenty from Campbellton, New Brunswick, all secured in April and May of the same year. When we turn to color definitions to solve the difficulty it only increases our bewilderment. The best we can make out of Forster's description is that the top of the head in *hudsonicus* is "reddish brown"; in another place it is "ferruginous brown"; the back is said to be "ashy green, brownish on longest feathers" and the "ends of the feathers somewhat olivaceous brownish green." Comparing this with *littoralis* whose crown and hind neck are said to be "faded, yellowish ash, with back, scapulars and rump dirty ash" there is only one thing certain,—a belief in Dr. Bryant's mind that *littoralis* was lighter colored than *hudsonicus*. But Bryant's description was taken from a pair of birds which had raised a brood and were in the worn and faded plumage of midsummer. I happen to have three such birds from Steiwacke, Nova Scotia, which well answer Bryant's description but are

worthless for comparisons of the kind under consideration, being not only two or three shades lighter than spring and winter specimens from the same regions but having actually lost two to four millimeters from tips of wings and tail by abrasion. So far as descriptions go we have no proof that Forster's bird is any redder, browner, or darker than average *hudsonicus* from Nova Scotia and New Brunswick, the type region of *littoralis;* and the abraded condition of Bryant's specimens can fully account for the difference in recorded measurements.

A more direct way out of this difficulty would seem to be the comparison of recent skins of each form from their respective habitats. Strictly speaking this has been impossible, for my series includes no skins from nearer the type locality of *hudsonicus* than Moose Factory, four hundred miles southwest of it on the shore of James' Bay. This specimen in size and color is comparable to larger skins from Canada East, and the New England States. As will be hereafter pointed out, the Severn River lies near, but within the northern boundary of the Hudsonian Fauna of the Cold Temperate Sub-region[1] within the eastern limits of which the climatic conditions are presumably quite uniform. West of this a race of *hudsonicus* prevails, distinctly separable from Forster's type on account of its larger size. In northern Labrador a humid-arctic environment has produced a race, which I have here described as new, under the name *ungava* (see below, p. 328), differing in size from largest *hudsonicus* from the southeast and showing marked color characters to distinguish it. So far as we can conjecture from Forster's description, his types approach the Labrador form in the so-called "reddish brown" of the crown, but even this is straining a point in favor of their identity with *ungava* as against their closer affinities with Bryant's *littoralis*.

In the absence of specimens from the west shore of Hudson's Bay the weight of evidence is in favor of assuming that the *P. hudsonicus* of Forster represents the northern extreme of what I have defined as the Hudson-Canadian type and not the southern extreme of the Barren Ground race.

Littoralis has not been recognized by the A. O. U., and is ignored by Mr. Ridgway in his 'Manual.' Dr. Coues makes

1 The faunal nomenclature adopted is that of Dr. Allen in 'The Auk,' of April, 1893.

casual reference to it in the first edition of his 'Key' but omits it in the second edition.

The total lack of *hudsonicus* skins from the type locality is a fundamental defect, for upon the character of these depends the validity of *littoralis* and *ungava*. Should the Severn River types correspond to the Ungava birds, Dr. Bryant's form must stand and mine be regarded as a synonym of *hudsonicus*. There is a possibility that this is the correct arrangement but, as I have endeavored to show, it is improbable.

Another variety which, as such, has no place in the A. O. U. Check-List, was brought to public notice in 1884 by Dr. Coues in the second edition of the 'Key to North American Birds.' It is briefly introduced as follows:—"*P. h. evura* nobis. Alaska specimens are larger [than *hudsonicus*], the tail nearly 3 [inches]. Thus corresponding with *P. a. septentrionalis* and being quite the size of *P. cinctus*, from which distinguished by retaining precisely the coloration of *P. hudsonicus*." As will be shown, this race is as tenable as any other of the *hudsonicus* group. It is not, even in part, the same as *stoneyi*, which hails from a more arctic environment than any of the specimens examined by Dr. Coues.

P. h. columbianus, a third subspecies, was recently described by the writer in a preliminary report on the Birds of Washington and British Columbia, published in 'The Auk' (Jan., 1893). This race is characterized as larger and darker than any of a series of forty skins from Alaska and from other localities in British America. The type series was taken in the Rocky Mountains of southern British Columbia. Three additional skins, one each from the mountains east and west of the type locality in British Columbia, and one from the Rockies near the northwestern border of Montana, confirm my diagnosis that this race shows the highest development of the group both in size and depth of coloring.

A fourth form of *P. hudsonicus*, described by Mr. Ridgway in the appendix to his 'Manual of North American Birds' as a distinct species, *Parus stoneyi* (classed as a subspecies in our Check-List), is the last member of this perplexing group to claim attention. Its status has already been touched upon. To this list I feel justified in adding a fifth candidate, *P. hudsonicus*

ungava, representing the faunal peculiarities of northern Labrador and Newfoundland.

Geographic and climatic conditions in North America north of the United States result in a primary division of the country into two great life areas, the Temperate and the Arctic. Of these the Hudsonian Chickadee inhabits the southern border of the Arctic Realm and that part of the Temperate defined by Dr. Allen as the Cold Temperate Subregion, or the 'Boreal' of Dr. Merriam's faunal maps.

The Arctic Realm includes that part of the known habitat of *hudsonicus* from which were procured the types of Mr. Ridgway's *P. h. stoneyi* and my *P. h. ungava*. This district may be defined as a strip of varying width reaching along the Alaskan coasts and peninsulas of Bering Sea and the Arctic Ocean to the mouth of the Mackenzie River, thence to the mouth of the Nelson River and northward, including the north coasts of Labrador and Newfoundland. The Cold Temperate Subregion includes the type localities of *P. hudsonicus*, *P. h. evura*, *P. h. littoralis*, and *P. h. columbianus* and covers the remaining area of distribution of the group southward.

In the cases of *ungava* and *stoneyi* we have two races occupying very similar environments of minimum temperature and diminished flora but of differing humidity, and in all probability separated by a vast central area of the Barren Ground Fauna in which *hudsonicus* has no representative because of the almost total absence of trees in those regions. In *columbianus* we have another example of the maximum development of western races which, as in *evura*, Alaskan forms are sure to show, and in which the size generally increases as the habitat approaches the forty-ninth parallel.

Limiting ourselves to resident species of boreal North America, which show a tendency to split up into races, we quite invariably find the largest and darkest colored races in the southwest, either on the west slopes of the Rockies or in the West-Cascade region. The smallest light-colored forms hail from central and southeastern districts, while the extreme northwest and northeast produce forms of an intermediate character between the Rocky Mountain and Atlantic Coast races, the Labrador race being darker and somewhat smaller than its Alaskan counterparts, but not so dark

as the Rocky Mountain form. We may cite as illustrating this plan of racial distribution in Boreal and Arctic America, *Picoides americanus* with its subspecies *alascensis* and *dorsalis*, and *Acanthis linaria* with subspecies *holbœlli* and *rostrata*. One of the tables appended to this paper will show their parallel differentiation with the Hudsonian Chickadees. In the same table I also include certain forms of the Rock Ptarmigan (*Lagopus rupestris*) and the Horned Larks (*Otocoris alpestris*), whose habitats and manner of differentiation have the same correlation with those preceding. Of course the distribution of the Ptarmigans and Horned Larks is, in the first case, more arctic, and in the second, more continental than that of the other three species given, but, considered solely with reference to their boreal distribution, there is more than an ordinary resemblance among them all in spite of the marked differences in their habits.

Owing to the comparative scarcity of summer specimens in the series, I have based all important comparisons on skins secured after the fall moult and before the breeding season, viz.. between the fifth of August and the first of May. It would have been preferable to limit these comparisons either to fall or early spring birds but the series was too small to justify it. As in other species of the genus, there seem to be no differences between the sexes of this Titmouse, either in size or color, and I have consequently considered the adults of both sexes as equally representative of the characters ascribed to the species or subspecies under which they are classed.

Seasonal color phases in the *Parus hudsonicus* group are so slight and simple, being chiefly the result of summer bleaching and abrasion, it is easy to make due allowance for such differences when determinations were necessarily made from breeding specimens. The plumage of the young is too poorly represented to warrant special mention.

1. Parus hudsonicus *Forst.* HUDSONIAN CHICKADEE.

HABITAT.—All of southeastern British America, except northern Labrador and Newfoundland, from Lake Athabasca and the Nelson River south to mountains of northeastern Minnesota, northern Wisconsin, Michigan, New York, Maine, New Hampshire, Vermont and Massachusetts.

The Hudsonian Chickadee rarely visits the lowlands south of the 47th parallel except on the coast, and it is practically non-migratory. It breeds in the Adirondacks, the White Mountains, and the mountains of Maine, but has not been found in the Alleghanies even in winter. Its distribution west of the Great Lakes is a mystery but as given above probably approximates closely to the lines of the Cold Temperate Subregion as defined by Drs. Allen and Merriam. In the absence of specimens from a vast area to the southeast of the Severn, we may take the average of a series of twenty-five from the United States and Canada. On this basis *hudsonicus* may be characterized as the smallest, and, with the exception of *stoneyi*, the palest of the group. Worn summer specimens from Nova Scotia and New Brunswick are browner and smaller than any others in the entire series. They represent the *littoralis* extreme described by Bryant but show no differences of special diagnostic value from Ontario or United States birds, or from the specimen from Moose Factory. A fine series of spring birds from New Brunswick shows, with selected skins of like date from the United States, that *hudsonicus* is more unicolor on the upper parts, the pale reddish brown of crown differing but slightly from that of back. The same unicoloration is noticeable in *evura*, which is even more decided brown over the dorsal area in that race.

The only common character shared by *hudsonicus* and *ungava*, as compared with their western allies, is in the small size and attenuation of the bill.

Average measurements of 30 adults:—Wing, 61 mm. (58–64); tail, 60 (58–64); tarsus, 16 (15.5–16.5); bill from nostril, 7 (6.5–7.5).

Specimens and localities:—Moose Factory, St. James Bay, 1; Richmond Hill, Ontario 1; Ottawa, Ontario, 1; Beauport, Ontario, 1; Campbellton, N. Brunswick, 19; Point Lepreaux, N. Brunswick, 1; "New Brunswick," 2; Steiwacke, N. Scotia, 2; Halifax, N. Scotia, 1; "Nova Scotia," 1; "Labrador," 2; Island Falls, Maine, 1; Wadley Brook, Maine, 1; Sutton, Vermont, 1; Mt. Adams, Mass., 1; St. Regis Lakes, N. York, 2.

2. Parus hudsonicus ungava, subsp. nov. LABRADOR CHICKADEE.

HABITAT.—Northern Labrador.

Subsp. char.—Larger, darker above and with slightly larger bill than *hudsonicus*. Plumbeous brown of crown and nape showing more marked

contrast to colors of upper parts and more extended posteriorly than in any other form. Sides of neck purer ash-gray than *hudsonicus*, that color nearly surrounding and contrasting with the crown as in *stoneyi*.

Adult male and female in spring plumage:—Types,[1] ♂ No. 100,630; ♀, No. 93,565; Coll. Smithsonian Institution, Washington, D. C., coll. by L. M. Turner at Fort Chimo, Ungava, Labrador, March 17 and April 1, 1884.)—Crown, chocolate to plumbeous brown (never pale or ashy brown) well defined posteriorly against the ashy brown of back and laterally against the ash-gray sides of neck, which color, in extreme cases, nearly encircles crown. Dorsal area nearly uniform ashy brown, becoming rusty on rump. Wing feathers not only edged but secondaries distinctly tipped with ashy. Tail uniform slate, less ashy than in *hudsonicus* or *evura*. Throat and bill purer, clearer black; ocular spots larger, nearly black anteriorly and always(?) connected by well-defined frontlet of same color.

Measurements.—♂, No. 100,630; wing, 67 mm.; tail, 67; tarsus, 16.5; bill from nostril, 7. ♀, No. 93,565; wing (abraded) 63 mm.; tail (abraded) 63; tarsus, 16; bill from nostril, 6.6.

This race is as strongly characterized as *columbianus*, from which it differs in its smaller size, shorter and slenderer bill, and richer brown coloration, the brown of crown and nape being less dusky and that of sides more rusty as in *hudsonicus*. Compared with any of its allies, *ungava* shows better color definition, the dark brown of crown and nape contrasting abruptly with ashy cast of back instead of mingling insensibly into the shades of upper parts as in *hudsonicus* and *evura*. The dark spot surrounding the eye is also large and well defined and always present in such specimens as I have, while in all other forms except *columbianus* it is often nearly obsolete. The ashy white of sides of neck in *ungava* is even more noticeable than in *stoneyi* because of the darker hue of crown in former. The nearest ally of *ungava* is undoubtedly *stoneyi*, *evura* coming nearest *hudsonicus*, *columbianus* showing no decided affinities in either direction.

The only portion of the habitat of *ungava* represented by adult specimens is the region about Fort Chimo. A young bird from Rigolette shows same color values as the adults. It is recorded

[1] The only adult spring male in the Ungava series is typical in all respects save in the color of the crown, which is much lighter than the average, and the only typical spring female is somewhat darker than the average and is in worn plumage. No single spring specimen combines the requirements of a type, so I have thought it preferable to meet these requirements in the two skins selected than in a single winter specimen.

by Mr. Packard[1] from Okak, two hundred miles east of Ungava. Mr. McIlwraith sends three specimens labelled "Labrador." Of these probably two were taken south of the habitat of *ungava* and within the range of *hudsonicus*, with which form they seem to perfectly agree.[2] The range of *ungava* is probably coextensive with that of the Arctic Realm across northern Newfoundland. Its westward extension to and beyond the shores of Hudson's Bay can only be conjectured.

Average measurements of 15 adults:—Wing, 65.5 mm. (63 to 68); tail 65, (63 to 68); tarsus 16 2 (16 to 16.5); bill from nostril, 7 (6.5 to 7.5).

Specimens and localities:—Fort Chimo, Labrador, 14; Rigolette, Labrador, 1. "Labrador," (intermediate?) 1.

3. Parus hudsonicus stoneyi *Ridgw.* KOWAK CHICKADEE.

HABITAT.—Northwestern Alaska.

Mr. Ridgway's description of this race not only ignores any subdivision of the species *hudsonicus* but contains no reference to the *evura* of Dr. Coues with which it is almost identical in measurements. The special characters given by Mr. Ridgway to *stoneyi* are, however, in no sense synonymous with those of *evura* as stated by Dr. Coues. *Stoneyi* is characterized as "similar to *P. hudsonicus* but much grayer above, sides of neck purer ash gray, sides much paler rusty and throat clear slate black instead of sooty blackish." The measurements given for *stoneyi* by Mr. Ridgway are greater than his measurements of *hudsonicus* though he included under that name all the rest of the group, but he makes no reference to the comparative size of *stoneyi*, probably from the very reason that other Alaskan birds were as large. On the contrary Dr. Coues bases his *evura* solely on the larger size of Alaskan birds as compared with eastern ones and takes care to state that Alaskan birds retain the precise coloration of *hudsonicus*. My examinations of the two original specimens of *stoneyi*, which still remain the only adult representatives of their race in collections, fully confirm the value of the color diagnosis given to this form by its describer. It may now be more fully characterized as the palest of the group with wing measurements about the same as *ungava*, the bill being stouter

[1] Proc. Bost. Soc. Nat. Hist., Vol. X, p. 267.

[2] Mr. McIlwraith has since written me they all came from "southern Labrador."

and the tail averaging longer, being quite as long as in *columbianus*.

As stated in 'The Auk,' the three specimens of *stoneyi* are in bad shape and lack date of capture. One, in well advanced nestling plumage, is worthless for critical comparisons with adults. The other two are alike and characteristic enough to justify their present status in our nomenclature. Skins of *P. hudsonicus* from Nulato, Alaska, are of interest, confirming the close approach of boreal forms to the Arctic coast in the vicinity of Norton Sound, as defined by Allen and Merriam, such specimens being typical *evura* and not *stoneyi*.

Average measurements of 2 adults:—Wing, 64 mm. (62 to 66); tail, 66 (64 to 68); tarsus, 16.3 (16 to 16.5); bill from nostril, 7.1 (7 to 7.2).

Specimens and localities:—Kowak or Putnam River, Alaska, 3.

4. Parus hudsonicus evura *Coues.* ALASKAN CHICKADEE.

HABITAT.—Central and southern Alaska, west to Nulato, south to Bristol Bay and Fort Kenai, east to the Mackenzie River.

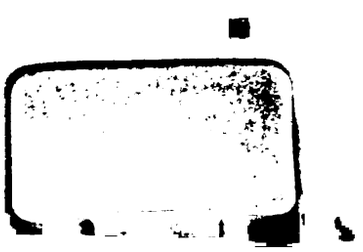
As stated in preceding descriptions, the Alaskan Chickadee seems to as fully merit recognition on account of size as the Kowak River race for its lighter coloration when the two are compared with *hudsonicus*. Mr. Ridgway alludes, in his description of *stoneyi*, to the "browner" appearance of certain Alaskan skins, but considers it merely a seasonal variation. With these skins now before me I find the average color of specimens from the habitat of *evura* is almost identical with that of *hudsonicus* at the same season and would call *evura* a large and much browner *hudsonicus*, intermediate between *hudsonicus* and *columbianus*.

Average measurements of 14 adults:—Wing, 65.4 mm. (60 to 70); tail 65 (61 to 68); tarsus, 16.8 (16.5 to 17); bill from nostril 7.2 (6.7 to 8).

Specimens and localities:—Fort Simpson, Mackenzie River, 3; "Fort Rae," Mackenzie District (?) 2; Fort Yukon, Alaska, 2; Nulato, Alaska, 5; Fort Kenai, Alaska, 2.

5. Parus hudsonicus columbianus *Rhoads.* COLUMBIAN CHICKADEE.

HABITAT.—Rocky Mountains, from the Liard River south into Montana.



Little may be added to the original description of this subspecies. Two additional specimens secured in 1889 in British Columbia have been kindly loaned by Prof. J. Macoun of the Canadian Geological Survey. They confirm the characters assigned to the type specimens, and are of special interest as having been taken respectively on the Gold and Selkirk Ranges, nearly one hundred miles south and west of the central Rockies at Field.

Another specimen of *columbianus*, no less typical, was taken by Mr. G. B. Grinnell in 1888 at St. Mary's Lakes in the Rocky Mountains, a few miles south of the northern boundary of Montana. Besides the absence of any decided shade of brown on upper parts, throat and loral region noticeable in fall specimens of all the other forms, *columbianus* has a longer, much heavier and thicker bill than any of them, that member being nearly twice the calibre of smaller *hudsonicus*.

While *columbianus* may be classed as the greatest remove in the direction of specific separation from *hudsonicus*, I feel no hesitation in classing it, with the others, as nothing more than a subspecies of Forster's type.

Average measurements of 7 adults:—Wing, 67 mm. (65 to 71); tail, 66 (64 to 69); tarsus, 17 (16.5 to 17.5); bill from nostril, 7.6 (7.3 to 8.3).

Specimens and localities:—Field, British Columbia, 4; Eagle Pass, B. C., 1; Toad Mountain, B., C., 1; St. Mary's Lakes Montana, 1.

TABLE OF MEASUREMENTS[1] OF THE *Parus hudsonicus* GROUP.

Skins		Wing		Tail		Tarsus		Bill, from nostril	
30	Parus hudsonicus	58–64	(61)	58–64	(60)	15.5–16.5	(16)	6.5–7.5	(7)
15	Parus hudsonicus ungava	63–68	(65.5)	63–68	(65)	16 –16.5	(16.2)	6.5–7.5	(7)
2	Parus hudsonicus stoneyi	62–66	(64)	64–68	(66)	16 –16.5	(16.3)	7 –7.2	(7.1)
14	Parus hudsonicus evura	60–70	(65.4)	61–68	(65)	16.5–17	(16.8)	6.7–8	(7.2)
7	Parus hudsonicus columbianus	65–71	(67)	64–69	(66)	16.5–17.5	(17)	7.3–8.3	(7.6)

[1] Measurements in millimetres.

TABLE SHOWING PARALLEL GEOGRAPHIC VARIATIONS IN CERTAIN BIRD RACES OF NORTHERN NORTH AMERICA

Hudso-Canadian	Barren Ground	Alaskan-Arctic	Alaskan	Northern Rocky Mountains
Size smallest; color light.	Size large; color dark.	Size large; color lightest.	Size larger; color intermediate.	Size largest; color darkest.
Parus hudsonicus	P. h. ungava	P. h. stoneyi	P. h. evura	P. h. columbianus
Picoides americanus	Picoides, subsp?	(Absent)	P. a. alascensis	P. a. dorsalis
Acanthis linaria	A. l. rostrata	A. l. holbœllii		(Non-resident)
Lagopus rupestris	L. r. reinhardti	L. r. nelsoni et athkensis		Lagopus, subsp?
Otocoris alpestris		O. a. leucolæma		O. a. merrilli