

NOTES ON CHIPMUNKS OF THE GENUS *Eutamias*  
IN CANADA<sup>1</sup>

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*Eutamias minimus*

The material that has accumulated in the National Museum of Canada since Howell worked over our collection when preparing his monograph "Revision of the American Chipmunks" (1929, *North Amer. Fauna*, No. 52) gives a different picture of the eastern forms of *E. minimus* than that drawn by Howell.

The most important changes are that an undescribed form is represented in our material from northern Manitoba, and our material indicates that the name *neglectus* of Allen should be revived for the population Howell called *jacksoni*.

The forms recognizable in Canada are:

*Eutamias minimus caniceps* (Osgood)

*Eutamias minimus borealis* (Allen)

*Eutamias minimus oreocetes* (Merriam)

*Eutamias minimus hudsonius* new subspecies

*Eutamias minimus neglectus* (Allen)

The description of the new form, and the notes on two of the others follow,-

*Eutamias minimus borealis* (Allen)

## NORTHERN INTERIOR CHIPMUNK

(*Tamias asiaticus*) var. *borealis* Allen, 1877, *Mon. North Amer. Rodentia*, pp. 793, 794—Fort Liard, Mackenzie.

This is a widespread form, ranging from southern Mackenzie and northeast British Columbia south to Banff and Eagle Butte, Alberta, and east to southeast Manitoba.

We have a series of 18 specimens from Wood Buffalo Park that we are assuming are typical *borealis*. A series of 20 from Jasper Park are similar, but with the under surface of the tail averaging slightly paler.

Crowe (1942, *Bull. Amer. Mus. Nat. Hist.* 88, p. 399) recorded *oreocetes* from Banff National Park, but our material from Banff (11 specimens) are closer to *borealis* in color though averaging small. This is evidently the southwest corner of this range. Howell (*op. cit.* p. 54) records a National Museum specimen from Forget-me-not Mountain as *borealis* but it compares better in color and skull

characters with two Waterton Lake *oreocetes*, and should be referred to that form. A series of specimens from Eagle Butte, Alberta and Battle Creek, Saskatchewan, that might be expected to show a tendency toward the paler *pallidus* are on the contrary slightly darker on the upper parts than Jasper specimens, but the difference is too slight to use in separating them. Howell (*op. cit.* p. 55) has pointed out that a southern Saskatchewan (Indian Head) series shows an approach to *pallidus* that occurs farther south in the United States. A series of 14 specimens from Junction of Antler and Souris River, Turtle Mountain, Aweme, Dauphin, and Swan River (all in Manitoba) are slightly brighter, more intensely coloured than Wood Buffalo Park specimens, showing an approach to *neglectus*, but are closer to *borealis*. Three specimens from the vicinity of The Pas are greyer, an approach to the new form described below, but are also best referred to *borealis*.

*Eutamias minimus hudsonius* new subspecies  
HUDSON BAY CHIPMUNK

*Type.* - No. 14786, National Museum of Canada; male adult; Bird, Hudson Bay Railway, Mile 349, northern Manitoba, Canada; 14 July, 1936; Ronald W. Smith; skin and skull in good condition.

*Diagnosis.* - Differs from *borealis* in having the under surface of the tail slightly paler; and in having less reddish brown on the shoulders, back, and rump, these parts having more dark grey in the fur. The hind legs too are more dark grey, less brownish; the dark dorsal stripes average wider, and the upper surface of the tail has the hairs buffy white and black rather than ochraceous or reddish brown and black. The general appearance is of a darker, greyer animal.

The skull is like that of *borealis*.

*Measurements.* - External measurements of 3 males from Bird and Thicket Portage are: total length 202, 211, 211 mm.; tail 94, 99, 101; hind foot 31, 31, 32; three females from Herchmer and Bird: t. l. 210, 214, 216; t. 97, 102, 103; h.f. 32, 33, 33. Six skulls of adults measure: greatest length 32.4 (32.1-33); zygomatic breadth 18.3 (18-18.6); cranial

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breadth 15.9 (15.6-16); least interorbital breadth 7.4 (7.1-8); length of nasals 9.7 (9-10.1).

*Range*: — Known only from northern Manitoba, intergrading with *borealis* in the vicinity of The Pas; probably occurs in extreme northwestern Ontario and northeastern Saskatchewan.

*Remarks*: — The series of seven specimens of this form taken in June, July and August exhibit only slight variation. The pelage of the head and that of the flanks is little different from that of *borealis* taken at a similar season, but on the back, rump and hind legs this form is a distinctly darker, greyer animal. Specimens from Readers Lake and Cormorant Lake are intermediate between this form and *borealis*.

*Specimens examined*: MANITOBA, Thicket Portage, (H. B. Ry. Mile 165,) 1; Herchmer, (H. B. Ry. Mile 412) 3; Bird (H.B. Ry. Mile 349) 3.

*Eutamias minimus neglectus* (Allen)  
Lake Superior Chipmunk

*Tamias quadrivittatus neglectus* Allen, 1890, *Bull. Amer. Mus. Nat. Hist.*, 3, p.106 - east shore of Lake Superior, near mouth of Montreal River.

*Eutamias minimus jacksoni* Howell  
1924, *Journ. Mamm.* 6: 1, 53. (Crescent Lake, Oneida Co., Wisconsin). Feb. 9, 1924.

*Diagnosis*. - Differs from *borealis* in being darker, more brownish generally. The crown and facial stripes are richer and browner, there is more and richer brown in the dorsal stripes; the rump and hind legs are darker and browner; the rusty of the sides is darker, and the tail is darker and redder, above and below, compared with *borealis*.

*Measurements*. - External measurements, Pancake Bay, 10 females, total length, 215.1 mm. (210-229); tail, 94.9 (88-105); hind foot, 32.7 (32-34); 5 males, t.l., 215.2 (212-223); t. 100.2 (94-105); h.f. 32.7 (32-33); Thunder Bay males, t.l., 228; t. 104; h.f., 31; females, t.l. 215, 215; t., 101, 103; h.f. 31, 31. Measurements of 7 skulls of adults from Pancake Bay: greatest length 32.1 (31.5-33); zygomatic breadth, 18.3 (17.6-19.1); cranial breadth 16.0 (15.7-16.2); least interorbital breadth 7.1 (6.7-7.6); length of nasals 9.7 (9-11).

*Range*. - From southeastern Manitoba across Ontario probably to Lake Abitibi, north at least to Lake Seul and Kapuskasing, and

southward into northern Michigan, Wisconsin and northeastern Minnesota; intergrading with *borealis* in southern Manitoba and probably with *hudsonius* in northern Ontario.

*Remarks*. - We are unable to follow Howell's treatment of Ontario least chipmunks. He referred specimens from the east shore of Lake Superior to *borealis*, thus putting *neglectus* in synonymy and leaving the darker form from the north and west of Lake Superior without a name and for which form he proposed the name *jacksoni*.

A survey of 27 specimens from Pancake Bay to the east of the type locality, 3 specimens from Schreiber to the west of the type locality as well as 2 Ridout and 3 Kapuskasing specimens indicates that all these animals are much darker and more richly colored than *borealis* from Wood Buffalo Park and Jasper National Park and that the name *neglectus* is available for them. That *jacksoni* is different is improbable, both from the original description and from the fact that Howell referred some western Ontario material (Lake Seul and Nipigon) to *jacksoni*.

We have seen no material from Abitibi. The specimen from Grand Rapids, Mattagami River is somewhat grey, and suggests intergradation with *hudsonius* that probably occurs in northern Ontario.

In 1938 Anderson examined a series of specimens from southeast Manitoba (Caddy Lake (2); Sandilands Forest Reserve (8); near Vivian (2) and near Telford (2)) in the J. Dewey Soper collection. The measurements were about the same as Lake Superior material: average 5 females, t.l. 213; t. 93.8; h.f. 31.8; and they agree in color with *neglectus*, to which they are referred.

*Material examined*. - ONTARIO: Silver Inlet, Thunder Bay 5; Schreiber, 3; Lake Seul, 1; Ridout, 2; Coppermine Point, Algoma, 1; Haveland Bay, Algoma, 1; Pancake Bay, Algoma, 27; Kapuskasing, 5; Grand Rapids, Mattagami River, 1. Total 46 specimens.

*Eutamias amoenus* Allen

This little chipmunk, very similar to both *E. minimus* and *E. ruficaudus* occurs in Canada in central and southern British Columbia north to Hazelton and extreme western Alberta north to Jasper. Four subspecies are recognizable in Canada (see Howell, *op. cit.*): *affinus*, *felix*, *ludibundus* and *luteiventris*. Material accumulated by the National Museum somewhat extends the known range of the following form, -



*Eutamias amoenus ludibundus* Hollister

## HOLLISTER CHIPMUNK

In British Columbia this form has been known north and west to Hazelton. H. M. Laing and C. J. Guiguet collecting for the National Museum in the Bella Coola area of British Columbia secured a large series from Kimsquit at the mouth of the Dean River, Stuie, Tweedsmuir Lodge, Caribou Mts. at 4700 feet altitude and the Mackenzie Valley and Mt. Brilliant in the Rainbow Mountains, extending the known range to the coast.

The Kimsquit specimens (9) are slightly more buffy beneath than the inland British Columbia specimens, and than the Jasper Park specimens, possibly showing a slight approach toward *felix*; the other specimens from inland are slightly paler on the underside of the tail than Jasper Park specimens, but the difference is trifling.

*Eutamias ruficaudus* Howell

This species, which is very close to *E. minimus* and *E. amoenus*, occurs only in southeast British Columbia and southwest Alberta. Two

subspecies occur.

*Eutamias ruficaudus simulans* Howell

## COEUR D'ALENE CHIPMUNK

Ranging west of the Rocky Mountains, north to Nelson and Invermere.

*Eutamias ruficaudus ruficaudus* Howell

## RUFIOUS-TAILED CHIPMUNK

Crowe (1943, *Bull. Amer. Mus. Nat. Hist.*, 80, p. 399) recorded *E. ruficaudus simulans* at Invermere in British Columbia, as far north as the species has been recorded. A specimen taken at the mouth of Portal Creek, Jasper Park, Alberta, altitude 3800 feet, Sept. 17, 1938, by R. M. Anderson is referable to *ruficaudus* and extends the known range of the species somewhat farther north, and of the subspecies *ruficaudus* north from Waterton Lakes National Park, where it occurs abundantly at higher levels in the extreme southwestern corner of Alberta as well as on the western side of the Alberta-British Columbia interprovincial boundary line in the same region.

## BOOK REVIEW

THE BIG RIVER SURVEY, A COMPREHENSIVE STUDY OF NATURAL RESOURCES AS AN AID TO IMPROVED UTILIZATION. by D. S. Rawson, E. C. Hope, J. Mitchell, and E. W. Tisdale. Published by the University of Saskatchewan, 1943, 37 pages.

This is a co-operative project shared by the University of Saskatchewan, the Dominion Department of Agriculture and the Saskatchewan Department of Natural Resources. As its sub-title suggests it is a comprehensive survey in which a unit area is intensively studied by experts in various fields and reported upon in considerable detail. It is aimed at instigating conservation in its wide sense in a pioneer section of the province and the several topics discussed are summarized with an interesting discussion of the possibilities of the region, as typical of this section of the country. A thoroughly scientific study, the reports are deduced frankly, based on evidence as discovered and carefully analyzed.

The soil survey shows four main types of soils with podsollic types most extensive. Native vegetation is discussed under the headings of Forest, Meadow, and Aquatic, with a section on Forest Production showing

that little can be expected from commercial lumber exporting from the area in the future, although there is sufficient for domestic timber and farm needs. Interesting details are given regarding the history and possibilities of the region as a commercial fish producing area. The recreational and economic aspects of the wild life of the country are considered. A very interesting economic survey is made of eighteen of the farms already in existence here and various tables bring out the habits and living standards of the inhabitants. From this survey suggestions for possibilities of future settlement are formulated which are fairly typical of this whole section of Saskatchewan.

Such unit surveys cannot but aid in more intelligent utilization and settlement. It is to be hoped that this step is but a bottom rung of the ladder and that the suggestions and recommendations made in this and subsequent similar reports lead to definite action by those immediately concerned. The reading is aided by eleven photographs from the area and six well made maps. This publication is recommended to those interested in seeing action put into a conservation policy.—M.N. ZINCK.





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