# A NEW LEMMING MOUSE (*Synaptomys*) from MANITOBA WITH NOTES ON SOME OTHER FORMS [1]

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MEMBERS OF THE GENUS *Synaptomys*, distinguished from other meadow mice, voles and lemmings by their short tails, grooved incisors, and the deep re-entrant angles on only one side of the molars, are amongst the rarest of Canadian mammals in collections, especially the eastern forms of *Synaptomys borealis*, (subgenus *Mictomys*).

Howell reviewed the genus in 1927 (*North Amer. Fauna* No. 50) recognizing in Canada two species, *S. cooperi* with one form in Canada and *S. borealis* with seven forms. The difficulty in understanding the variation in *borealis* has been enhanced by the scarcity of material; both topotypical and from large areas separating localities of known occurrence. As special desiderata Howell mentioned material from eastern Canada; the area south and west of Hudson Bay, to Mackenzie and the Yukon; and southwestern British Columbia. The National Museum of Canada secured material from southwest British Columbia a number of years ago, proving to represent a new subspecies that Anderson (1933, *Ann. Rept.* 1931, *Nat. Mus. Can.*, p.104) described. We also have a series from Manitoba that proved to be another undescribed race, named in this paper.

The status of a number of forms still requires elucidation and material is needed, especially from the Mackenzie and Yukon Territories, and from Ungava and Labrador.

The following forms of this genus are recognizable in Canada:

*Synaptomys cooperi cooperi* Baird
" *borealis sphagnicola* (Preble)
" " *medioximus* (Bangs)
" " *innuitus* (True)
" " *smithi* new subspecies
" " *borealis* Richardson
" " *chapmani* Allen
" " *artemisiae* Anderson
" " *wrangeli* Merriam
" " *dalli* Merriam

The following includes the description of *smithi* and notes on some of the eastern forms of the genus.

We wish to acknowledge the loan of 10 specimens of *Synaptomys* from the Carnegie Museum, through the kindness of Mr. J. Kenneth Doutt, and four specimens from the private collection of J. Dewey Soper.

*Synaptomys borealis smithi* new subspecies

Type - No. 14815 National Museum of Canada; male adult; Thicket Portage, Mile 165, H.B. Ry., Manitoba; Aug. 3, 1936; Ronald Ward Smith; skin and skull in good condition.

*Diagnosis*: — A large form, much duller than *borealis*, *medioximus* and *innuitus*; much darker than *sphagnicola*.

General color dull, dark brownish, heavily mixed with black; slightly grayer anteriorly; whitish spots on hip glands of old males conspicuous; underparts plumbeous, fur tipped with silvery grey; tail bicolor; feet dusky.

Skull large; interorbital ridge long and sharp; rostrum somewhat long and narrow, tapering but little; bullae large; incisive foramen rather long and wide.

*Measurements*: — 3 adult males, Ilford and Thicket Portage: Total length 126, 128, 135 mm.; tail 24, 24, 27; hind foot 19, 19, 19.5. Skull basal length 24.25, 25, 25.25; zygomatic breadth 14.75, 16, 16; length rostrum 5.5, 6, 6.25; width rostrum 2.8, 3, 3.1; mastoid breadth 12, 12.25, 12.25; incisive foramina 5, 5, 5.2; length nasals 7.5, 7.5, 7.25; height of skull 9.7, 9.9, 10; (for comparative measurements of western forms see Anderson, 1933 *Ann. Rept. for* 1931, *Nat. Mus. Can.* p. 107).

*Range*: — We have specimens from Manitoba, from Ilford to Riding Mountain Park; one from Northern Saskatchewan; and northwestern Ontario specimens may prove to be referable to this form.

*Remarks*: — Our series of five adults from Manitoba is fairly uniform in pelage. In size of skull and amount of ridging there is more variation, suggesting the similar situation in *Microtus*. A specimen from Prince Albert National Park, Saskatchewan, is slightly brighter than Manitoba specimens, showing an approach to *borealis*, but is best included here. It measures, t.l., 118; t., 23; h.f. 17.5; skull basal length, 23.3; zygomatic breadth 14.8; (tip of rostrum broken); width rostrum 3; mastoid breadth, 12; incisive foramen 44.9; height of skull 9.2.

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In the large, high skull this new form is apparently different from *innuitus; medioximus* is richly coloured; *sphagnicola* about equals *smithi* in size, and while rather dull coloured is pale; *borealis* has a rich mahogany-hued pelage.

When Howell (op. cit.) monographed the lemming mice he had two Manitoba specimens that he included provisionally in *borealis*, though he noted that the skull of one of them was practically indistinguishable from the type of *innuitus* except for its slightly greater height, and suggested that additional material might show an undescribed race occupied this area. Our material shows this to be the case.

Besides the two Manitoba specimens Howell had records of specimens of the species *S. borealis* in Canada east of Alberta from but 5 localities, and it is advisable to list the additional records for this area that have accumulated at the National Museum in the 15 years since his monograph appeared.

*Saskatchewan*: — Besides the specimens listed below, Mr. Frank Banfield of Toronto (1941, *Can. Field-Nat.*, 55, p. 121) secured a specimen of *S. borealis* in the Prince Albert National Park; the first record for the province.

*Manitoba*: — Besides the specimens listed below, Morris M. Green (1930, *Can. Field-Nat.*, 44, p. 69) records taking two at Pine Falls in 1929, and a number at Cranberry Portage, Athapapuskow Lake, 50 miles north of the Pas.

Stuart Criddle of Treesbank, wrote the National Museum in 1930 that he took seven about 60 miles east south east of Winnipeg in 1929.

*Ontario*: — Recorded twice; Downing (1940, *Can. Field-Nat.*, 54, pp. 109, 110) reported one from Moosonee in 1939; Prince (1942, *Jour. Mammal.*, 23, p. 216 recorded another from Port Severn. Both were immature males and though from the descriptions given they appear rather pale, they are tentatively referred to this form.

The status of the species in western Quebec is unknown, as no specimens have been taken. Records for the species farther east are given under the appropriate subspecies headings.

*Specimens examined* [1].

*smithi*. - MANITOBA, Ilford, Hudson Bay Railway, Mile 286, 4; Thicket Portage, 2; Cormorant Lake, Hudson Bay Ry., Mile 42, 1; Clear Lake, Riding Mountain Park, 1; SASKATCHEWAN - west boundary Prince Albert National Park, 1[2]; Total 9 skulls, 7 skins.

*borealis*. - Wood Buffalo Park, 6; Peace River Landing, Alta., 1; Battle Lake, Alta., 4[3]; Total, 11 skins, 10 skulls.

*innuitus*. - QUEBEC, Fort Chimo, 1; Swampy Bay River, 1[4]; Ste. Marguerite River, 1[4]. Total, 3 specimens.

*medioximus* - LABRADOR, Nain, 4[4].

*sphagnicola*. - Table Top Mountain, 3888 ft. alt., Gaspé, 1; near Bathurst, N.B., 1. Total 2 specimens.

*Synaptomys borealis innuitus* (True)

Type locality. — Fort Chimo, Quebec.

This race has been known only from the type, from alcohol. Cross (1938, *Journ. Mammal.*, 19, p.378) recorded a specimen from Godbout taken before 1918 that he suggests is closer to this form than to *medioximus* in skull and size of body. From long immersion in formaldehyde the color is unreliable, but is recorded as orange cinnamon.

A topotypical specimen of this race came to the National Museum through the Institute of Parasitology of MacDonald College, P.Q. It had been in formaldehyde for a short time. The relaxed hind foot measures 19 mm. The skull is badly broken but has a rostral length of 6 mm., rostral width of 3 mm., nasal length of 6.5 and incisive foramen of 4.5. The short rostrum is rather tapered, and the incisive foramen is wide. The color is rather bright yellowish brown anteriorly and reddish brown posteriorly, tail dusky above, whitish below; but the fur has been a short time in preservative.

From the Carnegie Museum we have one specimen, a ♂, taken at Rattogobass Lake, Swampy Bay River, less than 100 miles south of Chimo, taken by O. J. Murie on August 7, 1901.[4] It has no skull, but from the large, dark hind feet and the brighter colored tuft of hair at the base of the ears it seems to belong to the species *borealis*, and from the locality can be assumed to be this form. Its measurements (from label) are 110; 20; 20 mm.. In color it is rather bright reddish brown above, clear grey below. It is slightly brighter than the Chimo specimen, and its general pelage is close to specimens of *cooperi* from Ste. Marguerite River. Another specimen

1. —Specimens in National Museum of Canada unless otherwise specified.

2. —J. Dewey Soper collection.
3. —3 of these, J. Dewey Soper collection.
4. —Carnegie Museum, Pittsburgh, collection.

a ♂ from 8th camp, Ste. Marguerite River, 9 June, 1917, O. J. Murie, measures 118; 25; 20 mm. Its skull is badly broken and the only measurement available is that of the nasals; 6.5 mm. In color it is less reddish brown, considerably paler and more greyish brown above and comes close in this to a specimen of *sphagnicola* from New Brunswick; the underparts are grey, tail dusky above, whitish below; however the short nasals make it advisable to refer it tentatively to *innuitus*.

*Synaptomys borealis medioximus* Bangs.
Type locality - L'Anse au Loup, Labrador.

From the Carnegie Museum we have four specimens taken at Nain, Labrador in August, 1901, by D. A. Atkinson.

*Measurements.* - T.l., ♂, 119 mm., 127, 135; ♀ 125; t. ♂, 23, 27, 25; ♀ 23; h.f. ♂ 20, 20, 20; ♀ 18; skull, basal length ♂ 22; ♀ 22.5; zygomatic breadth ♂ 13.8, 14.5; ♀ 15.1; length rostrum ♂ 5.6, 5.7; ♀ 6; width rostrum, ♂ 3, 3; ♀ 3.1; mastoid breadth ♂ 11.5, 12; ♀ 11.5; incisive foramina ♂, 4.2, 4.5; ♀, 5; length of nasals ♂ 6.5, 6.5; ♀ 6.8; height of skull, ♂, 8.5, 9; ♀ 9. The rostrum tapers but little.

On skull characters they differ from *sphagnicola* in the shorter rostrum and lower skull; with available material it is impossible to compare them with *innuitus*, but the rostrum is the same.

In color three are rather dark, rich brown, heavily mixed with black hairs above; tail dusky, paler below; underparts dark grey in two, washed with buffy; the fourth specimen, the largest, has much grey in the dorsal pelage, but incoming hair on the rump and back indicates it will attain a pelage similar to that of the others; underparts dark grey, without a buffy wash; tail dusky above, greyish below.

These are a much richer brown than *sphagnicola*, and much darker than our Swampy Bay River and our Chimo specimens of *innuitus*. Without more comparative material, it seems advisable to refer them to *medioximus* with the description of which they compare fairly well. This extends the known range north from Hamilton Inlet.

*Synaptomys borealis sphagnicola* (Preble)
Type locality. - near base of Mount Washington, New Hampshire.

Despite fairly extensive small mammal collecting in southeastern Quebec and the Maritime Provinces, that have included several expeditions from the National Museum, the only addition to the two locality records of Howell (Ste. Rose, Temiscouata Co., Quebec and Gloucester County, N. B.), is the one for Gaspé by Anderson (1938, *Ann. Rept. Provancher Society, Quebec*, p. 80).

*Synaptomys cooperi cooperi* Baird
Type locality, - unknown.

Howell (op. cit.) maps the range of this form as from the northeast United States, into Canada from western Nova Scotia, west Gaspé, and Godbout west to Ontario just west of Lake Superior. Smith (1940, *Amer. Midl. Nat.*, 24, pp. 213-241, says that in Nova Scotia it is restricted to a few western counties.

Some additional information is available. In the National Museum we have a specimen from Cheticamp Lake, Victoria Co., Cape Breton Island, taken by Dr. R. M. Anderson in 1924, as well as a small series from Barrington Passage indicating it occurs throughout Nova Scotia. The range evidently includes all New Brunswick, as we have specimens from near Bathurst, St. Andrews, and Mt. Leonard (this last in Madawaska County).

For Quebec, Anderson (1938, *Ann. Rept. Provancher Soc., Prov. Que.*, p. 79) summarized the distribution as to Godbout, Ste. Rose, Lake Edward and Gatineau Valley. The Carnegie Museum has four specimens from the St. Margaret (or Marguerite) River that somewhat extends its known distribution to the northeast.

In Ontario there has been some extension of known range north to Lake Temagami in 1925 (Dr. Anderson examined a specimen from that locality, taken by M. M. Green, in the collection of the Academy of Natural Sciences, Philadelphia); Ridout (specimens collected by Soper in 1918, now in National Museum of Canada); Franz, (Saunders, 1927, *Jour. Mammal.*, 8, pp.305-307); Lake Nipigon (Dymond, 1928, *Trans. Roy. Can. Inst.*, 16, p.244) and Minaki (Green, 1930, *Can. Field-Nat.*, 44, p. 69).

Saunders (1932, *Trans. Roy. Can. Inst.*, 18, p. 296) quotes Snyder as recording this form from Lake Abitibi, but Mr. Snyder writes me this is an error.

In Manitoba it has been recorded from the extreme southeast at Pine Falls on the Winnipeg River by Green (l. c.).

June and July specimens from the Ste. Marguerite River (Carnegie Mus.); 2 May specimens from near Quebec City; and one April specimen from Bryanstown, Ontario are somewhat brighter brown than August, September and October specimens from Ontario, New Brunswick and Nova Scotia, evidently a seasonal difference.