

NWT SMALL MAMMAL IDENTIFICATION



Department of Environment and Natural Resources
Government of the Northwest Territories

August 2001 (updated 2005)

FOREWORD

The following key presents the characters required for the identification of small mammals in the Northwest Territories. Certain species of larger size (rats, squirrels, chipmunks) have been omitted from this key due to the facility with which they can be identified. The key permits the simple and rapid identification of groups of species based solely on external characters.

Users of this key will soon realize that, for certain species, a number of measurements other than external and cranial characters must be examined to accurately identify a specimen. For example, in the case of shrews, three measurements essential to a correct identification must be taken: the total length, the length of the tail and the length of the skull. It is therefore important to gather all of the required external measurements before proceeding to use cranial characters. An additional measurement, the size of the maxillary, can be used to confirm certain identifications regarding shrews.

Matt Windle

NOT FOR DISTRIBUTION OR PUBLICATION.

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GENERAL KEY – External characters only

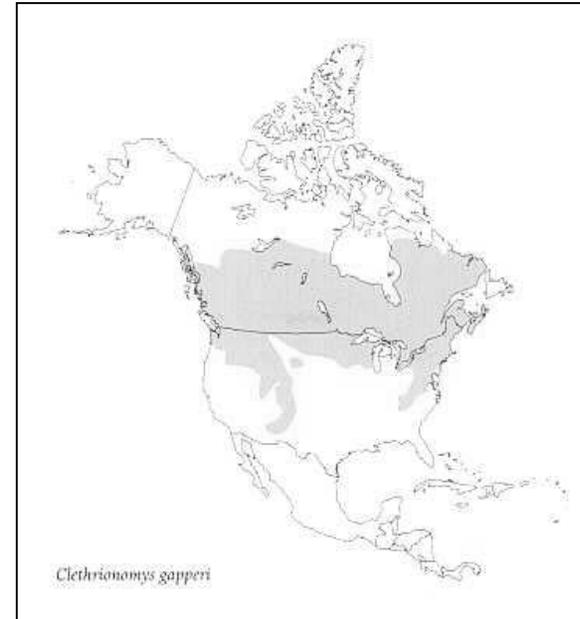
- 1a Five fingers on front paws, muzzle pointed and elongated, small eyes, small ears (Shrews, page 31)
- 1b Four fingers on front paws, large eyes
 - 2a Large ears, large eyes, elongated nose, tail approximately same length as body (Mice, page 27)
 - 2b Small ears hidden in fur, smaller eyes, rounded nose, tail much shorter than body (Lemmings and voles, page 5)

- Size**
- Total length: 116-172 mm
 - Length of tail: 30-50 mm
 - Weight: 6-42 g

Habitat Coniferous, deciduous, and mixed forests where it is cool and moderately damp; also in grassy meadows.

Identification Usually identifiable by **reddish back** and **grey sides**, although in grey phase the reddish may be absent.

Similarities Northern Red-backed Vole has darker red back and more brownish sides, and a thicker, shorter tail. Northern Bog and Collared Lemmings are larger in body size, shorter tails. Heather Voles have no colour contrast between back and sides.

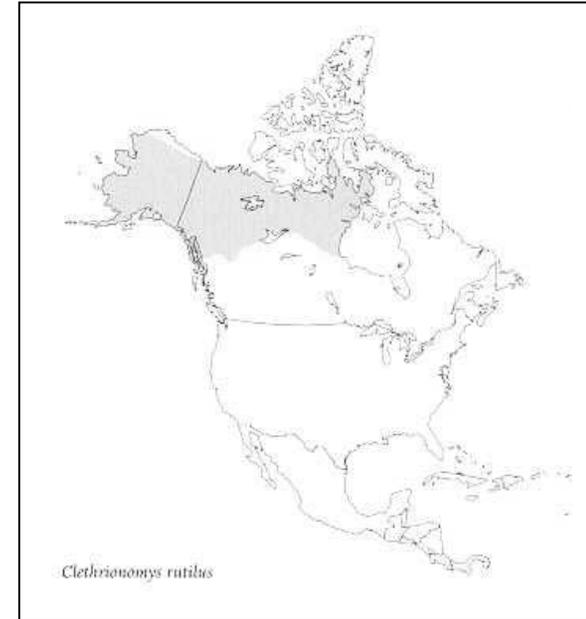


- Size**
- Total length: 127-161 mm
 - Length of tail: 30-48 mm
 - Weight: 23-40 g

Habitat Dry tundra and taiga forest.

Identification Usually identifiable by reddish back and brown sides

Similarities Southern Red-backed Vole has brighter red back and greyer sides.

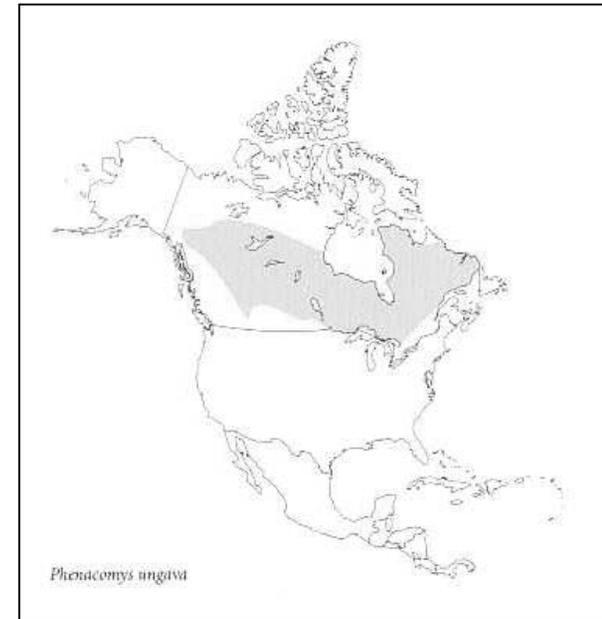


- Size**
- Total length: 122-155 mm
 - Length of tail: 26-41 mm
 - Weight: 25-40 g

Habitat Open grassy parks in forests, rocky slopes of high mountains and tundra.

Identification Fur usually grey to brownish with yellowish wash, underparts silver-white. Tail sharply bicoloured, less than half length of head and body. Ear tips, nose and rump usually more tawny or yellowish than those of other voles. Best distinguished from other voles by teeth - inside angles of molars much deeper than outside angles.

Similarities Southern Red-backed have reddish backs, tail either longer or unicoloured, nose not yellowish.

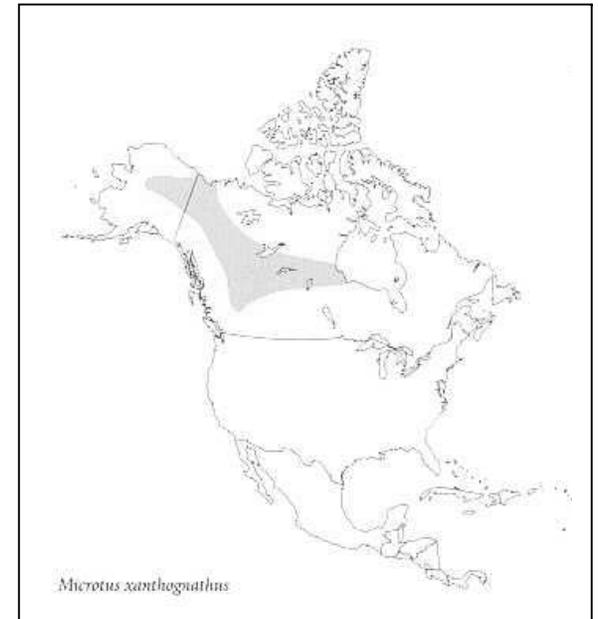


- Size**
- Total length: 152-226 mm
 - Length of tail: 38-53 mm

 - Weight: 85-158 g

Habitat Spruce and birch forests; tundras.

Identification A tundra vole easily identified by its **yellow/chestnut cheeks**, large size, and long tail. Dull brown upperparts, grey belly; rusty-yellow or chestnut nose and ear patch; **tail indistinctly bicoloured**.

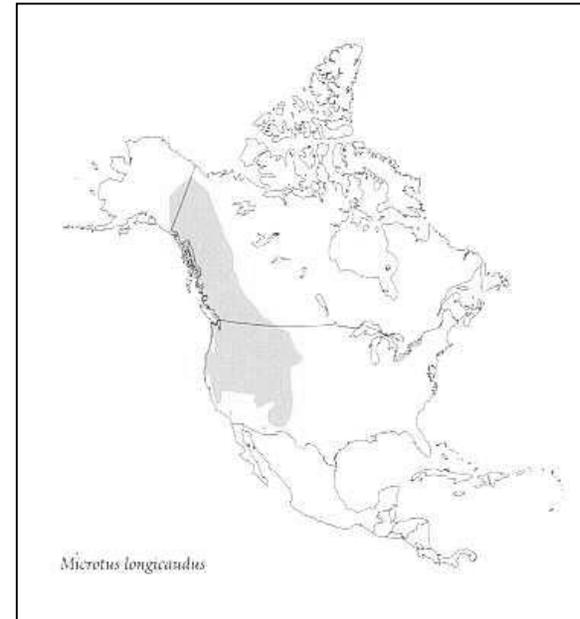


- Size**
- Total length: 155-202 mm
 - Length of tail: 49-81 mm
 - Weight: 36-59 g

Habitat Variable, moist and wet meadows and streambanks among willows and pines.

Identification Dark grey washed with brown or blackish wash, tail long and indistinctly bicoloured. Skull relatively smooth, not heavily ridged.

Similarities Tundra Vole has tail under 5 cm. Meadow Vole's tail is usually shorter. Heather Vole is reddish with black tail or shorter tail. Red-backed Voles have reddish back contrasting with greyish sides.

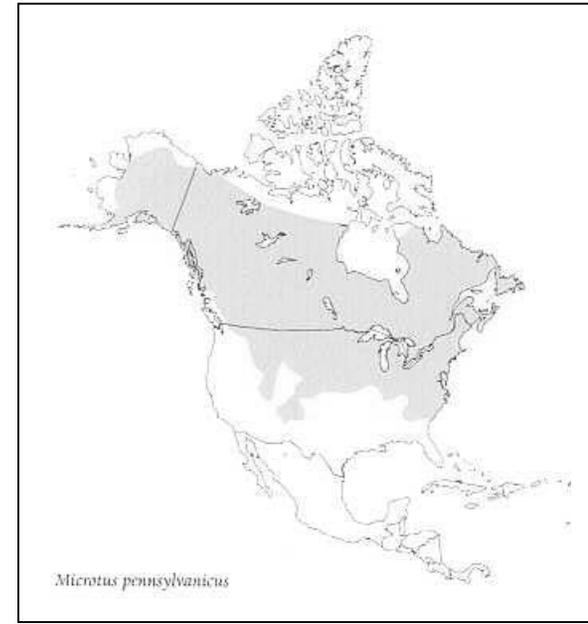


- Size**
- Total length: 140-195 (167) mm
 - Length of tail: 33-64 (42) mm
 - Weight: 33-65 g

Habitat Varied; grasslands, low moist areas.

Identification Colour varies from grey faintly washed with brown (in West) to dark brown in East; fur grizzled, underparts vary from silvery to buff to dark grey; tail bicoloured. Ears nearly hidden in fur.

Similarities Tundra Vole is larger; yellowish. Red-backed Voles have reddish back contrasting with greyish sides, tail blackish. Heather Vole's tail is usually shorter; pale grey.

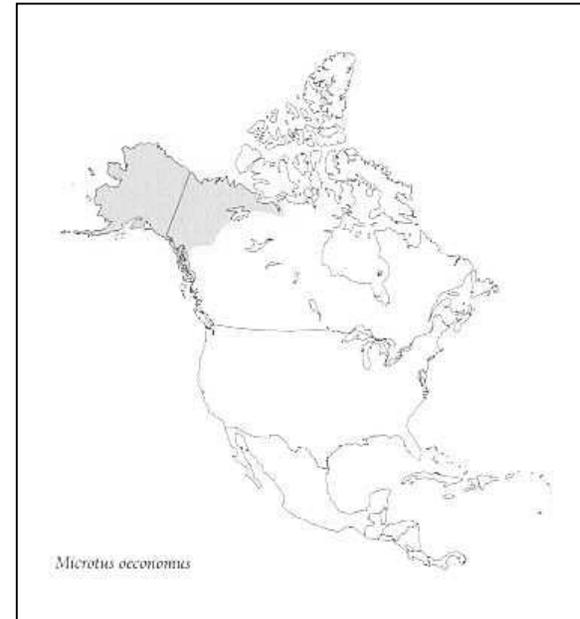


- Size**
- Total length: 152-225 mm
 - Length of tail: 30-54 mm
 - Weight: 25-80 g

Habitat Moist tundras.

Identification Upperparts vary from dusky grey to rich buff, tawny, cinnamon brown, or rusty brown, all with mixture of black-tipped hairs; underparts greyish-white; tail bicoloured. Medium-sized vole with a body 2.8-3.6 times as long as the tail; the tail is 1.8 to 2.4 times as long as the hind foot; and the anterior lower molar has only four closed triangles.

Similarities Red-backed voles have reddish backs. Lemmings have much shorter or brightly coloured tails. Meadow Voles are slightly smaller.

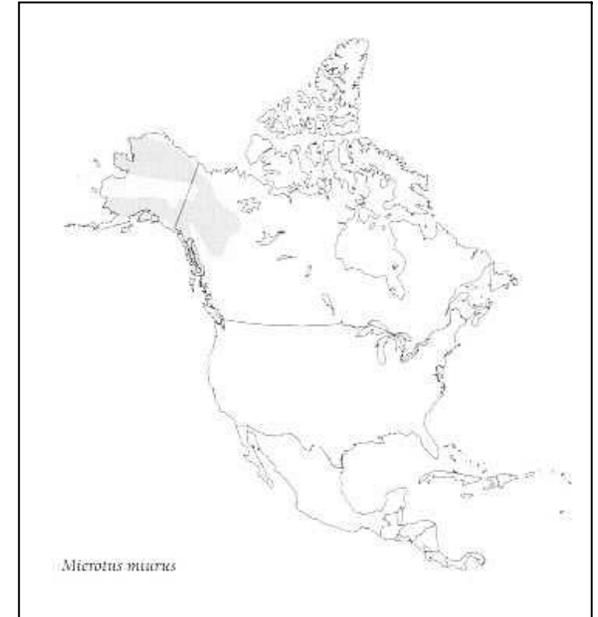


- Size**
- Total length: 125-168 (147) mm
 - Length of tail: 20-36 (25) mm
 - Weight: 22.5-60 g

Habitat Well-drained tundra, subalpine and alpine zones.

Identification Smallish, short-tailed vole, usually quite buffy in colour on the flanks and venter, and with rather enlarged claws. Often "sing" by making a metallic, churring sound.

Similarities Other *Microtus* species with overlapping distributions have moderate to long tails, white or grey venters, and smaller claws.

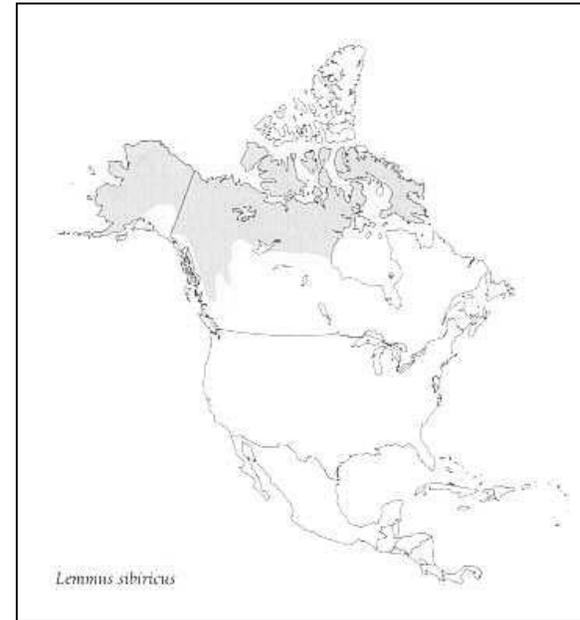


- Size**
- Total length: 130-180 (150) mm
 - Length of tail (including hair at tip): 18-26 (21) mm
 - Weight: 45-130 (80) g

Habitat Tundra and adjacent forests.

Identification Head greyish, reddish-brown back and rump; underparts creamy to medium brown. No dorsal stripe. Upper incisors not grooved; pelage thick, long.

Similarities Collared lemmings have dark dorsal median stripe. Northern Bog Lemming is greyish-brown, incisors grooved.



- Size**
- Total length: 110-140 mm
 - Length of tail: 17-27 mm
 - Weight: 27-35 g

Habitat Locally distributed in open or wooded, moist or dry areas.

Identification Upperparts pale to dark brown; underparts lighter. Upper incisors longitudinally grooved; long, thick claws on front toes in winter.

Similarities Heather vole has longer tail; is an alpine species. Meadow Voles, Tundra Voles, and Red-backed Voles have ungrooved upper incisors.

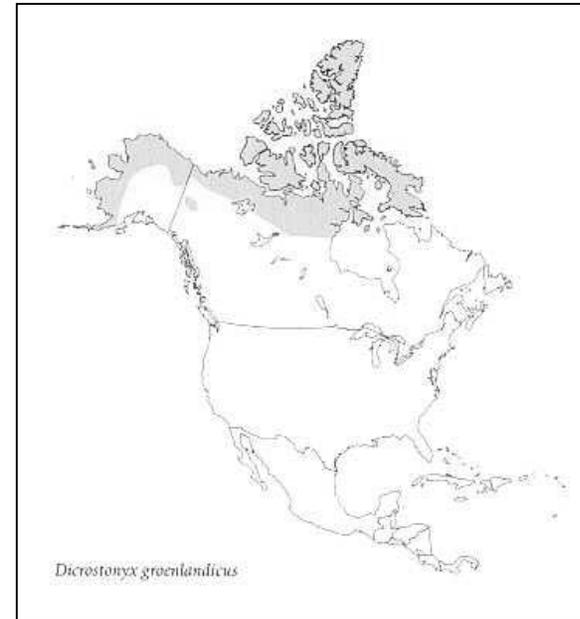


- Size**
- Total length: 110-177 (145) mm
 - Length of tail: 10-20 (14) mm
 - Weight: 30-50 g

Habitat Dry gravelly tundras or sandy areas.

Identification Winter: white; Summer: above brownish-black with some buff, dark stripe down back, tawnycollar across throat, creamy-buff below. Upper incisors not grooved; soles of the feet are densely furred; ears very short and entirely concealed in fur; short tail; third and fourth foreclaws enlarged.

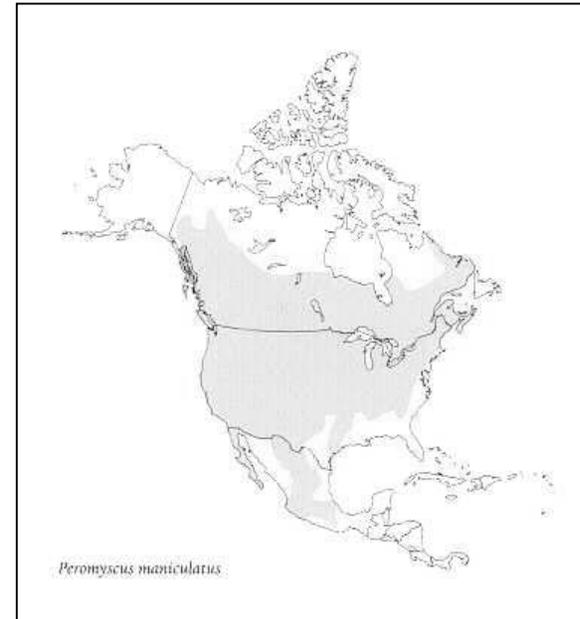
Similarities Brown Lemming lacks dark streak down back and is brown in winter.



- Size**
- Total length: 120-225 mm
 - Length of tail: 50-125 mm
 - Weight: 10-30 g

Habitat Widely varied; in grasslands, mixed vegetation and woods.

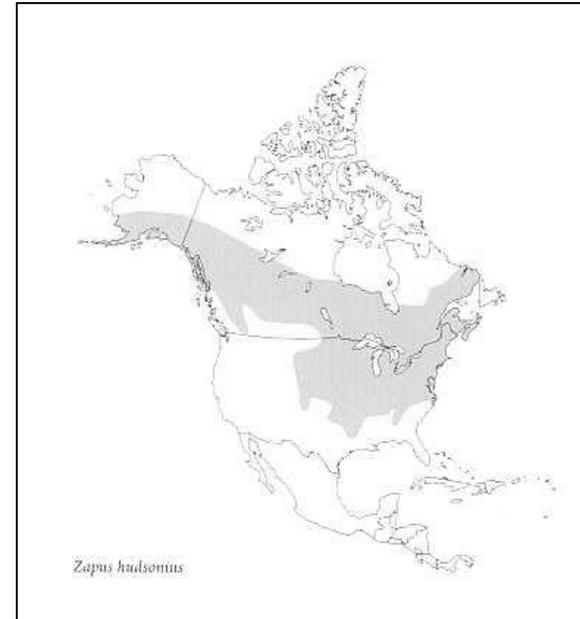
Identification Upperparts pale buff to deep reddish-brown overlaid with some dusky; underparts white. Feet white. Large, naked ears; when present, tufts in front of ears often whitish. Tail usually less than 90% of head and body, sharply bicoloured, dark above, white below; tail slightly pencil-like, clothed with short hairs.



- Size**
- Total length: 180-234 (202) mm
 - Length of tail: 101-137 (118) mm
 - Weight: 12-30 g

Habitat Various habitats, including grassland, low meadows, edges of forests and fencerows, along grassy streams.

Identification Small body with very large hind feet and a very long tail. Coarse, wiry pelage, back is olive-brown because of mixture of black and buff hairs; belly and back are distinctly separated by clear, pale yellow stripes; sharply bicoloured tail, brown above and white below.

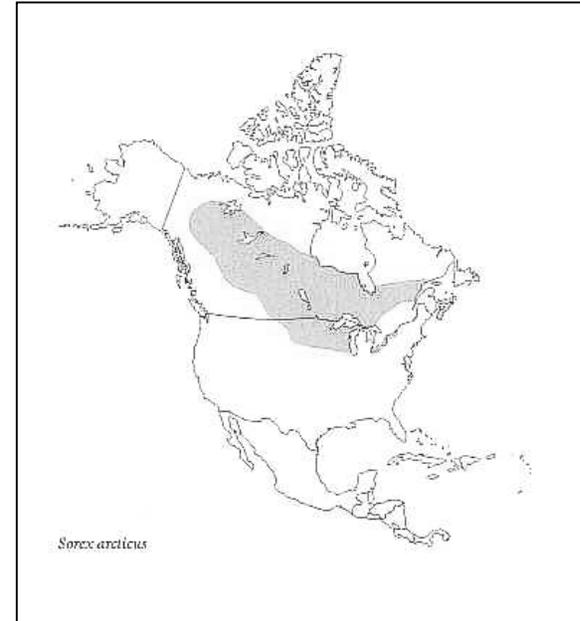


- Size**
- Total length: 100-124 (114.7) mm
 - Length of tail: 36-45 (41) mm
 - Weight: 5-13.5 (8.1) g

Habitat Marshes and grassy clearings in boreal coniferous forests, tundra in northern range, swamps and bogs in southern range.

Identification Tricoloured pelage: dorsum is very dark brown to black, the sides are paler brown, and the underparts are grayish-brown. Tail is indistinctly bicoloured, brown to brownish-black above and paler below.

Similarities Distinguished from other shrews by a tricoloured pelage.

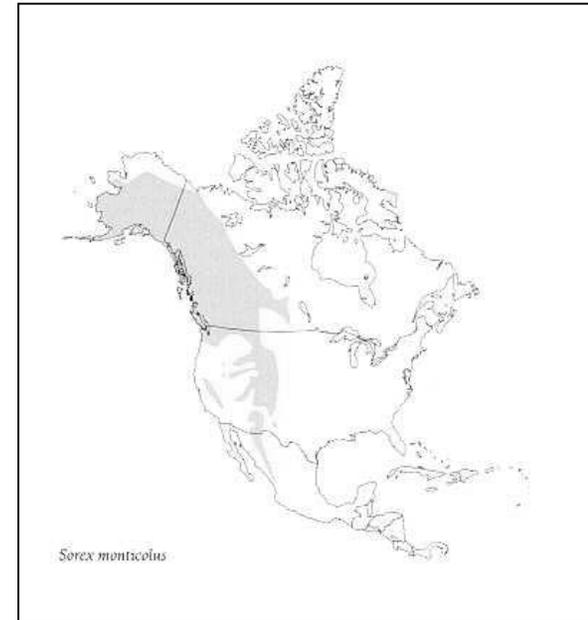


- Size**
- Total length: 95-139 (119) mm
 - Length of tail: 30-62 (51) mm
 - Weight: 4.4-10.2 g

Habitat Variety of mesic habitats, often associated with water, willow and alder thickets along streams.

Identification In summer, brownish dorsally with underside washed with silver. In winter, darker, longer coat.

Similarities Very difficult to differentiate from other shrews occurring in same areas. Pygmy Shrews are smaller. Arctic Shrews are tricoloured. Masked Shrews are smaller, greyish.

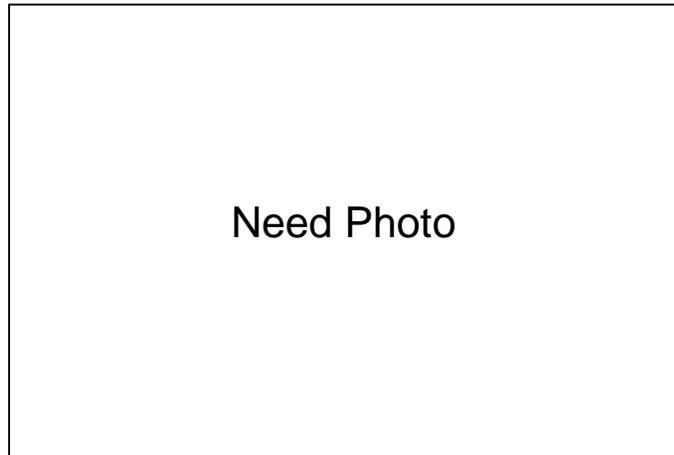
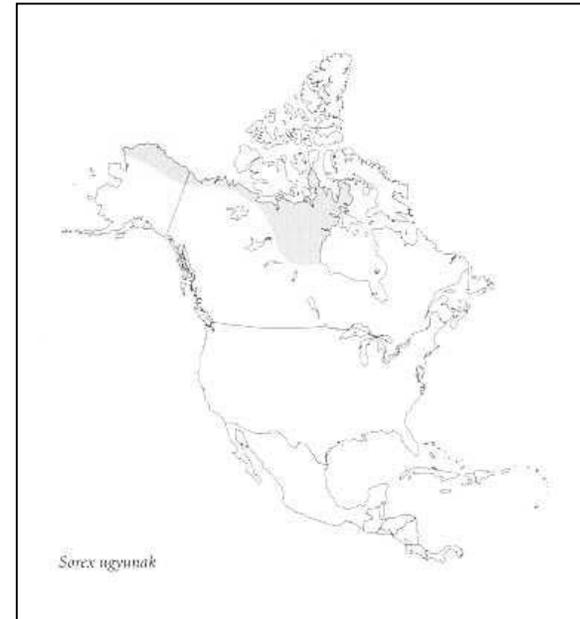


- Size**
- Total length: 74-103 (82) mm
 - Length of tail: 22-31 (26) mm
 - Weight: 2.9-5.2 (3.6) g

Habitat Low sedge-grass meadows and thickets of dwarf willow and birch.

Identification Brown back with well-defined dorsal stripe, pale sides and underside; tail is pale brown above, whitish below, with the terminal tuft pale buff to light brown.

Similarities Distinguished from Masked Shrew (the only shrew of similar size in its range) by the pale colour of the underside extending far up on the sides and by the distinct demarcation between the dark fur on the back and the pale fur on the sides. The Tundra Shrew, which has a similar colour pattern, is much larger.

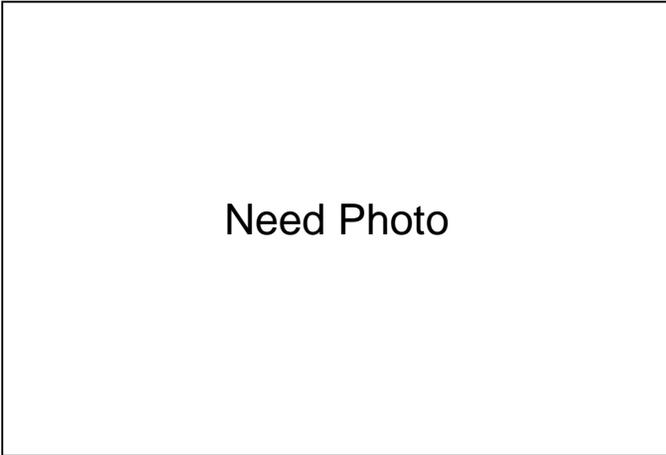
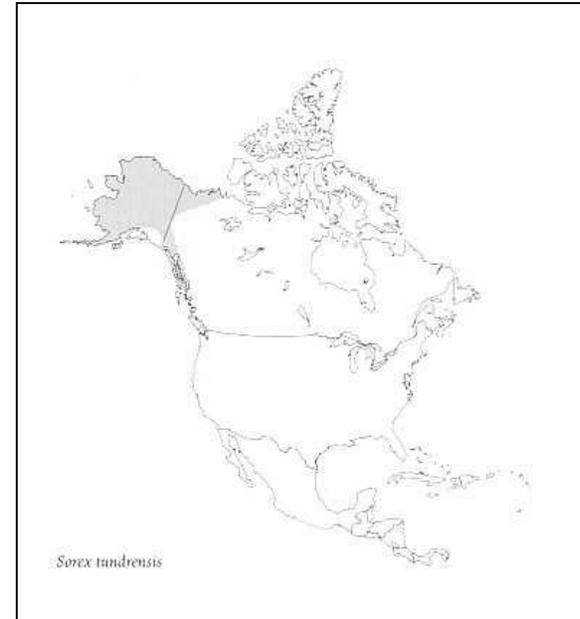


- Size**
- Total length: 83-120 (94.9) mm
 - Length of tail: 22-36 (28.6) mm
 - Weight: 5-10 g

Habitat Dense vegetation composed of grasses, shrubs, and dwarf trees such as alder, dwarf birch, and dwarf willow that grow on hillsides and other well-drained sites.

Identification Tricoloured pelage: dark brown on the back, pale-brown or brownish-grey on the sides, and pale-greyish on the underparts. In winter pelage is longer and bicoloured, with sides and underparts greyish and the back brown.

Similarities Except for Barren Ground Shrew, distinguished from other shrews in range by distinctive colouring (brown back contrasting with pale brown or greyish sides). Arctic Shrew, found in boreal forest to the east and south, is similarly patterned, but has a darker, blackish back and a longer tail. Barren Ground Shrew is smaller.

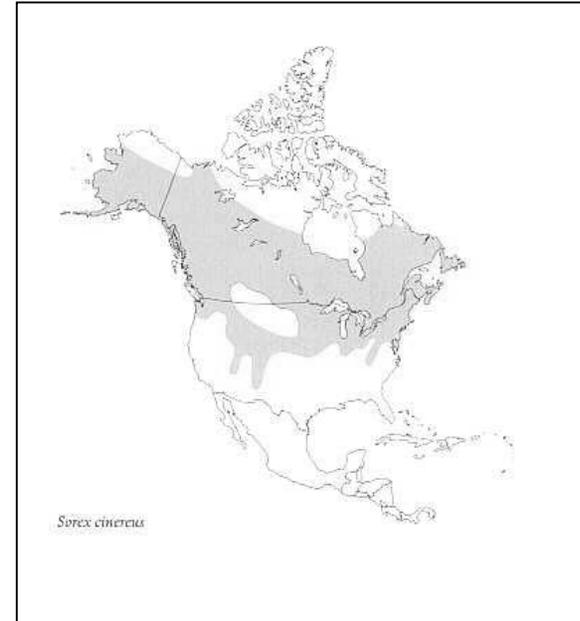


- Size**
- Total length: 75-125 (96.6) mm
 - Length of tail: 28-50 (39.9) mm
 - Weight: 2.2-5.4 g

Habitat Variety of habitats ranging from wet to dry, including forests, shrub thickets, and grassy and herbaceous areas.

Identification Brown back with greyish-white underparts; lacks distinctive markings. Tail is brown above and paler below, with a blackish tip. Winter pelage is darker overall.

Similarities Barren Ground Shrew has shorter tail and pale coloration on the sides of the body. Pygmy Shrew is slightly smaller, with single-cusped teeth in upper jaw, having 3 instead of 5 unicuspid on each side. Montane Shrew larger. Arctic Shrew smaller.



- Size**
- Total length: 62-106 mm
 - Length of tail: 21-39 mm
 - Weight: 2.1-7.3 g

Habitat Forests, marshes, swamps, disturbed habitats, wet-dry soils, boreal habitats, and grassy and herbaceous understory.

Identification Tiny, with small, bright black eyes and obscure ear pinnae. Long snout has conspicuous vibrissae. Colour varies from coppery brown to greyish above; underparts are paler, greyish brown or drab shade, often tinged with copper or tan; Tail long, dark brown above, much paler below.

Similarities Masked Shrew has narrower snout, less grey pelage, longer tail. Montane Shrew is larger. Arctic Shrew is larger, more brightly coloured.

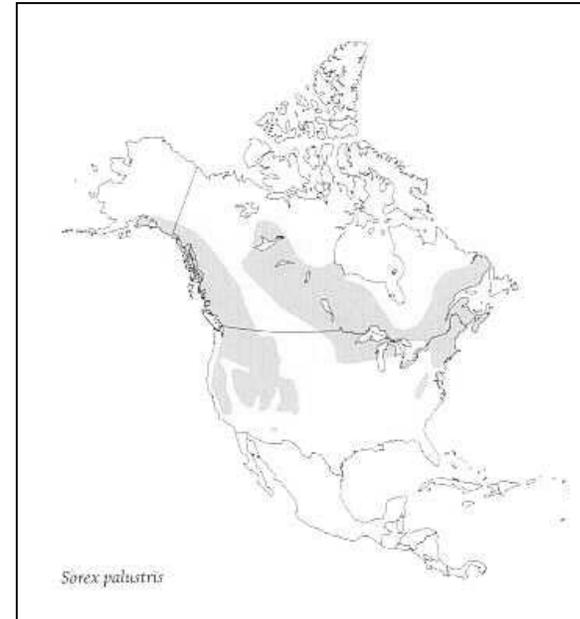


- Size**
- Total length: 130-170 (151.4) mm
 - Length of tail: 75-89 (72.5) mm
 - Weight: 8-18 (13.8) g

Habitat Borders of or in ponds and streams in meadows, marshes, and wooded areas.

Identificaiton Dorsal pelage black or black-frosted with grey, never distinctly brownish; tail markedly bicoloured. Hind foot is longer than 18 mm, there are distinct fringes of stiff hairs on the toes and on the sides of the feet. Snout is not greatly down-turned.

Similarities **Large body size and stiff hairs along sides of hind feet** distinguish Water Shrews from all other shrews.



DETAILED KEY – Dentition

Clethrionomys gapperi (Southern Red-backed Vole)



Clethrionomys rutilus (Northern Red-backed Vole)



Phenacomys intermedius (Heather Vole)



Microtus xanthognathus (Chestnut-cheeked vole)



Microtus longicaudus (Long-tailed Vole)



(Long-tailed Vole)



Microtus pennsylvanicus

(Meadow Vole)



Microtus oeconomus (Tundra Vole)



Microtus miurus (Singing Vole)



Lemmus sibiricus (Brown Lemming)

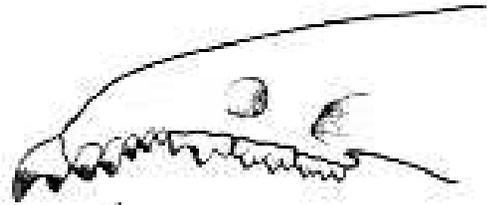


Synaptomys borealis (Northern Bog Lemming)



Dicrostonyx torquatus (Collared Lemming)





Sorex arcticus

Arctic Shrew



Sorex cinereus

Masked Shrew



Sorex hoyi

Pygmy Shrew



Sorex palustris

Water Shrew

BIBLIOGRAPHY

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Forsyth, A. 1985. Mammals of the Canadian Wild. Firefly Books, Scarborough, Ontario: pg 180-325.

Forsyth, A. 1999. Mammals of North America: temperate and arctic regions. Firefly Books Inc., Buffalo, New York: pg 18-159

Wilson, D.E., and Ruff, S. 1999. The Smithsonian Book of North American Mammals. UBC Press, Vancouver/Toronto: pg 15-664.

PHOTOGRAPHY SOURCES

Southern Red-Backed Vole

Wilson, D.E., and Ruff, S. 1999. The Smithsonian Book of North American Mammals. UBC Press, Vancouver/Toronto: pg 614.

Northern Red-Backed Vole

Wilson, D.E., and Ruff, S. 1999. The Smithsonian Book of North American Mammals. UBC Press, Vancouver/Toronto: pg 616.

Heather Vole

Forsyth, A. 1985. Mammals of the Canadian Wild. Firefly Books, Scarborough, Ontario: pg 243.

Chestnut-Cheeked Vole

Emailed findlm@uaf.edu to ask permission (8 July 2005)

UAM Mammal Collection - Mammal Checklist Last modified 24 July 2000. Photo by Karin Lehmkühl.

http://www.uaf.edu/museum/mammal/AK_Mammals/Rodents/M_Xanthognathus/M_xanthognathus.html

Long-Tailed Vole

Robert W. Barbour Collection. Camden-Carroll Library. Morehead State University. Photo by R.W. Barbour. Used with permission.

Meadow Vole

Emailed Simpson's Nature Photography to ask permission (28 June 2005) –

Other photo from <http://www.ohiohistorycentral.org/ohc/nature/animals/mammals/mvole.shtml>

Tundra Vole

Wilson, D.E., and Ruff, S. 1999. The Smithsonian Book of North American Mammals. UBC Press, Vancouver/Toronto: pg 639.

Singing Vole

Wilson, D.E., and Ruff, S. 1999. The Smithsonian Book of North American Mammals. UBC Press, Vancouver/Toronto: pg 632.

Brown Lemming

Forsyth, A. 1999. Mammals of North America: temperate and arctic regions. Firefly Books Inc., Buffalo, New York: pg 155.

Northern Bog Lemming

Forsyth, A. 1999. Mammals of North America: temperate and arctic regions. Firefly Books Inc., Buffalo, New York: pg 156.

Collared Lemming

Forsyth, A. 1999. Mammals of North America: temperate and arctic regions. Firefly Books Inc., Buffalo, New York: pg 157.

Deer Mouse

Emailed PMA.Webeditor@gov.ab.ca to ask permission (8 July 2005)

The Provincial Museum of Alberta - Last Review/Update - March 8 2005

http://www.pma.edmonton.ab.ca/natural/mammals/faq/_mouse.htm

Meadow Jumping Mouse

Robert W. Barbour Collection. Camden-Carroll Library. Morehead State University. Photo by R.W. Barbour. Used with permission.

Arctic Shrew

Forsyth, A. 1999. Mammals of North America: temperate and arctic regions. Firefly Books Inc., Buffalo, New York: pg 21.

Dusky Shrew

Wilson, D.E., and Ruff, S. 1999. The Smithsonian Book of North American Mammals. UBC Press, Vancouver/Toronto: pg 32.

Barren Ground Shrew

Tundra Shrew

Masked Shrew

James F. Parnell, 6451 Quail Run, Wilmington, NC 28409. Photo by James F. Parnell. Used with permission.

Pygmy Shrew

Wilson, D.E., and Ruff, S. 1999. The Smithsonian Book of North American Mammals. UBC Press, Vancouver/Toronto: pg 26.

Water Shrew

One photo on H:/Carey, from: <http://www.aquatic.uoguelph.ca/mammals/freshwater/accounts/shrew.htm>