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Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number:

1072954 Registered office: Mortimer House, 37-41 Mortimer Street,
London W1T 3JH, UK



Annals and Magazine of Natural History: Series 1

Publication details, including instructions for
authors and subscription information:

<http://www.tandfonline.com/loi/tnah07>

XXXIX.—On the rats, mice, and shrews of the central region of Nepal

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Published online: 23 Dec 2009.

To cite this article: B.H. Hodgson Esq. (1845) XXXIX.—On the rats, mice, and shrews of the central region of Nepal , *Annals and Magazine of Natural History: Series 1*, 15:98, 266-270, DOI: [10.1080/037454809495315](https://doi.org/10.1080/037454809495315)

To link to this article: <http://dx.doi.org/10.1080/037454809495315>

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they may sometimes be situated on the leaves themselves. Guettard's clavate glands appear to belong here. The object of the corynidia with their phytozoa seems to be rendered only more mysterious by their frequent occurrence in Phanerogamia.

XXXIX.—*On the Rats, Mice, and Shrews of the Central Region of Nepal.* By B. H. HODGSON, Esq., late British Resident at Nepal.

THE Rats and Mice of the mountains of Nepal are as numerous and troublesome both in house and field as they are in Europe. Their forms are, in general, typical of the genus as now restricted, and the most common species are closely related to those most frequently met with in Europe; nor are there in the mountains any of the Jumping Rats (*Gerbillus*) or other types more especially characteristic of the plains of India, though we have the singular Bamboo Rats of China, Indo-China and the islands, being one instance of many in which our fauna inclines rather to China than India. With these few words of introduction I proceed to a summary description of the several species, which are eighteen in number, viz. eleven rats and seven mice, to which we will add the shrews, four in number.

RATS.

1. *Mus nemorivagus*, mihi.—A very large species, closely affined to the bandicoot, if not identical with it. It is much rarer in the mountains than in the plains, and is a house-, not wood-rat, as I had supposed. General structure typical, but distinguished by a præputial gland furnished with two pores, one placed on either side, the penis close to its point, and whence is emitted a quantity of thick yellow pus-like secretion of very offensive odour. I have not noticed this organ in the other rats. General colour very dark, brown-black above, hoary blue below; the limbs dark; the fingers only pale. Long piles very abundant and lengthened, but not rigid. Tail shorter than the body and head, nude and annularly scaled as usual. Snout to rump 12 inches; tail $9\frac{1}{2}$; head $2\frac{3}{4}$; ears $1\frac{1}{4}$; palma with nail 1; planta $1\frac{7}{8}$; weight 17 to 20 oz.

2. *Mus brunneus*, mihi? Common House-Rat of Nepal.—As nearly allied to *decumanus* as the last to the bandicoot. Above rusty brown; below rusty, more or less albescent. Extremities pale; fleshy white nearly. Tail barely longer than the head and body. Long piles sufficiently numerous, but not rigid. Snout to vent $9\frac{1}{4}$ inches; tail $9\frac{1}{2}$; head $2\frac{1}{4}$; ear 1; palma $\frac{7}{8}$; planta $1\frac{5}{8}$; weight 12 to 15 oz.

3. *Mus brunneusculus*, mihi, Lesser Brown Rat of Nepal.—Closely resembling the last but considerably smaller, as proved by numberless specimens; above rusty brown, below rusty. Extremities pale. Snout to vent $8\frac{3}{4}$ inches; tail 9; head $2\frac{5}{8}$; ears 1; palma —?; planta —?; weight 9 to 10 oz.

4. *Mus rattoides*, mihi, Black Rat of Nepal.—As similar to the black rat of Europe as the foregoing is to our brown rat, and bearing in Nepal the same relation the one to the other as in Europe. Above dusky or blackish brown, below dusky hoary. Limbs dark; fingers pale; tail decidedly longer than the body and head; long piles sufficiently numerous. Snout to vent $7\frac{1}{2}$ inches; tail $8\frac{3}{4}$; head $1\frac{7}{8}$; ears $\frac{5}{8}$; palma $1\frac{5}{16}$; planta $1\frac{1}{2}$; weight 5 to 7 oz.

5. *Mus niviventer*, mihi, a House-Rat.—Proportions and characters of the last, but tail rather shorter and long piles of the pelage rarer. Size less. Above blackish brown, shaded with rufous; below entirely pure white, tail and all. Snout to vent $5\frac{1}{4}$ inches; tail 6; weight 4 to 5 oz. Of rare occurrence.

6. *Mus nitidus*, mihi.—Distinguished for its smooth coat or pelage, wherein the long hairy piles are almost wholly wanting. Is a house-rat like the foregoing, but much rarer, and frequents the mountains rather than the valleys. Structure nearest to *rattoides*, and colour very similar to that, or dusky brown above and dusky hoary below. Long piles $\frac{1}{16}$ ths of an inch long; basally hoary, apically black. Short piles cinereous below, with pale rufous tips. Snout to vent $6\frac{1}{2}$ inches; tail $7\frac{1}{4}$; head $1\frac{1}{16}$; ears $\frac{5}{4}$; palma (with nail as before) $\frac{1}{16}$; weight $3\frac{1}{2}$ oz.

7. *Mus? Pycctoris*, mihi.—Tenants the woods only. Characterized by its bluff face with short thick muzzle, and by its short tail, one-third short of the length of the animal. Pelage of two sorts, with the long piles sufficiently abundant. Colours of *rattoides* or dusky brown, with a very vague rufous tinge. Below fulvescent; long hairs all black; rest with hoary bases and black points. Inner vest mostly dusky. Snout to vent 7 inches; tail $4\frac{1}{2}$; head $1\frac{7}{8}$; ears $\frac{1}{16}$; palma $\frac{5}{8}$; planta $1\frac{1}{4}$.

8. *Mus? Myothrix* mihi.—Tenants the woods solely. Remarkable for its soft mouse-like pelage, and for its tail covered with hairs, so as to conceal the annulated skin nearly. Dwells in burrows under roots of trees, but not gregariously. Fur soft, short, and of one kind only. Colours clear; above dull fawn, below fulvescent. The piles above are dusky at their roots, black in their centres, and red at their tips. The tail is still shorter than in *Pycctoris*, being not two-thirds of the length of the animal. Snout to rump 6 inches; tail $3\frac{3}{4}$; head $1\frac{1}{2}$; ears $\frac{1}{16}$; palma $\frac{7}{16}$; planta $1\frac{1}{16}$.

9. *Mus? hydrophilus*, mihi, Small Water-Rat of Nepal.—Dwells in holes on the margins of ponds and rivers. Characterized

by its small ears, which are hardly above one-third the length of the head; also by its short tail, and by a pelage that is short and fine, though not so mouse-like as in the last. Above dusky brown, below and the limbs nearly white. Long piles inconspicuous. Head larger and muzzle thicker than in the common land-rats. Snout to vent $3\frac{1}{2}$ inches; tail $2\frac{3}{4}$; head $1\frac{1}{4}$; ears $\frac{9}{16}$; palma $\frac{1}{2}$; planta $\frac{7}{8}$.

10. *Mus? macropus*, mihi.—A water-rat like the last, but twice as large. Distinguished by the largeness of its feet, and also by the fine pelage and the proportions of the last, as well as by a similar bluff face, though less so than in *Pyctoris*. Above smoky black, below smoky gray. Legs dark; toes pale. Snout to rump $7\frac{1}{4}$ inches; tail 6; head $2\frac{1}{16}$; ears $1\frac{1}{16}$; palma plus 1; planta $1\frac{1}{8}$; weight 6 oz.

11. *Mus Horeites*, mihi.—Dwells in houses and out-houses. Is a small land species with fine pelage, and no peculiarity of physiognomy or proportion. Tail longer than the animal. Colour above sordid brown, below sordid white. Snout to rump 4 inches; tail $4\frac{1}{4}$; head $1\frac{1}{4}$; ears $\frac{7}{16}$; palma $\frac{1}{2}$; planta $1\frac{1}{8}$.

MICE.

12. *Mus cervicolor*, mihi, Common Field Mouse.—Structure typical. Distinguished by its short tail. Above dull fawn, below sordid white. Lining of ears and extremities pale. Snout to rump $3\frac{1}{2}$ inches; tail $2\frac{7}{8}$; head 1; ears $\frac{9}{16}$; weight $\frac{5}{4}$ oz. Females less and having ten teats.

13. *Mus strophiatius*, mihi.—Another field-mouse closely allied to the last, but seemingly distinct. Bright fawn above, pure white below; a cross or gorget on the breast. Snout to vent $3\frac{1}{8}$ inches; tail $2\frac{7}{16}$; head less 1; ears $\frac{9}{16}$; weight $\frac{1}{2}$ oz.

14. *Mus (Vandeleuria) dumeticola*, mihi, Wood Mouse.—Tenants woods and coppices. Remarkable for the extreme length of its tail. Above fawn-colour, below white. Snout to rump $2\frac{7}{8}$ inches; tail 4; head $\frac{7}{8}$; ear $\frac{5}{8}$; weight $\frac{1}{2}$ oz.

15. *Mus dubius*, mihi.—A house-mouse, but also found in out-houses and gardens rarely. Allied to the last by its long tail. Above dusky brown, touched with fawn; below sordid fawn. Snout to rump $2\frac{1}{4}$ inches; tail $2\frac{5}{4}$; head $\frac{7}{8}$; ears $\frac{1}{2}$.

16. *Mus homoourus*, mihi, Common House Mouse.—Distinguished by a tail equal to the animal, being usually quite equal, but sometimes rather less. Coloured like *decumanus* but purer, or rufescent brown above and rufescent white below. Hands and feet fleshy white. Snout to rump $3\frac{1}{2}$ inches; tail $3\frac{1}{2}$; head $1\frac{1}{16}$; ears $\frac{9}{16}$; palma —?; planta —?; weight $\frac{5}{4}$ oz. It has eight teats only in the females? The other mice have ten and the rats twelve.

17. *Mus urbanus*, mihi, City Mouse.—Species usually found in the city of Katmandoo. Allied to *dubius* in its proportions and colours, and possibly *dubius* may be the immature. Above embrowned ruddy luteous; below luteous, more or less rufescent. Feet paler. Snout to rump $2\frac{3}{4}$ inches; tail $3\frac{3}{4}$; head $1\frac{1}{8}$; ears $\frac{6}{10}$; palma $\frac{3}{8}$; planta $\frac{3}{8}$; weight $\frac{1}{2}$ oz.

18. *Mus povensis*, mihi, the Powah Mouse.—Procured near the Powah or Caravansery of Jaher Sing; may be a house or coppice species; allied to *dumeticola* in proportions and in colours. Distinguished by a tail much longer than the animal. Above bright fawn, below pure white. Extremities nude and pale. Snout to rump 2 inches; tail 3; head $1\frac{1}{8}$; ears $\frac{3}{8}$; palma—?; planta—?; weight $\frac{1}{4}$ oz.

SHREWS.

Shrews are rarer in the hills than in the plains, though in the great valley of Nepal proper the species common to both (*murinus*) is perhaps as abundant within the mountains as without them. There are four species with us; whether the other three are found in the plains I do not know.

19. *Sorex murinus*, the Common House Shrew of the plains and also of the hills, up at least to 6000 feet.—It seldom or never quits houses, is nocturnal, omnivorous, dwells and breeds in holes and crannies and gutters: breeds frequently, and produces four or five young at a birth, which are nude and blind. Its six teats are inguinal and pubic. It has large anal as well as costal glands and pores, whence issues the strong smell of musk for which the animal is notorious. Its muzzle, ears and extremities are nude. Its tail is covered only with scattered and divergent hairs. The tail is but half the length of the animal, and is rounded and tapers from a thick base.

Colour uniform slaty blue, with the nude parts fleshy white. Snout to rump 6 inches; tail $3\frac{1}{8}$; weight 2 oz.; head $1\frac{3}{4}$; palma with nails $\frac{6}{10}$; planta 1.

20. *Sorex pygmaeus*, mihi, Tiny Shrew.—Rarely found in houses. Dwells in coppices and fields. Structure typical, save that no odorous glands were detected, nor had the animal any musky smell.

Colour sooty brown, paler below. Naked parts of a dusky fleshy hue. Snout to vent less 2 inches; tail $1\frac{3}{8}$; head $1\frac{1}{8}$; palma $\frac{1}{4}$; planta $\frac{3}{8}$.

21. *Sorex? nemorivagus*, mihi.—Found only in woods and coppices. Differs from both the above by a stouter make, by ears smaller and less entirely nude, and by a longer and tetragonal tail. Colour sooty black with a vague reddish smear; the nude parts fleshy gray. Snout to rump $3\frac{5}{8}$ inches; tail 2; head $1\frac{1}{4}$; palma $\frac{1}{2}$; planta $1\frac{1}{8}$; weight less 1 oz.

22. *Sorex? soccatus*, mihi.—Size and proportions of the last nearly, but distinguished by its feet being clad in fur down to the nails, and by its depressed head and tumid bulging cheeks (mystaceal region). Ears large and exposed as in the first two species (*murinus* and *pygmaeus*), and like them having a rounded tapering tail, but somewhat longer in proportion than theirs. Colour a uniform sordid or brownish slaty blue, extending to the clad extremities. Size nearly of the last. Snout to rump $3\frac{1}{2}$ inches; tail $2\frac{2}{3}$; head $1\frac{7}{16}$; palma $\frac{1}{2}$; planta $\frac{1}{8}$; weight $\frac{5}{8}$ oz.

This animal was caught in a wood plentifully watered, but not near the water. I never saw nor heard of it as a tenant of houses, any more than the last-named. It had no musky smell when brought to me dead. I did not examine its glands.

P.S.—The above paper completes the notices of Nepalese Mammals published in India, and, like the papers written there, has been composed without the aid of library or museum.

XL.—*Contributions to the Fauna of Ireland.* By FREDERICK M'COY, Esq., M.G.S.D.

[With a Plate.]

NOTICES of some of the following animals were read to the Natural-History Society of Dublin at the June meeting for 1844. The Invertebrata are a portion of a large series collected by Mr. McCalla on the west coast of Ireland, and placed in my hands for examination and description by my valued friend Dr. Scouler, whose kindness I have before had to acknowledge for the liberal manner in which he has always allowed me to examine and describe any specimens of interest either in the museum of the Royal Dublin Society or in his own private collection.

MAMMALIA.

Vespertilio Nattereri (Kuhl).—The singularly small number of bats found in Ireland only amounting at present to three, of which one (*V. Daubentonii*) has occurred but in a single instance, renders any addition to their number of peculiar interest to the Irish naturalist, or to those who take an interest in comparing the fauna of Ireland with that of England. The present species, the reddish gray bat of British authors, has not I believe been hitherto recorded in Ireland; a specimen however was brought to me last summer by G. Mangan, Esq., and is now in the museum of the Natural-History Society of Dublin; he killed it near that city, and was of opinion that it was the common species in his neighbourhood: whether the pipistrelle (the most common Irish bat) might have been confounded with it on the wing, or whether it