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WISSENSCHAFTLICHE KURZMITTEILUNGEN

Two colour mutants of the bank vole *Clethrionomys glareolus* (Schreber, 1780) in Central Finland

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Two colour mutants of the bank vole *Clethrionomys glareolus* (Schreber, 1780), greyish and black, are presented in this report. As far as is known they are the first colour mutations in this species to be described from Finland.

A greyish adult bank vole was caught at Kempele (64°55′N, 25°30′E), Central Finland, in a snap trap on 20th May, 1969. The biotope is *Hylocomium-Myrtillus*-type spruce forest (*Picea abies*). A total of 754 bank voles were caught at Kempele in 1966–1977. The measurements of this greyish specimen are: weight 21. 7 g, body length 98 mm, tail 47.5 mm and hind foot 16.2 mm. Since this female was pregnant (5 embryos), it is presumed to have overwintered.

The colour of the fur is less orange and more greyish dorsally than in the wild type, but similar ventrally (with black base and white tip to the hairs). The greyish tinge on the back is caused by the absence of orange guard hairs (all of them being black) and the smaller amount of yellow pigment (phaeomelanin) in the intermediate and under hairs.

It was not possible to count the density of the fur as the specimen was prepared for taxidermy at the Zoological Museum, University of Oulu. The length of the guard hairs in

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the middle of the back was 11. 2. ± 0.39 mm and that of the downy hairs 7.9 ± 0.35 mm. These lengths are typical of the summer fur (Viro 1979).

A totally black bank vole was found in the food store of a pygmy owl *Glaucidium passerinum* in a nesting box at Alavus (62°30'N, 23°30'E), Central Finland, in a *Myrtillus*-type spruce forest. It had been captured by the owl between 11th October and 8th November, 1979. It was a male with the measurements: weight 16 g, body length 95 mm, tail 43.4 mm, hind foot 16.5 mm and testis 2.8 x 1.6 mm. The age, determined on the basis of the roots of the first molar in the mandible (M_1) was ≦ 3 months (Viro 1974).

The fur was totally black in colour, with a slight metallic tinge. Its density in the middle of the back was 138 hairs/mm^2, the length of the guard hairs 10.6 ± 0.24 mm and that of the downy hairs 8.0 + 0.15 mm. This individual still had its summer fur (see Viro 1979). The skin is preserved in the collections of the Zoological Museum, University of Oulu.

In addition to the normal modifications of fur colour, the following mutants have been described:

- black and tan (schwarzloh) in GDR (Zimmermann 1937, 1956; v. Knorre 1961; Stubbe and Döhle 1978)
- white in Sweden (Hanström 1945) and FRG (Schwammberger 1973)
- black in Czechoslovakia (Hanák 1957; Ambros et al. 1980), Poland (Bobek and Bartek 1967; Drożdż 1971) and FRG (Bäumler 1978)
- ivory in GDR (Reichstein and Kulicke 1958)
- pale agouti in Poland, as a result of crossings (Drożdż 1971)
- chinchilla in GDR (Piechocki 1972) and Norway (Fagerhaug and Bevanger 1975)
- whitish in Norway (Brekke and Selboe 1974)

The greyish mutant from Kempele seems to be identical with the pale agouti individuals, which have been shown in crossing tests to be homozygous for chinchilla alleles, $c^{ch}c^{ch}$ (Drożdż 1971). Fagerhaug and Bevanger (1975), however, suggest that the three chinchilla mutants from Norway have the genotype $c^{ch}c^{ch}$, even though the fur colour differs slightly from that of the Polish greyish bank voles (Drożdż 1971) and the specimen described here. Piechocki (1972) describes a grey type of the chinchilla mutation from Altenburg, GDR, and considers it probable that it is caused by the allele c^i (intense chinchilla). It differs from the Norwegian chinchilla mutants (Fagerhaug and Bevanger 1975) and the pale agouti individuals from Poland (Drożdż 1971) and in this study in showing a total absence of phaeomelanin.

Some black bank voles have been found earlier in Central Europe (see the list above). According to Drożdż (1971) totally melanistic individuals have the genotype a^ea^e, i. e. extreme nonagouti. On the other hand, mutation E^D in locus E causes a greatly increased production of black pigment in a number of mammals, the homozygous mutation (E^DE^D) being referred to as dominant black (Castle 1953).According to Little (1958), the E^D allele has been described in the genus *Evotomys* (*Clethrionomys*). It is nevertheless impossible to determine the genotype of the black specimen from Alavus.

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Some notes on population density of *Micromys minutus* in a secondary biotope

By U. Jüdes

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In Western and Central Europe long grass, reed and swamp associations are the primary habitats of the harvest mouse *Micromys minutus*. Corn and beet fields can be invaded as secondary habitats (Piechocki 1958; Böhme 1969). Corn ricks are preferred for overwintering (Southwick 1956; Rowe 1958), where the rodents sometimes occur in large numbers. In Eastern Asia Sleptsow (1947, after Piechocki 1958) found the highest numbers of nests per ha in rice, oat and wheat fields. Other than harvest mouse numbers in single corn ricks, the author could find no published data on population density in either primary or secondary biotopes.

Böhme (1964) – in a faunistic survey – mentions the high harvest mouse numbers in drying frames for beet tops, but does not give quantitative data. Koskela and Viro (1976) report the difficulties of trapping the species in a region of Finland (0,2 % of nearly 6000 small mammals), where *Micromys minutus* represented $^1/_3$ of rodents caught by another method. The author's results (unpublished) confirm this, as harvest mice could not be totally removed in an area by 14 days trapping. Only 9 % of individuals present were caught. So methods of density estimation by trapping give unreliable results for *M. minutus*.

In 1978 during a survey of small mammals on farmland, density of *M. minutus* was estimated by counting individuals during harvesting of beetseed. Beets had been grown in

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