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DETERMINATION OF THE SEX OF MOLES (*TALPA EUROPAEA* L.) BY
MEANS OF THEIR EXTERNAL FEATURES

ROZPOZNAWANIE PŁCI U KRETA (*TALPA EUROPAEA* L.)
PO CECHACH ZEWNĘTRZNYCH

In the opinion of many authors determination of the sex of moles (*Talpa europaea* L.) by means of their external features, except during the reproduction period, is either impossible (Parkes, 1956) or very difficult (Ogniev, 1928, Dieparma, 1951, Abielienciev, 1956), especially in the case of young individuals (Godet, 1951).

The above is probably connected with the fact that the authors generally received dead material, and sex was determined on the basis of autopsy.

In the attempts I made at rearing moles under artificial conditions (Skoczeń, 1957) I was obliged to determine the sex of the moles by their external features. I also determined the sex of the specimens caught during my field collections in this way.

The decisive feature in the determination of their sex by their external features, apart from the reproduction period, is the distance of the urethra in the male, and the clithoris in the female, from the anus. This relation may be treated as follows: the clithoris is very similar to the urethra of the male, but it is however shorter and more flattened, with dense even pubescence. In all the females, apart from the reproduction period, it is about 2—3 mm. distant from the protruding anus (the base of a preparation needle 2 mm. in size can usually be placed between the anal protuberance and the clithoris). This distance increases to about 5 mm. when the vagina opens during the reproduction period.

In all the females the clithoris is situated practically on the anal protuberance and its extreme external edge is on the same level as the anus. If the hairs growing round the edge of the clithoris have not been rubbed off, their ends reach above the level of the anus.

The urethra of the male is slightly longer and more arched. The base in adult moles is from 10—13 mm. from the anus (Fig. 1). A scalpel handle 10 mm. wide fits in easily between the base of the urethra and the base of the anal protuberance. The end of the urethra, when the latter is not erected, does not reach as far as the base of the anal protuberance and sometimes the distance in this position between the end of the urethra and the base of the anal protuberance is about 5 mm.

Males captured alive, caught by the tail and lifted up (the only way of handling a live mole) almost always incline the urethra vertically to the body, which makes it possible to determine the sex immediately, whereas females in this position keep the clithoris lying on the anal protuberance.

Determination of the sex of young moles is not difficult, either. In the

females the clithoris is in the immediate proximity of the anus, the distance between the clithoris and the base of the anal protuberance is 1—2 mm. In the males the distance between the urethra and anus is 5—7 mm.

An additional feature which enables sex to be determined at times other than the reproduction period is the cicatrice marking the closed sexual orifice in the females. This cicatrice, which takes the form of a blood-coloured horseshoe surrounding the clithoris (Fig. 1) is present in almost all adult females, with the exception of the reproduction period. It is also encountered in the case of young females, immediately after leaving the nest (of 17 ♀♀ iuv. captured between 21. V. and 9. VIII. 1957, 15 individuals had very distinct horseshoe marks, and 2 had an only faintly visible eicatrice).



Fig. 1. Distance relations between clithoris and base of anal protuberance in the female, and urethra and base of anal protuberance in the male (After orig. photo.)

In the very rare cases in which the cicatrice described above was not visible, usually its trace remained in the form of a horseshoe-shaped depression. When the clithoris was pulled forwards by means of a preparation needle, it was possible to observe the purplish darker outline of the „horseshoe” over the closed vagina. This outline is formed by the membrane which grows over the vaginal orifice. The membrane undergoes rapid maceration in the case of dead moles, and usually dead female moles in a state of decay have open vaginas.

In the case of stuffed moles (in museum collections) it is occasionally possible to determine the sex, but only, of course, in those cases where the external genital organs were not cut through during preparation.

The female differs slightly from the male in external form, being more delicately built, and slighter in the forequarters. The males are stronger and much more heavily built in the forequarters than the females. It does, however, sometimes happen that the females are equally large and similar in form to the males. Hauchecorne (1927) gives a detailed description in his work of the sexual differences in form, coat and colour, of the mole (*Talpa europaea* L.)

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SOME NOTES ON THE EDIBLE DORMOUSE (*GLIS GLIS* L.) IN POLAND
NIECO O POPIELICY (*GLIS GLIS* L.) W POLSCE

The edible dormouse is very little known in Poland. I was only able to find 19 specimens in the collections of all the zoological institutes in Poland.

Tyzenhaus (1844) is the first in Polish literature to record the occurrence of the edible dormouse in Lithuania and Kurland. This information is confirmed by Belke (1848). Plater (1852) wrote that the edible dormouse occurs in the Podole regions, and both Kuntze and Szynal (1933) caught it there (environs of Dubno). We hear of the edible dormouse occurring in mountainous regions in the Tatra Mountains (Kocyan 1867; Nowicki, 1867); near Rytro (Lubicz - Niezabitowski, 1903); in the Pieniny Mts. (Sitowski, 1923); Bieszczady Mts. (Grodziński, 1957); Świętokrzyskie Mountains (Sokołowski, 1947).

The occurrence of the edible dormouse was also confirmed in the Rzeszów district (Schaiter, 1868); in the Sandomierz Forest area (Jachno, 1868); near Kraków (Kowalski, 1951); in the Warsaw district (Walecki, 1881) and in the Białowieża Forest (Karpiński, 1954).

As will be seen from the above short review, the edible dormouse occurs throughout almost the entire area of Poland (with the exception of West Pomerania). The distribution of this species in Poland is given by Lubicz-Niezabitowski (1933) Skuratowicz, (1947) and Van den Brink (1956) who includes a map showing the occurrence of the edible dormouse in Europe.

Of the countries neighbouring Poland, the edible dormouse occurs in Germany (Mohr, 1950; Zimmermann, 1955), in Czechoslovakia (Rosicky and Kratochvil, 1955); in the Soviet Union Ogniev (1947) and Sierżanin (1955).

The majority of authors, however, emphasise the great rarity of this rodent. Causes contributing to this state of affairs may be:

a) occurrence in small numbers only of this species on account of its proximity to the northern limits of its range (in Poland the edible dormouse, like the forest dormouse and the garden dormouse, reaches the northern limit of occurrence of these species in Europe). The spread and settlement