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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 The author's results (unpublished) confirm this, as harvest mice could not be totally removed in an area by 14 days trapping.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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Table

Population density of *M. minutus* in beet fields with a different environment

Field no.	Area (ha)	Number of drying frames per ha	Number of *M. minutus*	*M. minutus* per ha	Description of surrounding area
I	3,08	71	19	6,2	Harvested and ploughed wheat fields; house gardens; dry grasland *(Poa pratensis)*
II	4,75	75	40	8,4	Dry grasland *(Bromus arvensis)*; strawberry fields
III	6,06	69	62	10,2	Beetfields; pasture grounds with groups of oak-trees and *Corylus-Rubus*-hedges
IV	1,34	111	34	25,4	Harvested oat field; wet grasland, moorland, swamp with *Carex*, ditch with *Phragmites* and *Carex*; mixed forest
Mean		77		10,2	
Total	15,2		155		

four areas (total area 15,2 ha) near the village of Schmilau (Krs. Hzgt. Lauenburg, N-Germany). The technique of harvesting the seeds allows an easy way of scoring the number of harvest mice present in a field. The beet tops are cut and put on drying frames for 3–4 weeks. Drying frames are placed in parallel lines at regular intervals (mean of 77 drying frames per ha). During threshing of beetseed harvest mice inhabiting the fields can easily be counted.

The numbers of harvest mice per ha in each of the four fields are shown in the table. The wetness of the microclimate increased from field I to IV. The surroundings changed from dry grassland to wet grassland and moor. The abundance of *M. minutus* varied from field to field (6,2 to 25,4 individuals/ha). Population density was lowest in field I, a biotope close to the village of Schmilau with dry soils and without any open water within a radius of more than 250 m. Abundance of harvest mice was highest in field IV which is close to a small pond, a ditch and moorland (Königsmoor).

According to Böhme (1978) *M. minutus* is a species with small ecological tolerance. Progressing to the SE of its European range it disappears from the less humid farmlands and is only found in moist primary biotopes. In contrast data for Great Britain show a high preference fro dry situations (Harris 1979).

The results of this study confirm Böhme's suggestion and provide the first data about the variance of density in a secondary biotope in relation to surrounding biotopes. It would be interesting to follow population changes for several years, as *M. minutus* is supposed to show great differences in abundance in different years. Migrations between primary and secondary habitats as found by Koskela and Viro (1976) ought to play a role in population dynamics and might easily be examined in the situation described above.

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On the distribution of *Globicephala melaena* (Traill, 1804) (Cetacea, Delphinidae) in the south-west Atlantic

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The genus *Globicephala* is considered as cosmopolitan (see, for exemple, Tomilin 1967). Nevertheless, exact data on the distribution of the two species of the genus (*Globicephala melaena* and *Globicephala macrorhynchus*) are very scarce. The main cause is that the systematics of the genus has only been established recently (van Bree 1971).

According to the literature, information from the south-west Atlantic coasts is rather scarce. Cabrera (1940, 1961) accepts that *Globicephala melas* (sic) occurs from Mar del Plata as far as a latitude of about 70 °S (for all the localities see fig. 1). Piñero and Castello (1975) comment that most of the Argentinian records are not based on determined specimens, because the preserved osteological material is very poor. After Goodall (1978) the situation would be different for Tierra de Fuego where she has been able to collect many long-finned pilot whale skeletons.

Thanks to the kind permission of the respective curators, I had the opportunity of studying the Cetacean collections of four museums of the zone, these of Rio de Janeiro, São Paulo, Buenos Aires and La Plata. Osteological material of *Globicephala melaena* is kept in two of these museums. In the Museo Argentino de Ciencias Naturales „Bernardino Rivadavia" there are two skulls, both of them from the coasts of Buenos Aires (localities, Buenos Aires and Miramar). In the „Museu de Zoologia" of São Paulo there is a skull. In the table measurements of the three skulls are shown.

The São Paulo specimen is the most interesting one. It was collected in Cananéia, São Paulo state, in 1920 by Lüderwaldt, according to the attached data. The animal had been identified as *Globicephala macrorhyncha* (sic). However, if one takes into account the characters that van Bree (1971) gives for determining the two species of the genus, this skull belongs to a long-finned pilot whale. First of all there were 10 alveoli on each side of the lower jaw. They were not visible in the upper jaw. Normally, the presence of more than nine teeth in each tooth row is a typical character of *Globicephala melaena*, always

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