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Short communication

A new karyotype of *Heliophobius argenteocinereus* (Bathyergidae, Rodentia) from Zambia with field notes on the species

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The silvery mole-rat (*Heliophobius argenteocinereus*) is a little known member of the family Bathyergidae, endemic to east to central Africa eastern of the Great Rift Valley, south of Equator, and north of the Zambezi river, i. e., in Kenya, Tanzania, Zambia, Malawi, and Mozambique (Burda 2001). The only available information on the biology of *Heliophobius* is based on a few studies concerning physiology (McNab 1966) and burrowing and activity patterns (Jarvis and Sale 1971; Jarvis 1973). George (1979) described the karyotype of this species from Kenya. Since it resembled the karyotype of *Heterocephalus glaber* (both having 2 n = 60), she concluded that the whole family Bathyergidae is chromosomally rather conservative.

Regarding the fact that recently a large chromosomal variation (ranging from 2 n = 40 to 2 n = 78) has been found in *Cryptomys*, another bathyergid mole-rat (Scharff 1998; Burda 2001), the question arises in as much the karyotype established for a Kenyan population is representative for the whole genus *Heliophobius* which is distributed across at least 15 latitude degrees. To address this question we have examined karyotypes of *H. argenteocinereus* trom Zambia, i. e., close to the southern distributional limit.

Three silvery mole-rats (one male, two females), collected in August 1996 in the Lubalashi Area in the Central Province of Zambia (14°40′ S; 29°55′ E) about 160 km east of Lusaka, were examined.

Karyotypes were prepared from bone marrow following the splash method according to Ford and Hamerton (1956). Chromosomes were differentially stained with the C-banding (Sumner 1972) and G-banding (Seabright 1971) methods. Characterisation of chromosomes followed the nomenclature of Hsu and Benirschke (1967).

The diploid chromosome number in all the examined individuals of *Heliophobius argenteocinereus* from Zambia was 2 n = 62. The karyotype consisted of 27 pairs of metacentric and submetacentric chromosomes (autosomes) of decreasing size and 3 pairs of small acrocentrics (Nfa = 114). The X-chromosome was the second largest metacentric, while the Y-chromosome was dot-like (most probably metacentric).

The karyotype of *Heliophobius argenteocinereus* from Zambia (2 n = 62; Nfa = 114) is very similar to that of silvery mole-rats from Kenya (2 n = 60; Nfa = 114; George 1979). The difference between both karyotypes (one pair of metacentrics vs. two pairs

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of acrocentrics) is most probably due to a simple Robertsonian fusion or fission. Unfortunately, the poor quality of G-banding in both George's (1979) and our studies does not allow any detailed comparison and homologization of individual chromosomes. Although Robertsonian fusions are supposed to be more frequent than fissions in mammals (suggesting thus that the Zambian population would be more ancestral) (cf. also Nevo et al. 1986), the opposite process ot fission cannot be excluded (cf. Nevo 1999).

In view of the remarkable chromosome diversification of *Cryptomys* in the Zambezian region (i. e., in Zimbabwe, Zambia, and Malawi), yet its uniformity in the Southern African subregion (Scharff 1998; Burda 2001), the relative constancy of the karyotype of *Heliophobius* is of particular interest. It can be assumed that, contrary to mole-rats in most of the Zambezian region, the populations of silvery mole-rats east of the Great Rift Valley have never been fragmented so that also isolation and speciation could not occur.

Regarding the paucity of data on silvery mole-rats, it is worth to mention observations which we made on the Zambian silvery mole-rats. Altogether eleven mole-rats (1 male and 6 female adults, 1 female and 3 male juveniles) were obtained in the Lubalashi Area, south of the Lunsemfa River in the Luano Valley, in miombo-woodland, mixed with few agricultural spots. The ground of the thin miombo forest was densely covered with tall grass which was partly burned by farmers. The adult male weighed 200 g, the average weight of the adult females was 146 ± 20 g (range 118–170 g; $n = 6$). Four females reared a single pup each. The male pups weighed 26 g, 34 g, and 48 g, whereas the weight of the single female pup was 37 g. At the time of capture (August 1996), the pups were haired and their eyes and ears were open. The high proportion of nursing females in the sample suggests a distinct breeding season, with (small) litters being delivered during the dry season (which lasts from April/May till October/November).

Burrow systems (identified by the presence of mounds) of silvery mole-rats were very unevenly distributed in the study area. The mounds measured about 30 cm (up to 50 cm) in diameter. Burrow systems consisted of a main straight tunnel with short side branches and reached about 50 m in length. Most parts of the main tunnels were only 10–20 cm deep but some parts went into depth of more than 150 cm. A few blind ending tunnels or "bolt holes" were found. Diameter of burrows was 8–9 cm on average. One breeding nest was hidden within the system of tree roots, 20–30 cm deep. *Heliophobius* has been observed in two occasions feeding on (undetermined) grass rhizomes. The grass also served as nesting material.

No macroscopic ectoparasites nor intestinal helminths have been found in any of the animals.

Although silvery mole-rats have been reported to be highly aggressive (Jarvis and Sale 1971; Jarvis 1973), our silvery mole-rats could be kept in pairs and have not engaged in serious fighting. Also, presence of juveniles was tolerated. One male offspring lived with its mother in a common cage for more than one year (three other juveniles died within three months of the capture). Furthermore, most of the adult silvery mole-rats were tame immediately after capture and did not try to bite.

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