DIURNAL ACTIVITY OF THE FOUR-STRIPED MOUSE, RHABDOMYS PUMILIO

DONALD P. CHRISTIAN
The Museum, Michigan State University, East Lansing 48824

Accepted: June 1976

Little is known about the behaviour and ecology of *Rhabdomys pumilio* Sparrman, a murid rodent with a wide geographical distribution in Africa that extends into the Namib Desert (Coetzee 1969). Walker (1968) and Smithers (1971) report this rodent to be primarily diurnal in activity; the latter author noted occasional nocturnal activity with a tendency toward crepuscularity. Under laboratory conditions, Choate (1972) found *R. pumilio* active mainly during midday with some extension of activity into an artificial night. This paper presents additional data on the activity of *R. pumilio* in the field during the cool months of the year.

Daily activity was examined by comparing changes in the rate of capture in live traps over the 24-hour day. The study was conducted on the farm Aandster (25°23'S/16°04'E, Maltahöhe District) on the edge of the Namib Desert in South West Africa on two occasions (22–25 July and 28 September – 1 October 1974). Live-trapping was done continuously for three days and nights on each occasion, with traps being checked every 2–3 hours between dawn and dark. Because traps were not checked between nightfall and dawn, only the sum-total of nocturnal activity was obtained; this procedure seemed appropriate because the rate of capture at night was very low. Fifty Sherman live traps (23 × 9 × 7,5 cm) were placed 7–8 m apart in seven rows (6–8 m apart) of 6–8 traps each in an irrigated field. This field was planted with lucerne, which provided dense and uniform cover 30–45 cm high. Traps were shaded with cardboard covers and kept continuously baited with a mixture of peanut butter and rolled oats. At first capture, each mouse was marked with a toe-clipped number.

Temperatures in the shade 1 m above ground level were recorded with a Yellow Springs Instrument Telethermometer at the beginning and end of each trap check. Maximum daily temperatures recorded for the three days in July were 24, 20, and 26°C; minimum observed temperatures were 8, 12, and 14°C. In September, these respective temperatures were 33, 33, and 24°C maximum and 16, 21, and 5°C minimum. The moon was slightly less than one quarter full during July trapping and almost full at the end of September. No appreciable cloud cover existed during any phase of the study.

The hourly rate of capture of *R. pumilio* in each trapping span (from the end of one trap check to the beginning of the next) was computed by dividing the number of captures during that time by the length of the span (in hours). The rate of capture obtained in this manner was presumed to apply to all parts of the trapping span, and each hour of the day was thus assigned a rate of capture. When a given hour included two trapping spans, the average capture rate for the two trapping spans was assigned to that hour. For each month, three-day mean capture rates were computed for each hour of the day.

In July, 156 captures were made on 42 individual *R. pumilio* (18♂, 24♀); in September, 190 captures on 51 individuals (27♂, 24♀) were made. Only 18 captures of the total (5 per cent) were made at night. Three-day mean capture rates (animals per hour) in July were 0,3 at night, 1,6 for the first hour after dawn, and 4,8–6,8 during the remaining daylight hours. In September, the mean nighttime capture rate was 0,2 per hour, compared with 3,5 for the first hour after dawn, 5,1–6,9 until three hours before dark, and 1,6–2,9 from then until dark. An approximate t-test (Sokal & Rohlf 1969: 376) was used to

test the null hypothesis of no difference between means of observed day and night capture rates. The results of this test indicate that *R. pumilio* was significantly ($p < 0,02$) more active during the day than at night in each month. A χ^2 test of the distribution of three-day mean hourly values for the hours between dawn and dark showed no significant daytime peaks of activity in either month ($p < 0,90$).

Thus, under prevailing conditions *R. pumilio* showed no tendency toward nocturnality or crepuscularity, but displayed continuous activity throughout the day. No apparent correlation was noted between rate of capture and ambient temperature. In this study, *R. pumilio* appeared to become active at daybreak and to cease activity at dark. These results may have been influenced by the abundance of overhead cover on the study area. Coetzee (personal communication) has suggested that, whereas *R. pumilio* might be active under the cover of large bushes throughout the day, they may forage outside of this cover only in early morning and late afternoon. Thus, an activity pattern different from that observed in this study might be found in areas where cover is not so dense or widespread.

ACKNOWLEDGEMENTS

The author wishes to thank Mr and Mrs M. M. Louw of Aandster for their co-operation. Associates at the Michigan State University Museum and C. G. Coetzee, State Museum, Windhoek, offered suggestions on this manuscript. This research was supported by a grant from the Jens Touborg Fund to The Museum, Michigan State University.

REFERENCES

CHOATE, T. S. 1972. Behavioural studies on some Rhodesian rodents. *Zool. afr.* 7: 103–118.

COETZEE, C. G. 1969. The distribution of mammals in the Namib Desert and adjoining inland escarpment. *Scient. Pap. Namib Des. Res. Stn*, 40: 23–36.

SMITHERS, R. H. N. 1971. The mammals of Botswana. *Mem. natn. Mus. Rhod.* 4: 1–230.

SOKAL, R. R. & ROHLF, F. J. 1969. *Biometry*. San Francisco: Freeman Press.

WALKER, E. P. 1968. *Mammals of the world*. Baltimore: Johns Hopkins Press.

ANALYSIS OF FELIS LIBYCA AND GENETTA GENETTA SCATS FROM THE CENTRAL NAMIB DESERT, SOUTH WEST AFRICA.

C. T. STUART

*Desert Ecological Research Unit, Gobabeb, South West Africa**

Accepted: July 1976

INTRODUCTION

Two collections of *Felis libyca* scats and two of *Genetta genetta* were made in the vicinity of the Namib Desert Research Station, Gobabeb, which is situated on the northern bank of the Kuiseb River in the Namib Desert Park, South West Africa. It is approximately 110 km from Walvis Bay.

*Present address: Nature Conservation Station, Private Bag 614, Robertson.