

ON HABITS OF BLANFORD'S RAT, *RATTUS BLANFORDI* THOMAS

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ABSTRACT

The paper deals with field observations on the habits of an interesting indigenous Indian Peninsular species of field rat, *Rattus blanfordi* Thomas. A comparison of habits and morphological characters of the rat with those of other field rats of genus *Rattus* found in its range is given.

INTRODUCTION

This rat is confined to India and Sri Lanka. Within Indian limits, it has wide distribution : "peninsular India north to Bihar and central Provinces". Despite its wide distribution, no races have been recognised. However, its habits differ markedly in different parts of its range (Prater, 1971, p. 209). Dry, moist deciduous, evergreen forests, scrub jungle, rocks, boulders, treeless hilly country have all been occupied. Besides, it constructs very different types of shelters in different parts of its range and types of shelters do not appear to depend upon the nature of habitat. It may construct an untidy nest in an opening in a tree or live among boulders or rocks, bushes, with or without a nest, the nest if present in the latter habitat being only a few sticks or dry leaves. It is, however, not known to possess burrowing habits. In fact, its claws are much weaker as compared with forms well adapted to burrowing habits. Nevertheless, during a faunistic survey of Pench National

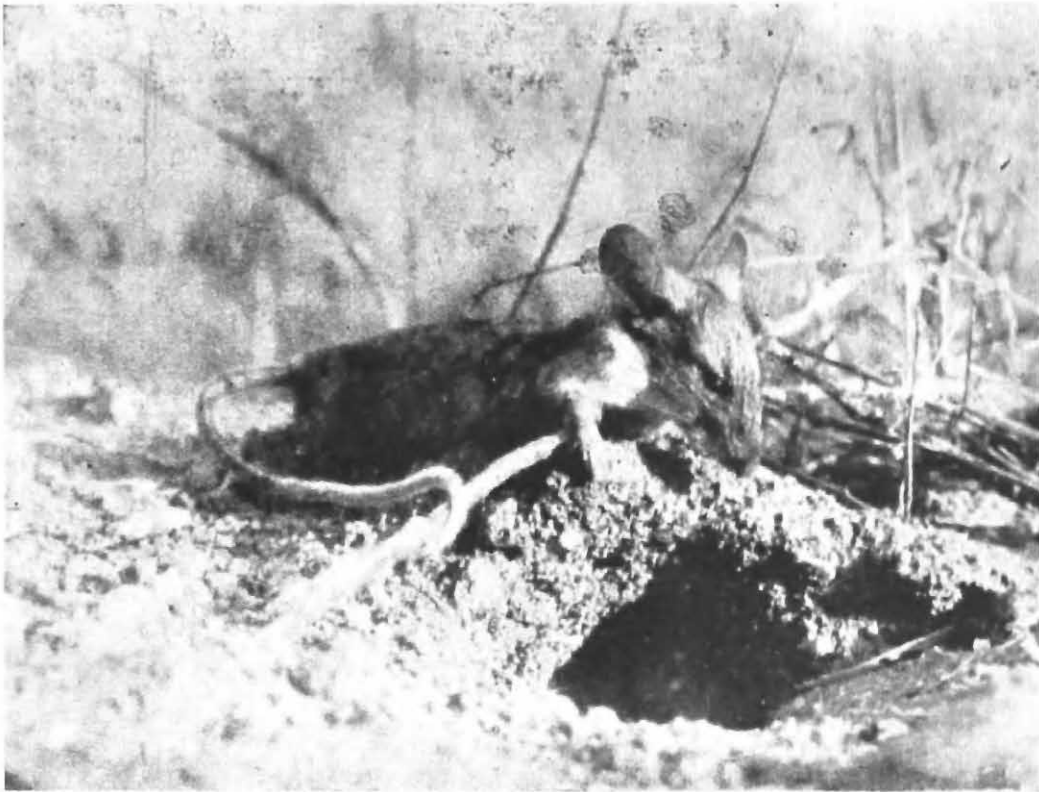
Park, Nagpur District, Maharashtra State, from 21 st February, 1973 to 4th March, 1973, the author found that the animal can also be a fairly good burrower, if soft soil is available even if its other habitats (trees, boulders, rocks and hills, etc.) are also plentiful in the area. The details of observations made on the burrowing habits of the rodent in this area are given below.

OBSERVATIONS

At night the rat was observed a number of times to come out from and enter burrows dug in sand heaps and soft soil along the forest roads in dry deciduous forest (Pl. IX). The burrows are 5 cm. to 10 cm. in diameter and about 1/3 m. below the surface of the ground. They are sometime more or less straight tunnels blind at one end but usually have a number of ramifications many of which have external openings (Fig. 1). No grass or nest was found inside. In one of the burrows a small live lizard (*Calotes* sp.) was found

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PLATE IX



A freshly killed specimen of *Rattus blanfordi* near its burrow.

and in another two large dung beetles had taken shelter. Four burrows were dug out. The rat was also trapped on the sandy bed of the Pench river, with bushes and trees around, where there were number of heaps of sand thrown by a field rat but there were no external openings as described above for the burrows of the rat. It is possible that external openings may have collapsed because of loose sand in which they were dug. Burrows were also found near human dwellings into

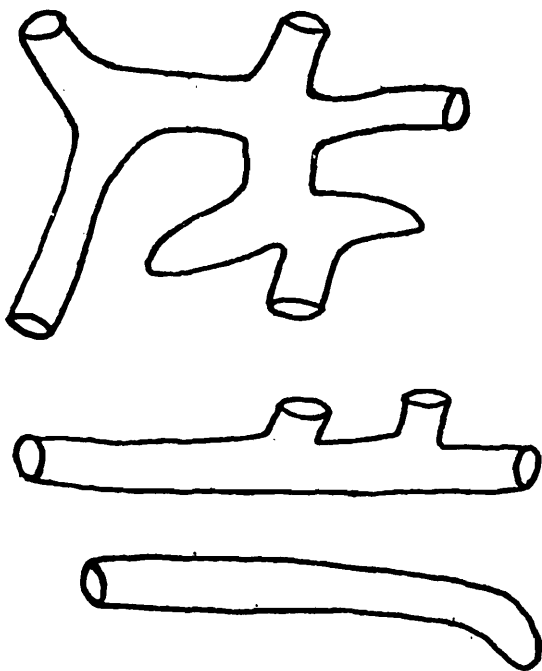


Fig. 1. Various types of burrows constructed by *Rattus blanfordi*.

which the rat is reported to enter frequently at night. It is a common rodent of the area.

Two adult females examined were not pregnant and no young ones were seen. The stomach contents of one adult male showed remains of insects and vegetable

matter. Break-neck traps with baits of slightly burnt coconut and ground nut were used for collection of the rodent.

It was rather difficult to imagine as to how the inadequately protected shelters of the rodent can protect it from vagaries of weather in areas of heavy rainfall where it is also common. The answer can be found in Brosset's (1961) study according to which it seeks shelter in caves in rainy season (June-September) which also happens to be its breeding season. A comparison of the habits and important morphological characters of this rodent with those of other field rats belonging to the genus *Rattus* found in its distributional range is given in table I.

Ellerman (1961, pp. 606-607) states that it is an aberrant species with combination of character, not found in any other species of the subgenus. Brosset (1961) has, suggested, possibly on the basis of his ecological observations, that it may be possible to separate the species generically. However, on the basis of the present study, I am inclined to think that it is a generalized type keeping in view particularly its ability to colonize areas ranging from practically arid to heavy rainfall ecological conditions and its capacity to construct or select shelters of highly varied types. It is probable that the species represent a group of sibling taxa which are very rare in higher vertebrates.* Its specialized character, strongly enlarged bulla, is probably an adaptation for life in ill-protected shelters where better sense of hearing is essential. It is difficult to speculate on the adaptive signi-

* Another similar instance which has come to my notice is the tomb bat, *Taphozous longimanus* Hardwicke (Khajuria, 1975) which, however, only selects, but cannot construct, very different and several types of roosts. As a group of sibling taxa, this taxon may deserve a subgeneric rank.

TABLE I. Comparison of habits and morphology of field rats of genus *Rattus* found in distributional range of *R. blanfordi*.

	<i>R. blanfordi</i>	Subgenus <i>Cremnomys</i> (<i>R. cuthicus</i> Wroughton)*	Subgenus <i>Millardia</i> , Thomas (<i>R. mellada</i> Gray)
Habitat	Rocks, hollows in trees, bushes with or without rudimentary nest, burrows in soft soil, caves in rainy season, enters human dwellings.	Rocks, possibly also a burrower	Slight hole under a bush or heap of stones, fissure in ground.
2. Food	Vegetable matter, some insects.	Unknown	Pest of paddy and cotton.
3. Reproduction	More than one litter of 2-3 young from June to October.	Unknown	2-7 litters of 1-8 young in spring and autumn
4. Social life	Usually a pair with or without young, male may live apart during infancy of young.		Pairs or small colonies
5. Distribution	Sri Lanka, Peninsular India, Bihar.	Usually arid or semi-arid areas of peninsular India, Bihar.	Sri Lanka, peninsular India, Sind, Punjab, Nepal.
6. Important morphological characters	Strongly enlarged bulla, long palatal foramen, tail tip white.	Bulla smaller, palatal foramen unusually long, palate short.	Palate long, fifth tow short, plantar pads less than six.

ficance of its hairy white tail tip, another specialized character. Hairy tail appears to be an adaptation to jumping on rocks or trees. The white tip can be imagined to be an extension of white of underparts as seen for instance, in *R. rattoides* (Hodgson) and its gradual restriction to the tail tip. I have observed on occasions the white tail tip protruding from its inadequate shelters. It is probable that it looks something unlike the tail of a rat to a predator and, thus, saves the species from their attacks. Again, the nature of its nest, which is probably constructed for the newly born young, small size of litter and restricted breeding season in caves appear to be adaptations to its inadequate shelters. The possible adaptive nature of the specialized characters

of *R. blanfordi*, should not, as in other cases, however, minimize their taxonomic importance but it may help to show that the species is not so isolated as it appears.

As Ellerman (*loc-cit*) suggestes, it may be allied to the subgenus *Cremnomys* which in my opinion is probably its offshoot adapted to semiarid conditions (Khajuria, 1955). I agree with Ellerman (*op. cit*, pp. 679 & 689) that affinities of subgenus *Cremnomys* (and, thus, of *R. blanfordi*) and of another subgenus of *Rattus*, *Millardia* Thomas, found in its range to African species of genus *Rattus* probably indicate parallelism and not closer relationship. My view is based on comparatively shorter geological history of genus

*The other species of the subgenus, *R. elvira* Ellerman, is very poorly known.

Rattus. It is, however, well known that some other Indian peninsular species do have African affinities possibly because of possible former land connection between peninsular India and Africa.

REFERENCES

- BROSSET, A. 1961. Some notes on Blanford's or the white tailed wood rat, *Rattus blanfordi* Thomas in western India. *J. Bombay nat. Hist. Soc.* **58** (1) : 241-248.
- ELLERMAN, J. R. 1961. *The Fauna of India*. Mammalia. Vol. 3, part 2, pp. 483-884. Delhi : Manager of Publication, Govt. of India.
- KHAJURIA, H. 1955. Mammalian fauna of the semi-arid track, of Deccan and its bearing on the appearance of aridity in the region. *Sci. Cult.* **21** : 293-295.
- KHAJURIA, H. 1975. A remarkable tomb bat. *Cheetal*, **16** (2) : 36-39.
- PRATER, S. H. 1971. *The Book of Indian Animals*. 3rd Ed., xxiii + 324 pp. Bombay : *Bombay. nat. Hist. Soc.*
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