



ADDITIONAL COLLECTION RECORD OF SINHGARH RAT *MILLARDIA KONDANA* MISHRA AND DHANDA FROM SINHGARH, PUNE, INDIA

S. S. TALMALE¹, RINA TILAK² AND M. S. PRADHAN³

1. Zoological Survey of India, Central Zone Regional Centre, 168-169,
Vijay Nagar, Scheme, No. 5, Vijay Nagar, Jabalpur-482 002, Madhya Pradesh, India
E-mail : s_talmale@yahoo.co.in

2. Armed Forces Medical College, Department of Community Medicine,
Wanowrie, Pune-411 040, Maharashtra, India
E-mail : rinatilak@hotmail.com

3. B-2, Kalpanamati Housing Society, Aundhgaon,
Pune-411 007, Maharashtra, India
E-mail : pradhanms07@gmail.com

INTRODUCTION

Mishra and Dhanda (1975) described a new species *Millardia kondana* distinct from other three known species under genus *Millardia* viz., *gleadowi* (Gujarat, Rajasthan and Pakistan), *kathleenae* (Myanmar) and most common Indian species *meltada* (India, Sri Lanka; E Pakistan and Terai region of Nepal) (Musser and Carleton in Wilson and Reeder, 2005). It differs from other species in having comparatively larger cranial and external measurements, possessing six well-developed planter pads, proportionately small ears, hind feet and bullae and long tooththrow and diastema (Mishra and Dhanda, 1975).

The type collection of the *Millardia kondana* specimens is deposited in National Institute of Virology (NIV), Pune; Zoological Survey of India (ZSI), Kolkata and British Museum (Natural History), London. Taxonomic reviews were published on museum specimens studied by Corbet and Hill (1992) and Agrawal (2000). Talmale (2007) also studied the NIV collection for his doctoral research. Table 1 gives comparative measurements of *M. kondana* specimens studied. Though the species has been reported from its

type locality, Sinhgarrh plateau, one subadult specimen was collected from the nursery at the base of the fort in the year 1978 by ZSI, Pune (ZSI.WRC. M/156). Since last three decades no collection of this species has been reported, a attempt was made to collect fresh specimens, recognise its validity and status in the present communication.

MATERIAL AND METHODS

Study Area : Sinhgarrh a small plateau of about 1 square kilometer (Latitude 18° 23' North and Longitude 73° 42' East) is located about 30 kms. southwest of Pune city, Maharashtra, India. Geographically the area falls under Sahyadri ranges of Western Ghats. In monsoon season it appears lush green while in other seasons the plateau remains dry (Mishra and Dhanda, 1975). Currently the fort serves as a training centre for cadets of National Defence Academy, Khadakwasla.

One of the authors (RT) undertook rodent survey at Sinhgarrh for ectoparasite studies during the month of June, 2012. About 150 standard sized Sherman traps, baited with freshly made onion pakoras (salty fried snack made with onion and

Table-1: External and cranial measurements (mm) of *Millardia kondana* Mishra and Dhanda, 1975.

	Specimens studied during Present Study			NIV specimens studied by Talmale (2007)			
	Male (R3)	Female (R4)	Male (R5)	Mean	Range	SD	N
HB	150	170	170	174.85	155 - 195	±12.87	7
TL	150	150	175	167.66	165 - 170	±2.51	3
TL as % of HB	100	88.23	102.94	92.48	87.17 - 96.0	±4.68	3
HF	32.3	32.9	35.2	32.48	31 - 34	±1.46	7
HF as % of HB	21.53	19.35	20.70	18.64	16.46 - 20.23	±1.34	7
E	21	22.6	22.7	18.45	16.0 - 20.2	±1.84	7
E as % of HB	14.0	13.29	13.35	10.59	9.41 - 11.9	±0.87	7
onl	39.9	41.6	41.5	40.54	39.5 - 41.7	±0.90	7
cbl	38.7	40.7	39.7	40.11	39.0 - 41.4	±0.94	7
nas	15.7	17.6	16.1	15.58	14.5 - 16.4	±0.56	7
pal	21.9	22.9	22.7	22.54	21.6 - 23.7	±0.69	7
mtr	7.1	7.0	7.1	7.5	7.3 - 7.7	±0.17	7
mtr as % of onl	17.79	16.82	17.10	18.49	18.7 - 18.78	±0.26	7
iw	5.9	6.2	6.5	6.27	6.1 - 6.4	±0.11	7
dia	11.4	13	12.2	11.78	11.4 - 12.5	±0.49	7
dia as % of onl	28.57	31.25	29.39	29.06	28.04 - 30.12	±0.77	7
bl	6.1	6.5	6.2	6.65	6.2 - 7.1	±0.36	7
bl as % of onl	15.28	15.62	14.93	16.40	15.69 - 17.7	±0.59	7
apf	8.9	9.6	8.5	9.1	8.2 - 10.0	±0.58	7
zw	17.9	19.7	19.1	19.45	18.8 - 20.5	±0.52	7
ml	22.2	23.1	22.4	22.81	22.2 - 24.3	±0.80	7

ground gram flour) were set up on the plateau and near main gate at lower altitude of the fort. Twelve rodent samples were collected, sacrificed and preserved in 10% Formalin for further studies. The specimens were numbered R1 to R12. The authors (SST & MSP) studied and identified the specimens. External and osteological measurements were taken as per Roonwal and Agrawal (1966) and Agrawal (2000). Identification studies of the specimens were carried out following Corbet and Hill (1992) and Agrawal (2000). Out of twelve collected specimens three (R3 & R5 : 2 Male and R4 : 1 Female) were identified as *Millardia kondana*

Mishra and Dhanda, 1975 ; three (R2, R6 & R12) as *Mus platythrix* Bennet while remaining six (R1, R7-R11) as *Mus booduga* (Gray). Measurements in detail of *Millardia kondana* is given in Table 1 for further discussion. For more clarification the measurements are compared with those reported for this species by Talmale (2007). All the specimen under present study will be deposited in National Zoological Collection of Zoological Survey of India, Western Regional Centre, Pune.

Abbreviations : HB : Head & Body length; TL : Tail length; HF : Hind foot; E : Ear; onl : Occipito-nasal; cbl : Condylbasal; nas : Nasal; pal : Palate; mtr : Maxillary toothrow; iw : Interorbital width;

dia : Length of diastema; bl : Bullae; apf : Anterior palatal foramina; zw : Zygomatic width; ml : Mandible; N : Sample Size; SD : Standard Deviation.

RESULTS AND DISCUSSION :

Millardia kondana is commonly known as large metad on the basis of its larger size. It has a slightly harsher fur, dorsum dark brown and grayish white under parts (gray base with white tips), tail slightly bicolour, dark above and grayish below, poorly haired, clear six planter pads in the hind feet and four pairs of mammae in the female specimen. Analysis of the contents in Table 1, shows that tail is shorter or equal to in two specimens while in other slightly larger than head and body length. So individual variations in tail length is considerable in the present species. Most of the cranial measurements of the studied specimens match with those mentioned for the type series by Mishra and Dhanda (1975).

The associate rodent species collected together with *M. kondana* are *Mus platythrix* and *Mus booduga*. Talmale (2007) also reports *Mus booduga* (Gray), *Rattus rattus rufescence* (Gray) and Pradhan (personal observation) observed *Bandicota bengalensis* (Gray) from Sinhgarh

plateau. The present communication reports latest collection record of *M. kondana* specimens from the Sinhgarh plateau. Corbet and Hill (1992) questioned about the presence or absence of *M. meltada* from plateau area. There are reports of *M. meltada* population from Khadakwasla and nearby localities of Hadapsar and Pune (Talmale, 2007). However, there is not a single collection record of *M. meltada* from the plateau till this date.

On the basis of area of occupancy (One square kilometer) and single locality collection record the species has been categorised under Critically Endangered species by IUCN (Pradhan *et al.*, 2008). It is listed under Schedule V (Vermin) of Indian Wildlife (Protection) Act, 1972 (Amended upto 2006). Present study expresses its taxonomic validity and current status of availability in the type locality.

ACKNOWLEDGEMENTS

Author (SST) is grateful to the Director, Zoological Survey of India, Kolkata and Officer-in-Charge, ZSI, CZRC, Jabalpur for providing facilities. One of the author (RT) is thankful to the Armed Forces Medical College and the Dept of Community Medicine, Pune for the administrative and logistic support provided for the survey.

REFERENCES

- Agrawal, V.C. 2000. Taxonomic studies on Indian Muridae and Hystricidae (Mammalia : Rodentia) *Rec. zool. Surv. India, Occ. Paper No. 180*. i-vii, 1-177. 6pl. (Published : Director, ZSI, Calcutta).
- Corbet, G. B. and Hill, J. E. 1992. *The mammals of the Indomalayan Region. A systematic Review*. Oxford University Press, Oxford, 488pp.
- Mishra, A. C. and Dhanda, V. 1975. Review of the genus *Millardia* (Rodentia : Muridae), with description of a new species. *J. Mammal.*, **56**(1): 76 – 80.
- Musser, G.G. and Carleton, M.D. 2005. Superfamily Muroidea. Pp. 894-1531, IN : *Mammal species of the world, a taxonomic and geographic reference*, Third edition. (D.E. Wilson and D.M. Reeder, eds.). Johns Hopkins University Press, Baltimore, MD. Vol. **2**: 2141pp.
- Pradhan, M.S., Molur, S. & Nameer, P.O. 2008. *Millardia kondana*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Downloaded on 29 November 2012.
- Roonwal, M. L. and Agrawal, V. C. 1966. Measurements of rodents (Mammalia), especially their skull, for taxonomic purposes. *Rec. Indian Mus.*, **60** (1&2): 81-93. 3pl.
- Talmale, S.S. 2007. *Studies on Small Mammal Diversity in Maharashtra State*. Ph. D. Thesis submitted to University of Pune, Maharashtra State, India, 431 pp.