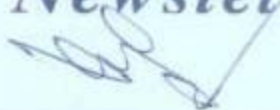


RODENT

Newsletter



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ALL INDIA COORDINATED
RESEARCH PROJECT ON
RODENT CONTROL

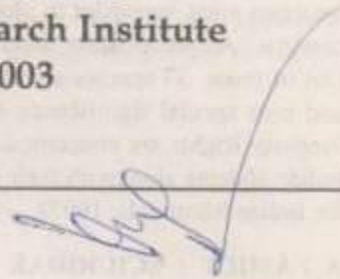
Central
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JODHPUR - 342 003

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AICRP on Rodent Control
Central Arid Zone Research Institute
Jodhpur - 342 003



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Endemic Rodent Species of India

S. CHAKRABORTY

Zoological Survey of India, Calcutta - 700 053

'Biodiversity Convention' has become effective world-wide from December 29, 1993 and India is one of the ratifying countries. With this, it becomes most important to identify and monitor biodiversity components of the country. As per existing literature, there are 390 species of mammals in India. Out of these, 37 species are endemic to the country, i.e. confined to India only and bear special significance so far 'Biodiversity Convention' and Intellectual Property Rights are concerned. The present note enlists the endemic species of Indian rodents alongwith their distribution and status (as per CAMP Workshops for Indian Mammals, 1997).

A. FAMILY : SCIURIDAE

1. The Large Indian Squirrel, *Ratufa indica* (Erxleben)

Distribution : Peninsula of India.

Intraspecific variation : Four subspecies, viz., *R. i. indica*, *R. i. centralis*, *R. i. maxima* and *R. i. dealbata* have been recognised.Status : *R. i. dealbata* - Critical; others - Vulnerable.2. The Jungle Striped Squirrel, *Funambulus tristriatus* (Waterhouse)

Distribution : Western Ghats north to Bombay.

Intraspecific variation : Represented by three subspecies, viz., *F. t. tristriatus*, *F. t. wroughtoni* and *F. t. numarius*.

Status : Lower Risk - Near Threatened.

3. *Biswamoypterus biswasi* Saha

Distribution : Known only from Namdhapa, Arunachal Pradesh.

Intraspecific variation : Nil

Status : Critical. Known only by the type-specimen.

B. FAMILY : MURIDAE

1. *Alticola montosa* (True)

Distribution : Jammu and Kashmir, 2600-4000 m.

Intraspecific variation : Nil

Status : Data Deficient

Remarks : Usually incorporated under *A. roylei*¹, but the diagnostic traits of *montosa* clearly distinguish it as a distinct one.2. *Cremnomys elvira* (Ellerman)

Distribution : Known only from Kurumbapatty, Salem district, Tamil Nadu.

Intraspecific variation : Nil

Status : Vulnerable.

3. The Cutch Rock-rat, *Cremnomys cutchicus* Wroughton

Distribution : Northwest in Uttar Pradesh, Gujarat, Rajasthan, east to Bihar and Orissa, south to Karnataka.

Intraspecific variation : Represented by four subspecies viz., *C. c. cutchicus*, *C. c. siva*, *C. c. australis* and *C. c. rajput*. However, there is overlapping of characters among the different subspecies and as such taxonomic revision is required.

Status : Lower Risk - Least Concern.

4. *Millardia kondana* Mishra and Dhanda

Distribution : Singarh plateau, Pune, Maharashtra.

Intraspecific variation : Nil

Status : Vulnerable.

5. *Platacanthomys lasiurus* Blyth

Distribution : Forested tracts of Western Ghats, below 1000 m.

Intraspecific variation : Nil

Status : Vulnerable

6. *Rattus palmarum* (Zelebor)

Distribution : Nicobar Islands

Intraspecific variation : Nil

Status : Data Deficient.

7. *Rattus ranjinae* Agrawal and Ghosal

Distribution : Trivandrum and Trichur, Kerala

Intraspecific variation : Nil

Status : Vulnerable.

8. *Rattus stoicus* (Miller)

Distribution : South and Little Andamans, Henry Lawrence Island.

Intraspecific variation : Nil

Status : Data Deficient.

9. *Mus phillipsi* (Wroughton)

Distribution : Peninsula of India north to Rajasthan.

Intraspecific variation : Nil

Status : Lower Risk - Least Concern.

Remarks : *M. cervicolor phillipsi* = *M. phillipsi* has also been recorded from the foot hills (800 m) of Nepal³. However, further examination of the material from Nepal is required.

10. *Mus famulus* Bonhote

Distribution : Around 1500 m. in Nilgiri Hills, Anaimalai Hills, Palni Hills of South India.

Intraspecific variation : Nil

Status : Endangered.

Remarks : *M. cookii* Ryley from the mountains of Nepal, Myanmar, Thailand and Vietnam was considered as subspecies of *M. famulus*¹. At present, *M. cookii* is treated as a distinct species⁴.

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2. Musser, G.G. and Carleton, D.M. 1993. Muridae. In 'Mammal Species of the World' - Eds. Wilson, D.E. and Reeder, D.M. Washington and London.

3. Abe, H. 1977. *J. Mammal Soc. Japan*, 7 : 63-74.

4. Marshall, J. 1977. *Mus Bull. Am. Mus. nat. Hist.*, 158 : 173-220.

Rodent Communities in Hilly Tracts of Udaipur Zone, Rajasthan

ISHWAR PRAKASH AND HIMMAT SINGH

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The hilly tract of Udaipur-Banswara zone, east of Aravallis, is slightly different from the main range. The latter is mainly composed of granitic formations with ample caverns and crevices. Such type of rocks sporadically occur in the vicinity of Udaipur proper and Jaisamand but further south, the hill surfaces are rubbly as the main rocks are buried below the stony pebbles and gravels. Attempts have been made to correlate the small mammal species richness with rock formation.

We have considered the rock-rat, *Cremnomys cutchicus* as an indicator of rocky ecosystem with cracks and crevices; and the spiny mouse, *Mus phillipsi* that of rocky habitat with succulent shrub, *Euphorbia caducifolia* and *Euphorbia*, spp. 87.9 per cent of the total number of rock rats collected at nine locations in the Udaipur-Banswara zone were from Udaipur and Jaisamand region where granitic hills predominantly occur. The residual number (12.1 per cent) were trapped at Jhadol and Dungarpur from loosely piled stone walls over

the highly denuded hills. It was earlier observed that *C. cutchicus* has altered its ecological niche from rock crevices to stone walls erected by man around crop fields or to protect tree plantations. Intervention of man in the montane ecosystem has transformed a wild rodent as a pest species in the vicinity of crop fields. 50 per cent of mice specimens belonging to five species (*Mus phillipsi*, *M. platythrix*, *M. saxicola*, *M. terricolor*, *M. booduga*) were collected from typical granitic rocks whereas most of the other 50 per cent were trapped in rubbly habitats over the hills where loosely-piled stone anicuts were constructed across the runnels to check water runoff.

The Indian gerbil, *Tatera indica* was frequently found in several habitats. 33 specimens were collected in the Udaipur-Banswara hill tract, 54.5 per cent from rocky habitat, predominantly hill top grassland with bamboo plants, 39.5 per cent from scrubland on the foothills and only 6.1 per cent from crop fields. Over the hill-top grassland, severe damage by Indian gerbils to bamboo clumps was noticed.

Most of the bush rat, *Golunda ellioti* were collected from scrubland, and a few from crop fields along with *Bandicota bengalensis*, *Rattus rattus*, *Mus musculus* and the shrew, *Suncus murinus*.

Menace Of Desert Rodents In Churu District, Rajasthan

R.S. TRIPATHI, MOHD. IDRIS, VIPIN CHAUDHARY AND B. D. RANA

Central Arid Zone Research Institute, Jodhpur - 342 003

Churu district, located in the north - eastern tract of Rajasthan desert, represents a typical sandy undulated terrain formed by dunes and humocks. Earlier, only rainfed crops like *bajra*, *guar*, *moong* and *moth* were grown during *kharif* season. In recent years, groundwater has been explored in several areas and irrigated crops are being introduced by converting vast stretches of undulated sandy areas under crop lands through sprinkler irrigation. New introductions during last 4-5 years are : groundnut (in *kharif*) and wheat, mustard, gram etc. (in *rabi*). During initial years farmers got satisfactory yields of groundnut. Gradually, rodents started invading the crop fields in large numbers causing serious losses. During 1998 *Kharif* groundnut experienced maximum rodent attack resulting in 30-65% loss in yields.

Systematic surveys and trapping in cropped areas in several villages viz. Alsar, Sanklavas, Chapar, Chandawas etc. (Dist. Churu) revealed that the desert gerbil, *Meriones hurrianae* was the major culprit constituting more than 80% of all rodent species. Other species like, *Gerbillus gleadowi*, *Tatera indica* and *Millarda meltada* were of minor significance in the cropped areas.

Groundnut crop harboured about 40-50 live burrows per acre. Besides the losses to groundnut (30-65%), other rainfed crops viz. *moth*, *mong*, and cucurbit vegetables too recorded 10-50% rodent damage. A new behavioural manifestation of hoarding groundnut kernels in the burrow system by *M. hierriana* was recorded for the first time. A maximum upto 2.5 kg of kernels were recovered per burrow. The loss of kernel due to hoarding alone was maximum upto 100-125 kg/acre. Sprinkler irrigation is an ideal system for cultivating irrigated crops in such areas. Besides budgeting the overall water requirement, it covers the entire undulating fields also. However, sprinkler system has been helpful to field rodents as this system of irrigation never disturbs their habitat (burrow system) and provide conducive microclimate for desert rodents under groundnut plants leading to upsurge of pest population. In such areas farmers have to be very cautious for timely management of rodent pests before sowing the crops.

Majority of the farmers were not aware of the rodent management technology. Farmers showed keen interest in training programme on rodent pest management organised by us in village Alsar. Field demonstration on rodent management yielded 80-90% success in the farmer's field. Increasing threat of rodent menace to irrigated crops and our timely intervention have enormously helped in creating awareness against rodents pests among farming community of the area.

A Report on Rodent Problem in Godavari Delta, Andhra Pradesh

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National Plant Protection Training Institute, Hyderabad - 500 030

The cyclone during November 1996 in Godavari-Krishna Delta of Andhra Pradesh resulted in flash floods leading to rodent outbreak which is quite usual in the state. It is generally observed that rodents maintained a 10-year periodicity in their population upsurge in Delta- districts. Govt. of Andhra Pradesh constituted team for on the spot assessment of the problem and suggestions for management of rodent pests in these areas. The team included Dr. A.M.K. Mohana Rao, Junior Rodent Specialist, NPPTI, Hyderabad, Dr. A. Ranga Reddy, Rodent Zoologist, Agricultural Research Station, ANGRAU, Maruteru, West Godavari district and Shri R. Narsi Reddy, Additional Director of Agriculture (HRD), Government of Andhra Pradesh, Hyderabad. The team has visited the East and West Godavari districts of Andhra Pradesh on 14-17 August, 1997 covering the areas reported to be affected by the rodents, especially to rice crop. While making the survey the team discussed with a

cross section of the society viz., farmers, village leaders, MLAs and concerned officials of Agriculture Departments. The Joint Director of Agriculture of respective districts provided the particulars of areas affected by the rodents. Observations and some recommendations of the team is detailed as under.

- Rodent pests normally start damage to rice crop from the maximum tillering stage i.e., around 6 weeks after transplantation. During the visit it was observed that rodent damaged tillers even in 3 week old crop and reports on 3-4 times replanting is common in East Godavari district. The crop damage is around 10-30% in all the affected fields. As per Joint Director of Agriculture, about 89,000 ha in East Godavari and 30,000 ha in West Godavari are severely affected.
- The rodent control operations are mostly restricted to the bunds of the crop fields. The roads, railway lines, canal bunds, poramboke lands etc., are not covered. These areas served as major source of rodent infestation.
- Farmers complained about 5-10% nut damage to coconut. As such publicity to take up rat control in coconut may avoid/reduce rat problems on coconut crowns. In Tanuka area the Sugarcane crop has shown rodent damage symptoms. Since rodent damage in rice is serious, sugarcane may also be affected subsequently in these areas.
- Rodent in the coastal districts start breeding in the post monsoon months, especially after September. However, presence of sub adults of both sexes indicated preponement of their breeding activity. A sample collection of 37 female rodents in rice fields were found pregnant/lactating. Such breeding at early stages of rice crop (4 weeks after transplantation) with sex ratio of 1:1 exhibited abnormal reproductive activity.
- Farmers were found to use Phorate/Thimet mixed with cooked paddy on open field bunds for rodent control. Trapping with bamboo traps and smoking the rodent burrows are also reported by the tribes in all areas and earn Rs. 1 to 5 per dead rat from the farmers. Farmers awareness on the rodent problem is higher, but not on usage of various chemicals in a judicious way. Publicity involving media and press supplemented with demonstrations may bring such awareness.
- Pre-baiting before the application of zinc phosphide has not been followed by all the farmers. Moreover it was observed that most of the farmers engage local trappers by paying Re. 1 per dead rat incurring an expenditure of over Rs. 300 in a crop season per acre.

- The farmers were found to apply zinc phosphide baits indiscriminately leading to non-acceptance of poison baits. The practices was found to be sustaining the rodent population in the fields during summer. Farmers are not aware of safer anticoagulant rodenticides like bromadiolone. The application of poison bait on the rodent runways and outside the burrow entrances has been a common feature which may prove hazardous to the non target species.

Recommendations

The committee recommended following measures on a long term basis for effective management of rodent pests in Godavari delta of Andhra Pradesh.

Community awareness programmes : Awareness campaigns for the farmers may be organised through pamphlets, mass media including electronic channels, newspapers etc., highlighting the rodent menace in rice fields, especially after floods, cyclones etc.

Monitoring : Rodent control should be a continuing process in the Godavari delta since Rice-Rice-Pulse cropping pattern is normally followed. The field functionaries of the Agriculture Department may include observations on rodent damage incidence and rodent infestation levels through live burrow counts in their periodic reports in order to monitor the rodent situation.

Coverage of No-Man's lands : In order to cover no man's lands viz., poramboke lands, road sides, canal bunds etc., the Commissioner of Panchayat Raj may be requested to issue necessary instructions to Gram Panchayats for provision of Rs. 3000-5000/- for bait material and campaign purposes.

Training/Educating farmers : The component of rodent control be included in the Kisan Melas, Krishi Vignana Vedikas organised by the State Government.

Relatively safer rodenticides : The usage of relatively safer anticoagulant rodenticide in two applications in summer period and at active tillering stage of the crop on regular basis may keep rodent pests in check under normal situations. The provision existing in ICDP for procurement of the chemical under IPM practices may be utilised.

Cyclone/Natural calamity funds : Since rodent resurgence follows after flash floods or cyclones in these areas, adequate funds may be earmarked for rodent control also under cyclone relief/natural calamity funds. This will ensure community participation covering whole village for effective rodent management.

Contributions for inclusion in the Newsletter may please be forwarded along with 1-2 good black and white photographs to :

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