

RODENT

Newsletter

Vol. : 24 (1)

2000



**ALL INDIA COORDINATED
RESEARCH PROJECT ON
RODENT CONTROL**

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AICRP on Rodent Control
Central Arid Zone Research Institute
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Conservation status of Indian rodents as per IUCN Red List Criteria

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The Biodiversity Conservation Prioritisation Project, India undertook a prioritisation exercise for species, sites and strategies of conservation. In this connection a Conservation Assessment and Management Plan (C.A.M.P.) Workshop was held during August, 1997 at Bangalore for assessing the conservation status of different mammalian species in India as per IUCN Red List Criteria (1994). Forty five participants from 30 Institutions with expertise ranging from taxonomy, ecology, field biology to forest management attended the workshop. Assessment of the rodent species was done mainly under the leadership of the present authors. The list of rodent species assessed with their conservation status is as follows :

CONSERVATION STATUS SPECIES

A. Extinct :

Family : Sciuridae

Ratufa indica delbata (Blanford)

B. Endangered :

Family : Hystricidae

Atherurus macrourus assamensis Thomas

Family : Muridae

Berylmys bowersi (Anderson)

Cricetulus migratorius (Pallas)

Diomys crumpi Thomas

Mus famulus Bonhote

Niviventer brahma (Thomas)

Family : Sciuridae

Marmota bobak (Muller)

Ratufa macroura dandolena Thomas and Wroughton

C. Critical :

Family : Sciuridae

Biswamoyopterus biswasi Saha

D. Vulnerable :

Family : Hystricidae

Hystrix brachyura Linn.

Family : Muridae

Apodemus draco (Barrett-Hamilton)

Chiropodomys gliroides (Blyth)

Cremnomys elvira (Ellerman)

Cricetulus alticola Thomas

Daenomys millardi Thomas

Hyperacrius wynnei (Blanford)

Micromys minutus (Pallas)

Niviventer eha (Wroughton)

Rattus ranjinae Agrawal and Ghosal

Rattus stoicus (Miller)

Rattus tiomanicus (Miller)

Family : Sciuridae

Hylopetes alboniger (Hodgson)

Marmota caudata (Geoffroy)

Petinomys fuscocapillus fuscocapillus (Jerdon)

Ratufa bicolor gigantea (McClelland)

Ratufa indica centralis Ryley

Ratufa indica indica Erxleben

Ratufa indica maxima (Schreber)

E. Lower risk-near threatened

Family : Muridae

Bandicota indica (Bechstein)

Cremnomys blanfordi (Thomas)

Gerbillus nanus Blanford

Millardia gleadowi (Murray)

Mus cookii Ryley

Rhizomys pruinosus Blyth

Family : Sciuridae

Belomys pearsonii (Gray)

Callosciurus erythaeus (Pallas)

Callosciurus pygerythrus (Geoffroy)

Dremomys lokriah (Hodgson)

Eupetaurus cinereus Thomas

Funambulus tristriatus (Waterhouse)

Hylopetes fimbriatus (Gray)

¹ Zoological Survey of India, Pune

Petaurista phillipensis (Elliot)
Tamiops macclellandi (Horsfield)

F. Lower risk-least concern

Family : Hystricidae

Hystrix indica Kerr

Family : Muridae

Bandicota bengalensis (Gray and Hardwicke)
Berymys mackenziei (Thomas)
Cannomys badius Hodgson
Cremonomys cutchicus Wroughton
Gerbillus gleadowi Murray
Golunda ellioti Gray
Meriones hurrianae Jordan
Microtus sikimensis (Hodgson)
Millardia meltada (Gray)
Mus booduga (Gray)
Mus cervicolor Hodgson
Mus musculus Linn.
Mus phillipsi Wroughton
Mus platythrix Bennett
Mus saxicola Elliot
Nesokia indica (Gray and Hardwicke)
Niviventer fulvenscens (Gray)
Platacanthomys lasiurus Blyth
Rattus norvegicus (Berkenhout)
Rattus rattus (Linn)
Tatera indica (Hardwicke)
Vandeleuria oleracea (Bennett)

Family : Sciuridae

Funambulus palmarum (Linn)
Funambulus pennanti Wroughton

G. Data deficient :

Family : Muridae

Alticola albicauda (True)
Alticola montosa (True)
Alticola roylei (Gray)
Alticola stoliczkanus (Blanford)
Apodemus sylvaticus (Linn)
Berymys manipulus (Thomas)

Eothenomys melanogastor (Milne-Edwards)
Hadromys humei (Thomas)
Hyperacrius fertilis (True)
Leopoldamys edwardsi (Thomas)
Microtus leucurus (Blyth)
Mus pahari Thomas
Niviventer langbianis (Robinson and Kloss)
Niviventer niviventer (Hodgson)
Niviventer tenaster (Thomas)
Rattus nitidus (Hodgson)
Rattus palmarum (Zelebor)
Rattus sikkimensis Hinton
Rattus turkestanicus (Satunin)

Family : Dipodidae

Sicista concolor (Buchner)

Family : Sciuridae

Funambulus layardi (Blyth)
Funambulus sublineatus (Waterhouse)
Hylopetes baberi (Blyth)

Out of 92 species assessed, practically no data were available for 23 species and thus kept under Data Deficient Category. It has been urged in the workshop to gather whatever information possible in respect of the distribution, habitat, population trend, breeding biology, threat factors etc of the Data Deficient Species.

Lesser bandicoot rat – a serious threat to agriculture in Punjab

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Previously in Punjab, Indian gerbil, *Tatera indica* was predominant, later on with an increase in irrigated agriculture soft-furred field rat, *Rattus meltada* became predominant. Now from last two decades, with the increase in rice cultivation, there was a tremendous increase in the population of lesser bandicoot rat, *Bandicota bengalensis*. Present study conducted in 12 villages of Punjab revealed that lesser bandicoot rat is the most abundant species representing 62.2- 95.0% of rodent fauna in

wheat fields (Table). *R. miltada* is represented by very small population. *T. indica* is surviving in less irrigated sandy soil or wheat fields near road sides and waste lands, where sandy soil is available. In sugarcane growing areas rodent population specially bandicoot population was many fold higher than those in other areas.

Mean rodent damage to wheat varies from 0.46-7.34% in different regions. It has been observed that wheat suffers more in the fields which are near sugarcane, fodder fields, waste lands and road sides. Rodent damage to wheat was very high in the fields of Morinda, Khamano and Kurali villages which are amongst the chief sugarcane growing areas of Punjab.

Though rodent control efforts have been successful in bringing down rodent damage to wheat in many areas, the continuous increase in rice and sugarcane cultivation will further provide favourable agroclimatic conditions for lesser bandicoot rat to thrive and continue to pose serious threat to agriculture in Punjab. Present results demand special attention to control rodents in rice-wheat-sugarcane cropping system.

Table : Rodent population composition and damage to wheat

Name of village	Post-harvest burrow population (%)				Rodent burrows per hectare Mean±S.E.	Cut-tillers of wheat (%)
	<i>Bb</i>	<i>Rm</i>	<i>Ti</i>	<i>Mus sp.</i>		
Bhaasaur	79.4	5.9	8.8	5.9	6.8±0.9	0.71±0.28
Banbhauri	78.6	0	0	21.4	5.6±2.5	0.69±0.29
Bhogiwal	62.5	0	12.5	25.0	3.2±1.4	0.47±0.28
Galer	95.0	5.0	0	0	8.0±2.7	0.76±0.29
Kurali	91.8	1.8	3.2	3.2	56.4±8.9	4.98±1.45
Morinda	93.5	1.8	3.9	0.8	77.4±8.2	7.34±1.60
Khamano	90.8	1.5	7.7	0	26.0±2.1	2.44±0.69
Katani	87.8	7.3	4.9	0	8.2±2.2	0.81±0.34
Gagra	82.4	11.8	5.8	0	3.4±1.5	0.55±0.23
Bughipura	100.0	0	0	0	4.6±2.1	1.52±0.69
Kapure	57.1	7.1	35.7	0	2.8±1.6	0.46±0.22
Matwani	76.2	9.5	14.3	0	4.2±1.3	0.68±0.27

Bb, *Bandicota bengalensis*; *Rm*, *Rattus miltada*; *Ti*, *Tatera indica*

Estimation of rodent damage to rice panicle at dough and ripening stages

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Field observations were recorded during year 1997-98 and 1999 from 3 different villages in Barahani Block of District Chandauli (U.P.). The area under investigation is of poor environment (low moisture content, poor drainage system and heavy soil texture) with canal irrigation facility and adopting rice-wheat cropping system. The major constraints observed for successful production in rice-wheat cropping sequence are the rodent pests namely *Bandicota bengalensis*, *Mus platythrix* and *Rattus rattus* during dough and ripening stages of rice.

The main objective of this study was the search out the most susceptible stage to rodent damage. The damage done by rodent pests on panicles at dough and ripening stages of crop was found out by converting the cut panicles into grain after estimating the grain bearing capacity of mature panicles.

The extent of damage at dough and ripening stages was assessed in all 3 villages from the planted paddy experimental plots of 10m² each. Plots were transplanted on 15th July in both the investigated years. The total number of undamaged panicles were recorded in the respective experimental plots after flowering. The mean counts of panicles damaged were taken at dough and ripening stages separately.

The loss caused by the above mentioned endemic rodent species at dough stage of grains ranged from 12.0 to 16.5 per cent and at ripening stage varied between 5.0 to 8.0 per cent only.

The studies indicate that in rice crop the dough stage of grains is more vulnerable to rodent damage and therefore rodent management programmes should be followed effectively just after flowering to minimize the crop yield loss.

Notes and News

A. Apex level Training Programme on rodent control

- I. An Apex level Training Programme on Rodent surveillance and their management was conducted from 26th-30th October, 1999 at ICAR Research Complex for NEH Region, Umiam (Meghalaya). Seven officers of the Govts. of Meghalaya & Nagaland participated in the Training programme.
 - II. Another Apex level Training Programme on Rodent control is being organised by Acharya N.G. Ranga Agricultural University in collaboration with National Plant Protection Training Institute, Hyderabad at Agricultural Research Station, Maruteru (West Godawari) from February 22-25, 2000. Senior officers, of the State Agricultural Departments, Universities, NGOs etc from the states of A.P., Bihar, M.P., Orissa, Tamilnadu, Karnataka and Kerala are expected to participate in this Training Programme.
- B. Zoo Outreach Organisation (ZOO) and Wild Life Information Liason Development (WILD) in collaboration with Conservation Breeding Specialist Group (CBSG) India and CBSG, South Asia has initiated a Project on Rodentia and Insectivora conservation and information network of South Asia (RICINSA) for Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan and Sri Lanka. Mission of RICINSA is for abridging the gaps in the information about their status in different zoo-geographical regions. The initiation of this Network and preliminary work is being funded by Society for Preservation of Species and Populations, Munich, Germany.

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

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