

## SEASONAL FLUCTUATIONS OF SYMPATRIC FIELD MURIDS IN HISAR

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### ABSTRACT

The present paper reveals a general account of rodents and other animals trapped during trapping schedule in wire-meshed traps (size 35 cm x 17 cm) in three different sub-ecological pockets of Hisar area. Lesser bandicoot rat, *Bandicota bengalensis*; Indian gerbil, *Tatera indica* and short-tailed male rat, *Nesokia indica* were the predominant species of district Hisar, Bhiwani and Rohtak, respectively. However, desert gerbils, *Meriones hurrianae* were trapped only from south western part of this area.

### INTRODUCTION

To feed the evergrowing population it is desirable that a check on rodent population be maintained. Keeping in view the varied rodent fauna of Haryana, studies were carried out on the sympatric species of Hisar.

### MATERIAL AND METHODS

Depending upon availability of water to cultivated fields three sub-ecological pockets (Gangwa, Bawani Khera and Anwal) in Hisar commissionerary were selected for systematic trappings. To study their density, murids were trapped at weekly intervals from the village fields of Gangwa (Dist. Hisar), Bawani Khera (Dist. Bhiwani) and Anwal (Dist. Rohtak). Random sampling was also made in the jurisdiction of Hisar cantonment and villages like Jandwala Bishnoiyan, Narel Khera (Dist. Sirsa), Titokheri, Rasidan (Dist. Jind), Hansi, Barwala (Dist. Hisar), Meham, Farmana (Dist. Rohtak), Bamla, Tosham (Dist. Bhiwani), Khudana, Dongli Kalan (Dist. Mohindergarh).

Baits consisting of baked moist gram flour and bread slices were used alternatively during trapping schedule. An area measuring  $40 \times 25 = 1000 \text{ m}^2$  was marked at each instance for conducting trapping operations (Southern 1973). For systematic trappings 6 traps at each place of the three districts were kept. The size of the wire meshed trap was 35 x 17 cm.

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Table 1. Field murids trapped from three different ecological sub-pockets of Hisar commissionerate of Haryana

Month	Three sub-Ecological pockets	No. and kinds of murid species trapped during systematic trapping												Total murid fauna of individual sub-pock		Grand total of three pockets	
		<i>T. indica</i>		<i>B. bengalensis</i>		<i>M. hurriance</i>		<i>N. indica</i>		<i>R. meltada</i>		<i>M. booduga</i>		1988	1989	1988	1989
		1988	1989	1988	1989	1988	1989	1988	1989	1988	1989	1988	1989				
1	2	3		4		5		6		7		8		9		10	
May	Gangwa	—	—	44	41	4	7	—	—	—	—	—	—	48	48	99	104
	Bawani Khera	6	4	—	—	—	—	—	—	—	—	1	3	7	7		
	Anwal	—	—	12	14	—	—	26	28	4	6	2	1	44	49		
June	Gangwa	1	1	61	58	1	1	—	—	—	—	—	—	63	60	85	88
	Bawani Khera	7	8	—	—	—	—	—	—	2	2	—	—	9	10		
	Anwal	—	—	7	8	—	—	3	4	1	2	2	4	13	18		
July	Gangwa	2	1	42	65	1	1	—	—	—	—	—	—	45	67	127	122
	Bawani Khera	15	14	—	—	—	—	—	—	—	—	—	2	15	16		
	Anwal	—	—	9	10	—	4	44	22	11	3	3	—	67	39		
Aug.	Gangwa	1	—	46	49	1	1	—	—	—	—	9	—	48	61	103	128
	Bawani Khera	5	13	—	—	—	—	—	—	—	—	1	—	6	13		
	Anwal	—	—	2	28	—	—	43	26	4	—	—	—	49	54		
Sept.	Gangwa	—	—	54	50	—	—	—	—	7	8	2	3	63	61	119	123
	Bawani Khera	12	10	—	—	—	—	—	—	—	—	—	—	12	10		
	Anwal	—	—	25	27	—	2	19	23	—	—	—	—	44	52		
Oct.	Gangwa	—	—	46	47	1	1	—	—	—	—	—	—	47	48	103	130
	Bawani Khera	14	32	—	—	—	—	—	—	—	—	—	—	14	32		
	Anwal	—	—	2	3	—	—	37	45	1	2	2	—	42	50		
Nov.	Gangwa	1	2	30	35	8	2	—	—	1	1	—	—	40	40	70	79
	Bawani Khera	14	15	—	—	—	—	—	—	—	—	—	—	14	15		
	Anwal	—	—	3	4	—	—	9	17	4	3	—	—	16	24		
Dec.	Gangwa	2	2	43	40	—	—	—	—	—	—	1	1	46	43	116	112
	Bawani Khera	36	32	6	6	—	—	—	2	—	—	—	—	42	40		
	Anwal	—	—	4	3	—	2	21	20	3	3	—	1	28	29		

1	2	3		4		5		6		7		8		9		10	
		1989	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989	1990
Jan,	Gangwa	1	1	40	38	1	1	—	—	—	—	1	1	42	41		
	Bawani Khera	6	5	—	1	—	—	—	—	—	—	1	2	7	8	75	74
	Anwal	—	—	3	3	—	—	20	18	3	4	—	—	26	25		
Feb.	Gangwa	—	2	48	29	3	6	—	—	—	3	—	1	51	41		
	Bawani Khera	7	5	—	1	—	1	—	—	—	—	2	2	9	9	100	78
	Anwal	—	1	10	2	—	—	22	19	5	6	3	—	40	28		
March	Gangwa	—	2	48	29	3	6	—	—	—	3	—	1	51	41		
	Bawani Khera	5	8	—	—	—	1	—	—	—	2	1	2	6	13	92	87
	Anwal	—	—	9	5	—	—	21	28	3	—	2	—	35	33		
April	Gangwa	—	2	39	34	4	5	1	—	—	1	1	2	45	44		
	Bawani Khera	26	16	1	—	—	—	—	—	—	4	3	3	30	23	108	100
	Anwal	—	—	9	9	—	—	21	20	3	4	—	—	33	33		
Total		161	176	643	639	27	41	287	272	52	66	27	31	1197	1225	1197	1225

Table 2. Total number of murid species in three sub-ecological pockets during 1988-89 and 1989-90

Species	Gangwa		Total	Bawani Khera		Total	Anwal		Total	Grand total
	1988-89	1989-90		1988-89	1989-90		1988-89	1989-90		
<i>T. indica</i>	8	13	21	153	162	315	—	1	1	337
<i>B. bengalensis</i>	541	515	1056	7	8	15	95	116	211	1282
<i>M. hurrinae</i>	27	31	58	—	2	2	8	—	8	68
<i>N. indica</i>	1	—	1	—	2	2	282	270	556	559
<i>R. meltada</i>	8	25	33	2	8	10	42	33	75	118
<i>M. booduga</i>	4	11	15	9	14	23	14	6	20	58
Total	589	595	1184	171	196	367	437	434	871	2422

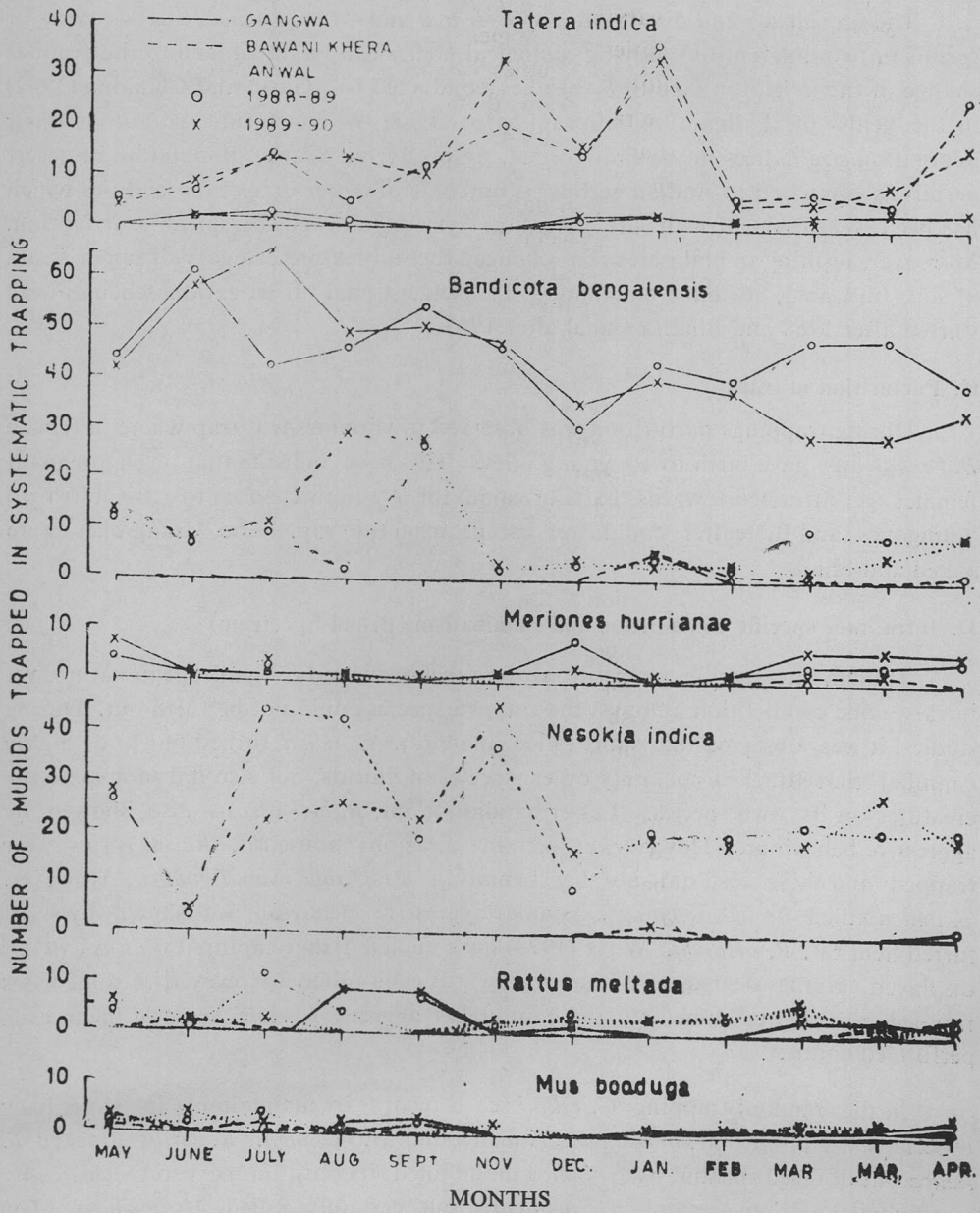


Fig. 1. Murid population in different months

The prevalence and distribution of *T. indica* and *M. hurrianae*, the two types of gerbils in two different but varying ecological niches can be attributed to the gradual change in the irrigation facilities. Studies conducted by Garg and Chandna (1982) in the fields of Lalhana of Bhiwani district set a conclusion regarding their population size indices in the ratio of 5:4, respectively. Scanty population of desert gerbils as compared to Indian gerbils is outcome of better irrigation facilities which has been ventured through lift irrigation system followed by sprinkler irrigation. Moreover, resulting in plain areas has changed the soil texture category of upper strata of soil. Jui Canal, Siwani Canal and J. L. Nehru Canal lift irrigation schemes were started after 1968 and Bhakra Canal after 1963.

### C. Parturition in traps

During trappings parturition was observed in wire-meshed trap where a female *B. bengalensis* gave birth to 16 young ones. This may indicate that even pregnant females get attracted towards baits or came for a suitable space to give birth to youngones and thereafter could not escape from the trap. The young ones were naked and blind.

### D. Intra-inter specific competition and cannibalism (Broad-Spectrum)

Though interspecific competitions were reckoned to be significant in nature, yet intra-specific competition amongst the trapped species could not be ruled out. During studies, it was observed that short tailed male rat, *N. indica* turned out to be highly cannibal that attacked not only other species of murids but also did not spare the creatures of its own species. Lesser bandidoot rat, *B. bengalensis* also showed its aggressive behaviour. However, at certain occasions house rat, *Rattus rattus* were trapped and these also did not lag behind in attacking even *T. indica*. However, *T. indica* killed its fellow beings. Similar aggressive behaviour was shown by short furred field rat, *R. meltda*. Wirtz (1973) have depicted that captured *Rattus exulans* displayed varying degrees of tolerance towards each other. However, in some cases trapped pairs led to immediate and continuous aggression while some of them even performed coitus.

In the random trapping *G. ellioti* set a record by maintaining its supermacy especially by killing *M. hurrianae*, *T. indica* and *M. booduga*. *R. rattus* attacked *T. indica* but dragged behind by *N. indica* maintained its position next to *N. indica* by cutting tails of *T. indica* and *B. bengalensis* but certainly killed *M. booduga*. The order of aggression had been in the order of *N. indica*, *R. rattus*, *G. ellioti*, *T. indica*, *B. bengalensis*, *M. hurrianae*, *M. booduga* and *M. hurrianae*.

*Suncus murinus caerulems* attacked the species of *T. indica* even in traps scheduled for trapping but *Herpestes* cut the bodies of rats into pieces when occasionally trapped.

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