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EFFICACY OF TWO INDIGENOUS TRAPS FOR TRAPPING RODENTS IN A COCONUT PLANTATION

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ABSTRACT

The effectiveness of two rat traps, bamboo snap back-*cum*-noose trap and plank trap/ death fall trap, was tested in a coconut plantation (23.5 ha area) for 24 months and 9 months, respectively. The former gave 15.5% catch of *Bandicota bengalensis* and the latter gave 24.6% catch of three rat species *Bandicota indica, Rattus rattus*, and *Tatera indica.*

INTRODUCTION

Rodents, particularly rats, are important pests of coconuts. They are controlled by using baits and traps. Several kinds of traps are used in different parts of the world. Their efficacy has been explored by different workers. Pottery traps are used in Iran, Afghanistan, and Pakistan (de Cardi, 1967). Other traps include metal live-catch-wonder traps by the Bombay Corporation, small, locally made wooden live-catch trap in Rangoon, metal break-back traps, and wiremesh single catch live traps in Hongkong (Saword, 1970; Drummond, 1974). In the present study the performance of two types of indigenous traps was evaluated in trapping different rodent species found in a coconut plantation in Kerala.

MATERIALS AND METHODS

The traps used in the study were a bamboo snap back-*cum*-noose trap (Fig. 1) and a plank trap/death fall trap (Fig. 2). The bamboo snap back-*cum*-noose trap is mainly used for catching mole rats. The trap consists of a piece of hollow bamboo pole of 25 cm long with an opening of 5 cm girth. It has a small hole in the bamboo pole on either side at a distance of 5 cm from the front end and 20 cm from the rear end meant to insert the bait rope. The free end of the

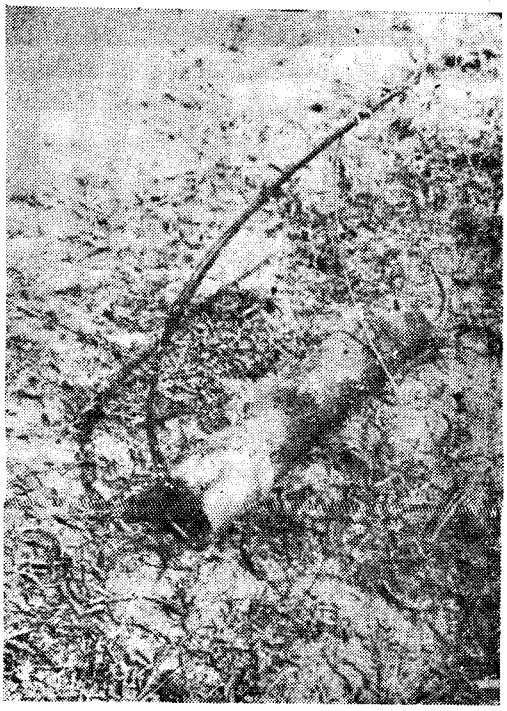

Fig. 1 Bamboo snap back-*cum*-noose trap

rope is fastened to a small catch on the anterior side of the trap. There are two other small holes on the upper side of the bamboo cylinder 4 cm away from the baiting rope

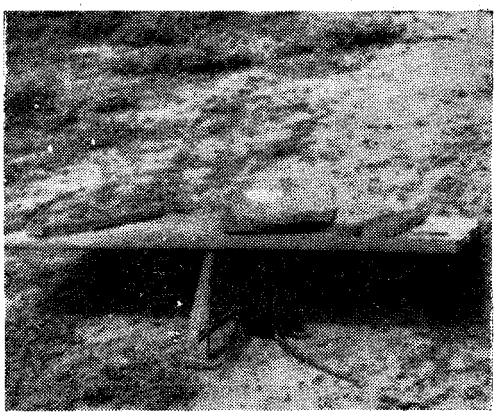

Fig. 2 Plank trap/death fall trap

insertion and nearer to the front end of the bamboo cylinder. These holes are meant for inserting a galvanised iron wire which is drawn out into a loop inside the bamboo pole. A pliable stick, preferably of *Calophyllum inophyllum*, is inserted at the rear end of the bamboo pole and is drawn tight towards the front end of the anterior hole.

First, the rope is passed through the food bait and this end is tied to the catch at the bottom of the cylinder. The loose end of the rope is then drawn tight and tied to the end of the arched stick. The loop of the iron wire is drawn out into a ring to fit exactly into the inner wall of the cylinder, on a flush with it, to facilitate the easy uninhibited insertion of the head of the mole rat. The other end of the iron wire is tied to the end of the arched stick, leaving the wire slack. Now, the trap is dug in and fixed up to the mouth of the "live" burrow with the front end facing the opening and the whole contrivance is camouflaged with some loose earth.

The denizen of the burrow, attracted by the smell of the bait, inserts the anterior portion of the body through the wire loop and tries to remove the bait by cutting the bait rope. This results in releasing the tension of the pliable stick, which retracts in a jerk, and pulls the loop tight around the neck of the animal strangulating it.

The Plank trap/death fall trap is mainly intended to trap highly migratory forms like the bandicoot *Bandicota indica*, Indian gerbil *Tatera indica*, and house rat *Rattus rattus*. The trap consists of a wooden board, 90 cm long, 75 cm wide, and 2 cm thick and three triangularly arranged wooden pegs. This triangular mechanism has an overall appearance of number '4'. The wooden board is first propped on a triangular stand in a slanting position at 45°. The slanting peg has a groove. The upper extremity of the vertical peg is fitted to it and the peg is then propped on the ground. The rear end of the slanting peg is in turn connected to the base of a horizontally fitted dagger-like piece locked in a wedge. The bait is fixed at the free tapering end of this long wooden piece. This pointer with the bait project towards the interior of the plank bottom. The required weight is placed over the board when it is set. The rodent in its nocturnal wanderings is attracted to the bait and nibbles it. This upsets the triangular wooden mechanism and the board along with the weight collapses crushing the rodent underneath.

In the present study, traps were usually set daily towards dusk and rodents were collected the following morning. This was done for two years with bamboo traps and nine months with plank traps. Necessary precautions were taken to avoid trap shyness. The area of operation was the coconut plantation of the C.P.C.R.I. campus extending over 23.5 ha.

Results and Discussions

The results obtained with the bamboo back-*cum*-noose trap are presented in

Table I. The trapping percentage obtained by using the trap best suited for the particular species will also yield indirectly the total rodent population in the particular area at a particular time. Maximum rodent population occurs in October-November and minimum during January-February. Abraham (1959) has also observed that the field population of *B. bengalensis* in rice fields in Tanjore district was maximum during November-December. The fluctuations in population are caused by variation in the availability of food materials and breeding seasons. The population trend indirectly helps in planning control operations.

The performance of plank trap in trapping different rodents is presented in Table II. The different rodents caught in this trap are *R. rattus*, *B. indica* and *T. indica*. From the data, it is clear that *R. rattus* L. has a greater home range followed by *B. indica* and *T. indica*.

Table I. *Catch from bamboo snap back-*cum*-noose trap*

Months		Percent* trapped	Trap index for the month	Average trap** index for 24 hr
July	1974	16.36	0.163	0.065
August	1974	26.07	0.260	0.104
September	1974	12.50	0.125	0.050
October	1974	27.55	0.275	0.110
November	1974	15.28	0.152	0.060
December	1974	20.00	0.200	0.080
January	1975	8.72	0.087	0.034
February	1975	10.71	0.107	0.042
March	1975	12.71	0.120	0.048
April	1975	18.57	0.185	0.074
May	1975	16.39	0.163	0.065
June	1975	15.69	0.156	0.062
July	1975	5.98	0.059	0.023
August	1975	11.21	0.112	0.044
September	1975	12.94	0.129	0.051
October	1975	15.32	0.153	0.061
November	1975	20.19	0.201	0.080
December	1975	17.12	0.171	0.068
January	1976	12.79	0.127	0.050
February	1976	12.50	0.125	0.050
March	1976	15.22	0.152	0.060
April	1976	15.60	0.155	0.062
May	1976	16.00	0.160	0.064
June	1976	16.88	0.168	0.067

*Percent trapped: $\frac{\text{No. of rats caught}}{\text{Total no. of bamboo traps set}} \times 100$

The number of bamboo traps set was 86 - 340 during different months.

**Trap index = $\frac{\text{Total number of animals trapped}}{\text{Number of traps used} \times \text{Number of nights during which traps were set.}}$

Table II. *Catch from plank trap/death fall trap*

Months		Percentage of rats caught			Total percent trapped	Trap index	Average trap index for 24 hours
		B. indica	*R. rattus*	*T. indica*			
October	1975	13.04	13.04	Nil	26.08	0.260	0.104
November	1975	15.52	5.17	Nil	20.69	0.206	0.082
December	1975	17.86	4.76	Nil	22.62	0.226	0.090
January	1976	14.52	3.23	1.61	19.36	0.193	0.077
February	1976	4.84	9.68	3.23	17.35	0.177	0.070
March	1976	5.77	21.15	3.85	30.77	0.307	0.122
April	1976	5.88	14.71	Nil	20.59	0.205	0.082
May	1976	5.17	29.31	15.52	50.00	0.500	0.200
June	1976	1.75	10.53	1.75	14.03	0.140	0.056
Average		9.37	12.40	2.88	24.65		

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