



## Study on the Dermapteran Insect in Ecologically Managed Crop from North Bihar

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### ABSTRACT

Various type of Dermapteran species were recorded in ecologically managed crop situated in Revelganj, Chapra and Chhota Telpa (Chapra Sadar Block). Specimens were collected fermenting bait trap, pitfall traps and beating of the crop. *Libidura ripareae* was the most abundant species. It was also recorded for first time chhota telpa region.

**KEYWORDS** : Dermapteran insects, *Libidura ripareae*, Chhota telpa, Revelganj.

### INTRODUCTION

Dermaptera are elongate and slender insect with a Prognathous head. The thoracic bears two pairs of wings of which the first one is small and leathery, called tegmina. The second pair is large and membranous almost semicircular, and at rest folded underneath the tegmina in a complicated manner. Most dermaptera are uniformly coloured brown or black exceptionally

With a light brown or yellow pattern. Other colours like metallic green are real exceptions. The highest number of diversity in dermapteran species is found in tropical region.

Most species are omnivorous but predominantly phytophagous or predacious species are also known. Some are detritivores.

Dermaptera are thigmotactic. They frequent crevices of all kinds: They can also found under bark, between leaves and under stones, It thought that the Dermaptera (earwig) also creep in human ear and can infect their brain by laying eggs in the brain.

The development is hemimetabolous. The larvae resemble the adult apart from having only wing buds. However, in wingless species the larvae are often difficult to distinguish from the adults. The fossil record of the Dermaptera begins in the Jurassic, about 208 million years ago and comprises about 70 specimens. The earliest fossils are very similar to recent species but adults have segmented cerci. There are no fossils from the Triassic when the morphological changes from Protelyptera to Dermaptera took place [1]. The Dermaptera are often regarded as a neglected group. There are a number of monographs and regional faunas with a large general section which give a good introduction to their biology. Even though Dermaptera are early recognized, it is not easy to find synapomorphic character for the whole order. Most striking are unsegmented, forceps-like cerci, however, they are not forceps-like in Hemimerina and Arixenina. Even though Dermaptera are easily recognized, it is not easy to find synapomorphic characters for the whole order. The morphology of their tegmina and hindwings could constitute a synapomorphy but the Hemimerina and Arixenina are wingless [2]. Maternal care is remarkable but only a few species have been studied. However, the occurrence of maternal care in the very primitive forms displays and in the highly developed genus *Forticula* suggests that this is a common trait for all *Forticula*.

### MATERIALS AND METHODS

Materials were collected from different habitats in Saran, sampling methods comprised

A: A: beating (50 vegetable trees beaten in each vegetable field).

B: Pitfall traps and

C: Fermenting bait traps were used.

Method A was repeated at one week intervals.

Method B a total of 3 pitfall traps were placed in crop field, vegetational field ad grassland.

Pitfall traps consisted of 250 ml cups buried in the soil in such a way that the tip of the trap would be at ground level. They were half filled with ethylene glycol and water mixture as 1:1 ratio. Traps were emptied in two weeks intervals from the beginning of April up to the end of Jan 2006 and 2007 and in three weeks intervals from the beginning of November 2006 the end of 2007.

In case of C total q fermenting bait traps were hung to the branches of vegetable.

The traps were charged with a mixture containing wine (100ml) water (900ml) sugar (25gs) and vinegar (25ml). The traps were checked for the presence of insects at two - weeks' intervals starting from Jan. until the end of December.

## RESULTS AND DISCUSSION

During the course of this study, one species i.e. *Labidura ripariae* was captured in the ecologically managed crop situated in Revelganj and Chhota telpa (Chapra Sadar Block), (Table I).

**Table :1.** List of dermapteran species collected in ecologically managed crop field in 2006 (from site I)

Subsite	2006		Collection Method			Sum	Dominance Value %
	MD	OR	A	B	C		
I	8	4	18	9	7	34	39.0
II	18	9	11	3	5	19	21.8
III	22	7	12	2	6	20	22.9
IV	18	11	7	4	3	14	16
<b>Total</b>	66	31	48	16	21	87	
<b>%</b>			<b>55.17</b>	<b>18.39</b>	<b>24.13</b>		

**M = Muradye; OR= Oren; A= Beating of Vegetation; B = Pitfall trap C = Fermenting bait trap**

**Table :2** List of dermapteran species collected in ecologically managed crop field in 2006 (from site II)

Subsite	2006		Collection Method			Sum	Dominance Value %
	MD	OR	A	B	C		
I	9	14	18	19	17	54	36.49
II	4	19	10	3	5	18	12.16
III	3	17	12	12	16	40	27.23
IV	2	10	17	14	3	34	23.00
<b>Total</b>	18	60	57	48	41	148	
<b>%</b>			<b>38.51</b>	<b>32.43</b>	<b>20.00</b>		

**M= Muradye; OR = Oren; A = Beating of Vegetation B=Pitfall trap C= Fermenting bait trap**

As shown in table I, *Labidura ripariae* was recorded in Revelganj and Chhota telpa, the number of recorded species showed much variation.

Among these number *Labidura ripariae* was recorded for the first time from Chhota Telpa. Using the fermenting trap 21 specimens (24.13%) were collected, 16 specimens (18.39%) were collected by pitfall traps and 48 specimens

(55.17%) were collected by beating vegetation during 2006.

The highest Dominance value were recorded 39.07% from subsite I, while lowest 16.07% was recorded from subsite IV during the study period of 2006.

In 2007, the highest Dominance value was recorded value 36.49% from subsite I while the lowest dominance value was recorded 12.16% from subsite II Above findings showed much resembles to the finding [3-7].

Dermaptera (*Labidura ripariae*) are know to damage some crop plants, but also have some beneficial aspect because it act as a prадator for some harmful insects. However further research is needed on the ecological function of *Labidura ripariae* with particular influence to predators of pests versus their own harmfulness.

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