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ORTHOPTERAN CROP-PEST RELATIONSHIP IN ROPER WETLAND AND ITS ENVIRON PUNJAB, INDIA

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ABSTRACT: A total of 21 species of short-homed grasshoppers spread over 2 families, 8 subfamilies & 19 genera were recorded from the area. 19 species were recorded from paddy crop, followed by 14 species in maize crop &12 from wheat crop. Further it was recorded that 12 species were collected from sugarcane, 11 from pea, 8 from chili, 7 each from gram & brinjal, 6 each from cauliflower & ladies finger 2 from cucumber fields.
Key words: Orthoptera, Roper, Punjab.

INTRODUCTION

Locusts and grasshoppers have been recognized as crop pests. The ever-increasing demand for food, fodder and fuel has been implicated for large-scale deforestation and habitat destruction in the country, especially in the recent past. It is believed that if the present rate of degradation of habitat continuous, Indian will loose all its primary forest cover by the turn of century (Eckholm, 1997). This deforestation and degradation has cascading effect on several species of insects and other life forms and they responds either showing a population decline becoming locally extent or by turning into potential pests of crops. So it is necessary to have a sound knowledge of the ecology of the target species (Tandon & Hazra, 1998).

MATERIALS AND METHODS

The adult and nymph grasshoppers were collected form the different localities of Roper wetland and it's environ. Ropar wetland is 45 kms. away from Chandigarh, situated at 30º.57'-31º.06' N latitude and 76º.25'-30"-76º.36' E longitude at an elevation of 275 m above mean sea level, in Shivalik ranges of Punjab state. It occupies an area of 1365 hectares. Now (February, 2002) this wetland has been designated as eighth Ramsar site of India. Primarily, the water of this wetland is used for irrigation and drinking purpose. The diverse habitats in around this wetland, like deep water lakes, shallow and marshy margins, agricultural fields, fallow lands of denuded Shivalik hills, moist and dry deciduous forest-patches, stagnant water tanks (near Thermal power plant) etc. support wide variety of faunal and floral components. Since, this wetland forms an environmentally strategic ecosystem calling for immediate conservation and management attention.

In order to have a comprehensive collection from agriculture crops and vegetables, survey were made in different seasons at different times. Grasshoppers were collected by sweeping insect net or from the leaves, stems etc. some of the larger insects were picked up form bare ground directly by hand or with help of fine forceps. The grasshoppers after collection form the field were killed in the Potassium Cyanide, or Benzene in the killing bottle. For temporary storage in the fields they were kept in insects envelopes. Before permanent storage in insect cabinets such collection were washed in ethyl alcohol in laboratory and than the specimens were pinned after proper orientation and ready for identification.

OBSERVATIONS & DISCUSSION

A total of 21 species of short-horned grasshoppers spread over 2 families, 8 subfamilies and 19 genera were recorded form the area. Among these two families 17 species belong to Acrididae i.e. *Acrida exaltata* (Walker), *Ceracris nigriconis*(Walker), *Phlaeoba infumata* Brunner, *Gonista sagitta* (Uvarov), *Gelastorrhinus* sp., *Gastrimargus africanus* (Sassure), *Gastrimargus marmoratus* (Thumb), *Aiolopus thalassinus, Oedaleus abruptus* (Thumb), *Trilophidia annulata* (Thumb), *Spathosternum prasiniferum* (Walker), *Hieroglyphus concolar* (Walker), *Mesopsis cylindricus* (Kirby), *Oxya h. hyla* Serville, *Oxya fuscovittata* (Marschall), *Choredocus illustris* (Walker), *Eyprepoenemis alacris* (Serville), *Catantops pinguis innotabilis*(Walker) & *Dnopherula* sp. and two to Pyrgomorphidae viz., *Atractomorpha crenulata* (Fabr.) & *Chrotogonus trachypterus* (Blanchard).

Table1: Diversity and distribution of grasshopper's species on some major crops of in Ropar & its environ

Taxon	Name of Species	Maize	Paddy	Wheat
Family: Acrididae **Subfamily: Acridinae**	*Acrida exaltata* (Walker)	+	+	+
	Ceracris nigriconis(Walker)	-	+	-
	Phlaeoba infumata Brunner	+	+	+
	Gonista sagitta (Uvarov)	+	-	+
	Gelastorrhinus sp.	-	+	-
Subfamily: Oedipodinae	*Gastrimargus africanus* (Sassure)	+	+	-
	Gastrimargus marmoratus (Thumb)	+	-	-
	Aiolopus thalassinus	+	+	+
	Oedaleus abruptus (Thumb)	+	+	+
	Trilophidia annulata (Thumb)	-	+	+
	Spathosternum prasiniferum (Walker)	+	+	+
Subfamily: Hemiacudinae	*Hieroglyphus concolar* (Walker)	-	+	-
Subfamily: Gomphocerinae	*Mesopsis cylindricus* (Kirby)	-	+	-
Subfamily: Oxyinae	*Oxya h. hyla* Serville	+	+	-
	Oxya fuscovittata (Marschall)	+	+	+
Subfamily: Eyprepocnemidinae	*Choredocus illustris* (Walker)	+	+	+
	Eyprepoenemis alacris (Serville)	+	+	-
Subfamily: Catantopinae	*Catantops pinguis innotabilis*(Walker)	+	+	-
Subfamily: Gomphocerinae	*Dnopherula* sp.	-	+	+
Family: Pyrgomorhidae	*Atractomorpha crenulata* (Fabr.)	+	+	+
	Chrotogonus trachypterus (Blanchard)	-	+	+

Table 2: Diversity and distribution of grasshopper's species on some major vegetables, spices, cereals & sugar cane in Ropar & its Environ

Sr. No.	Name of Species	Vegetables				Spice	Cereals		
		Brinjal	Cauli flower	Lady Finger	Cucumber	Chili	Pea	Gram	Sugar cane
1	Acrida exaltata (Walker)	+	+	+	-	+	+	+	+
2	Ceracris nigriconis(Walker)	+	-	-	-	-	+	-	+
3	Phlaeoba infumata Brunner	-	-	+	-	-	-	+	+
4	Gonista sagitta (Uvarov)	-	-	-	-	-	-	-	+
5	Gelastorrhinus sp.	-	+	-	-	-	-	-	+
6	Gastrimargus africanus (Sassure)	-	-	-	-	-	-	-	-
7	Gastrimargus marmoratus (Thumb)	-	-	-	-	-	-	-	-
8	Aiolopus thalassinus	-	+	+	+	+	+	+	
9	Oedaleus abruptus (Thumb)	-	-	-	-	-	+	+	-
10	Trilophidia annulata (Thumb)	+	-	-	-	+	+	+	-
11	Spathosternum prasiniferum (Walker)	+	-	-	-	+	+	+	+
12	Hieroglyphus concolar (Walker)	-	-	-	-	-	-	-	_
13	Mesopsis cylindricus (Kirby)	-	-	-	-	-	-	-	-
14	Oxya h. hyla Serville	+	+	+	-	+	+	-	+
15	Oxya fuscovittata (Marschall)	+	+	+	-	+	+	-	+
16	Choredocus illustris (Walker)	-	-	-	-	-	-	-	+
17	Eyprepoenemis alacris (Serville)	-	-	-	+	-	-	-	+
18	Catantops pinguis innotabilis(Walker)	+	-	+	-	-	+	-	-
19	Dnopherula sp.	-	+	-	-	+	-	-	+
20	Atractomorpha crenulata (Fabr.)	-	-	-	-	+	+	+	+
21	Chrotogonustrachypterus (Blanchard)	-	-	-	-	-	+		

It was very interesting to note that maximum number species 19 were recorded from from paddy fields followed by 14 from maize, 12 from wheat crops. A total of 16 species showed their preference to more then 2 crops (Table-I). Further, it was seen that 12 species of grasshoppers were collected from sugarcane fields, 11 from pea, 8 from chili, 7 each from grams & brinjaL 6 each from cauliflower, ladies finger & 2 from cucumber fields (Table-2).

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