



## Acridid (Orthoptera) fauna of agricultural ecosystem in some southern districts of Tamil Nadu, India

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The richness of tropical insect fauna is beyond all earlier expectations (Stork 1988). Insects are the major components of animal diversity in terms of number of species in most of the habitats and ecosystems. With the growing awareness the world over for the need to understand and conserve biological diversity, there has been interest in evaluating the insect richness and diversity of the Indian fauna (Gadagkar et al. 1990; Muralirangan et al. 1993; Sanjayan 1993). Acridids cause extensive damage to both agroecosystem (COPR 1982) and rangeland ecosystem (Hewitt & Onsager 1983). The presence and dominance of grasshoppers appear to be influenced not only by the environmental gradients, but also by the species composition of plants as well (Kemp et al. 1990).

Among grasshoppers the acridids are the most important group thus their diversity and distribution in agricultural ecosystem was studied and reported here.

Acridids were collected by sweep-net technique from the agricultural ecosystem (crop fields and grasslands) of Madurai, Dindigul, Sivaganga, Virudhunagar, and Theni of the Southern districts in Tamil Nadu, India during the years 2004 and 2005. The collected species were identified adopting the conventional taxonomic procedures following the keys prescribed by Dirsh (1961) and Kirby (1914). Acridids were categorized based on their feeding guilds namely grass feeder (GF), dicot feeder (DF) and mixed feeder (MF) those feed on both the groups of plants. They were further designated as

core and satellite species based on their abundance (Muralirangan et al. 1993).

Thirty-one species of acridids were identified belonging to the families Acrididae and Pyrgomorphidae (Table 1).

The family Acrididae represented by 25 species (10 subfamilies and 22 genera) and the family Pyrgomorphidae comprised of six species (five genera). The highest number of species (six) recorded belong to subfamily Locustinae of family Acrididae. The feeding guild of recorded acridids revealed that nine species are grass feeders, one species is a dicot feeder and 21 species are mixed feeders. Among the Acridids collected, 18 species were recorded as core species and the other 13 species were designated as satellite species based on their moderate or sporadic distribution.

The species of the subfamily Acridinae, Oxyinae and Truxalinae were restricted to feed on grasses. All the species of the family Pyrgomorphidae were able to feed on dicot plants except *Poecilocerus pictus* which had a very strict feeding pattern. Though, recorded as a monophagous species, it feeds on some other plants too. All the grasshopper species were recorded throughout the study period including their temporal variation in abundance. The acridid *P. pictus* was recorded only during the months of September to December. Seasonal variation in grasshopper abundance is in relation to host plant availability. And this study indicates that variation in distribution of acridids as core and satellite to the availability of host plants, subject to prevailing ecological conditions.

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**Table 1. Distribution, feeding guild and abundance of acridid species**

Species	Feeding Guild	Abundance
<b>Family: Pyrgomorphidae</b>		
1. <i>Atractomorpha crenulata</i> (Fabricius)	MF	Core
2. <i>Chrotogonus oxypterus</i> (Blanchard)	MF	Core
3. <i>Orthacris robusta</i> Kevan	MF	Satellite
4. <i>Orthacris maindroni</i> Bolivar	MF	Core
5. <i>Pyrgomorpha bispinosa</i> Walker	MF	Core
6. <i>Poeciloceris pictus</i> (Fabricius)	DF	Core
<b>Family: Acrididae</b>		
<b>Subfamily: Acridinae</b>		
7. <i>Acrida exaltata</i> (Walker)	GF	Core
8. <i>Phlaeoba infumata</i> Burnner	GF	Satellite
<b>Subfamily: Catantopinae</b>		
9. <i>Diablocatantops pinguis</i> (Walker)	MF	Core
10. <i>Xenocatantops humilis</i> (Serville)	MF	Satellite
11. <i>Stenocatantops splendens</i> (Thunberg)	MF	Satellite
12. <i>Catantops furrugineus</i> (Walker)	MF	Satellite
<b>Subfamily: Cyrtacanthacridinae</b>		
13. <i>Cyrtacanthacris tatarica tatarica</i> (Linnaeus)	MF	Core
14. <i>Anacridium flavescens</i> (Fabricius)	MF	Core
15. <i>Pachyacris violascens</i> (Walker)	MF	Satellite
<b>Subfamily: Eyprepocnemidinae</b>		
16. <i>Eyprepocnemis alacris alacris</i> (Serville)	MF	Core
17. <i>Heteracris pulcher</i> (Bolivar)	MF	Satellite
<b>Subfamily: Gomphocerinae</b>		
18. <i>Leva cruciata</i> Bolivar	MF	Core
19. <i>Leva indica</i> (Bolivar)	MF	Satellite
<b>Subfamily: Hemiacridinae</b>		
20. <i>Spathosternum prasiniferum prasiniferum</i> (Walker)	GF	Core
<b>Subfamily: Locustinae</b>		
21. <i>Aiolopus thalassinus thalassinus</i> (Fabricius)	GF	Core
22. <i>Aiolopus thalassinus tamulus</i> (Fabricius)	GF	Core
23. <i>Gastrimargus africanus africanus</i> (Saussure)	MF	Satellite
24. <i>Morphacris fasciata sulcata</i> (Thunberg)	MF	Satellite
25. <i>Oedaleus senegalensis</i> (Krauss)	MF	Satellite
26. <i>Trilophidia annulata</i> (Thunberg)	MF	Core
<b>Subfamily: Oxyinae</b>		
27. <i>Gesonula punctiformis</i> (Stal)	GF	Core
28. <i>Oxya fuscovittata</i> (Marshall)	GF	Core
29. <i>Oxya nitidula</i> (Walker)	GF	Core
<b>Subfamily: Tropidopolinae</b>		
30. <i>Tristria pulvinata</i> (Uvarov)	MF	Satellite
<b>Subfamily: Truxalinae</b>		
31. <i>Truxalis indica</i> (Bolivar)	GF	Satellite

GF - Grass Feeder; DF - Dicot Feeder; MF - Mixed Feeder

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