ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 7, Issue, 3, pp. 9457-9460, March, 2016

International Journal of Recent Scientific Research

RESEARCH ARTICLE

STUDIES ON GRASSHOPPERS (ORTHOPTERA) IN TILARI FOREST, CHANDGAD, KOLHAPUR DISTRICT OF MAHARASHTRA (INDIA)

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ARTICLE INFO

Article History:

Received 06th December, 2015
Received in revised form 14th January, 2016
Accepted 23rd February, 2016
Published online 28th March, 2016

Keywords:

Grasshopper, Acrididae,
Tilari Forest

ABSTRACT

Grasshoppers belong to order Orthoptera which is one of the largest and diverse groups of insects. They are dominant above ground invertebrates in cultivated and in natural grasslands ecosystems. For the first time surveys and collection of insects in Tilari forest, Chandgad, Kolhapur district of Maharashtra in year 2014-2015. During this study period 17 species of grasshoppers belonging to 3 families of 17 genera were recorded. Family Acrididae was dominant with (8 species), followed by Tettigonidae (6 species) and Pyrgomorphidae (3 species).

INTRODUCTION

Grasshoppers are insects of the order Orthoptera, and having suborder Caelifera and Ensifera. They are sometimes referred to as short-horned grasshoppers (Caelifera), to distinguish them from the katydids which have much longer antennae (Ensifera). They are hemimetabolous insects. The life cycle is completed with three stages viz. egg, nymph and adult. Nymph moulted five times, becoming more similar to the adult insect at each developmental stage. At high population densities and under certain environmental conditions, some grasshopper species can change colour and behavior and form swarms. Under these circumstances they are known as locusts. Grasshoppers are plant-eaters, sometimes becoming serious pests of cereals, vegetables and pasture, especially when they swarm in their millions as locusts and destroy crops over wide areas. Hence they are included in Oligophagous and mixed feeders (Mulkern 1967). They are functionally very important ground invertebrates in grassland ecosystem (Scott 1979 and Risser 1981). They are often the main invertebrate in grassland ecosystem for consumers (Curry 1994) and are an important food source for many groups of predator e.g. birds (Joern 1986 and Samways 1997).There almost 20,000 species of orthoptera from the world among them 1,750 species known from India (Tandon and Hazra 1998). Maximum species are tropical but are also well recorded in temperate areas. Kirby 1994 and Chopard (1969) are the major work on Orthoptera in India which is published in Orthoptera fauna of India but so far less literature and data available about Orthoptera of Maharashtra state is available only the scattered information on faunal diversity of Orthoptera of this states has been published by some workers, and number worker including Hancock (1915), Bhowmik (1985a,b), Shishodia and Hazra (1986), Shishodia and Tandon (1987), Day and Hazra (2003), Shishodia and Barman (2004) and Chandra (2010) have also worked on the fauna of other state and including the distribution of some species in Maharashtra. There is no any published work or report from Tilari forest. Therefore, for the first time an attempt was made to study fauna of insects of Tilari Maharashtra.

MATERIALS AND METHODS

Grasshoppers were collected from Tilari forest of Maharashtra in the year 2014 and 2015 by sweep net method in the morning and evening time. Then collected specimens were transferred in bottles for killing that contains cotton soaked with ethyl acetate covered with paper. The collected specimens were preserved by both dry and wet preservation methods. Identification was

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done with the help of Orthoptera fauna of India Kirby (1994) and webography.

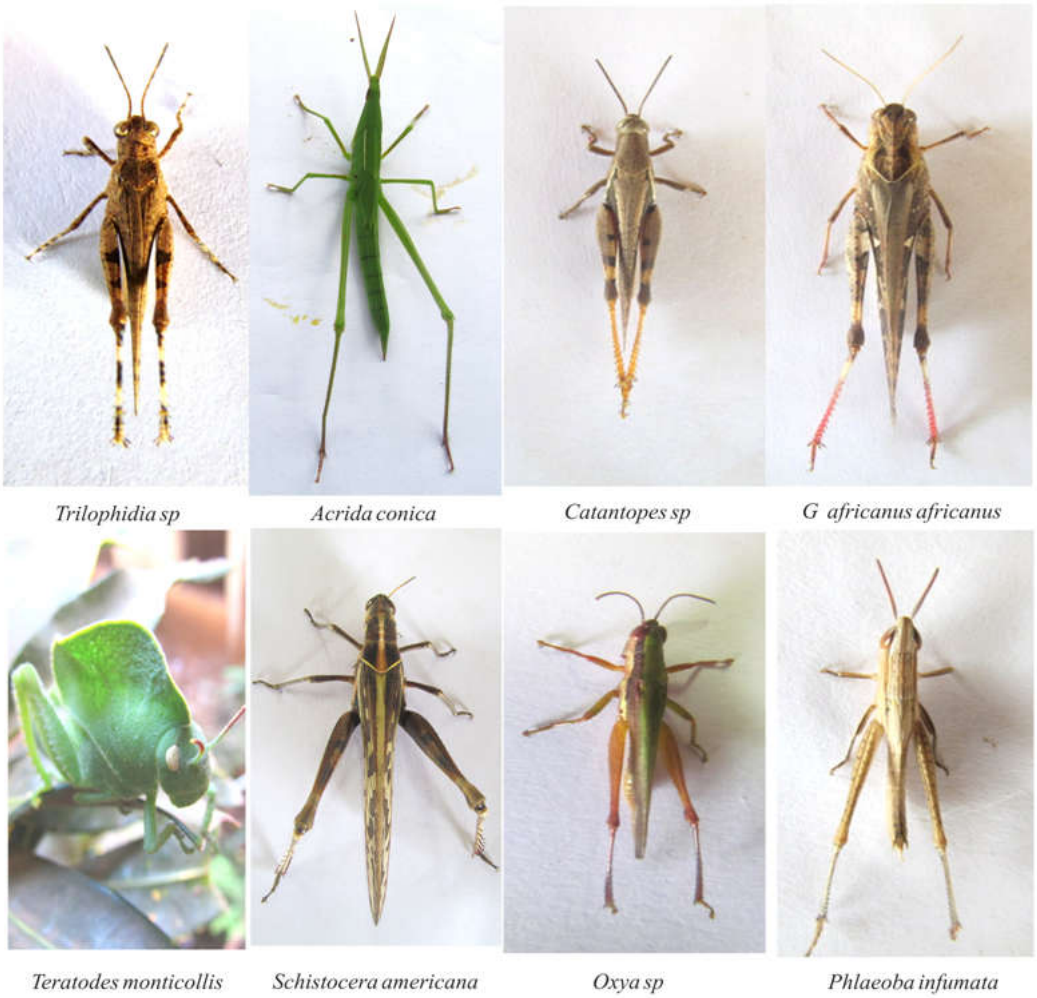
Study Region

The survey of grasshoppers among different habitat types of Tilari forest and surrounding area is covered with dense lush green forest and semi evergreen mixed forest. This place is located in Kolhapur district of Maharashtra, India. Tilari (Latitude 15^0 45' to 16^0 3' N & Longitude 74^0 1' to 74^0 27' E) is located around 762 m above sea level and temperature ranging from (14.75^0C to 36.10^0C). This forest average rainfall is between 3000 to 4000 mm/year. *Water is available in all season's number of small and large ponds, dam and river In Tilari forest so Variety of animals* living in the forest covered areas and near the Border of Karnataka and Goa State.

RESULTS AND DISCUSSION

There were 17 species of grasshoppers collected from different habitats and different localities of Tilari forest. During the course of study, 17 species of grasshoppers belonging to 17 genera, 3families viz. Acrididae, Tettigoniidae and Pyrgomrphidae, (with 8,6, and 3 species respectively (Table 1).

Present data revealed that, the grasshoppers of study regions is rich and diversified may be because of variety of flora and complex ecological conditions, rainfall pattern, temperature. Senthikumar et al (2006) studied on Orthopteran fauna of Gibbon wildlife sanctuary in Assam and recorded 25 species. Chandra and Gupta (2007) have reported 139 species of Orthoptera belonging to 12 families in Madhya Pradesh and Chattisgarh. Shishodia and Gupta (2009) have recorded 165 species of grasshoppers under 16 families in Himachal Pradesh. Koli *et al* (2010) studied on Orthoptera fauna in Chandoli National park, and reported 62 species belonging to 8 families. Akhtar et al (2012) have recorded 26 species of grasshoppers belonging to 2 families in Uttar Pradesh. Usmani *et al* (2012) **Studied on taxonomy and distribution of Acridoidea (Orthoptera) of Bihar, India and** recorded 37 species. Waghmare et al (2013) studied on species diversity of short horned grasshopper in selected grasslands of Solapur district of Maharashtra and recorded 7 species. Prabhakar (2015) provided an updated checklist of Insecta: Orthoptera of Tamil Nadu with new distributional records which revealed 384 species in the order Orthoptera. Kumar,et al (2015) studied on (Acrididae: Acridoidea) from Haryana, India and recorded 36 species.



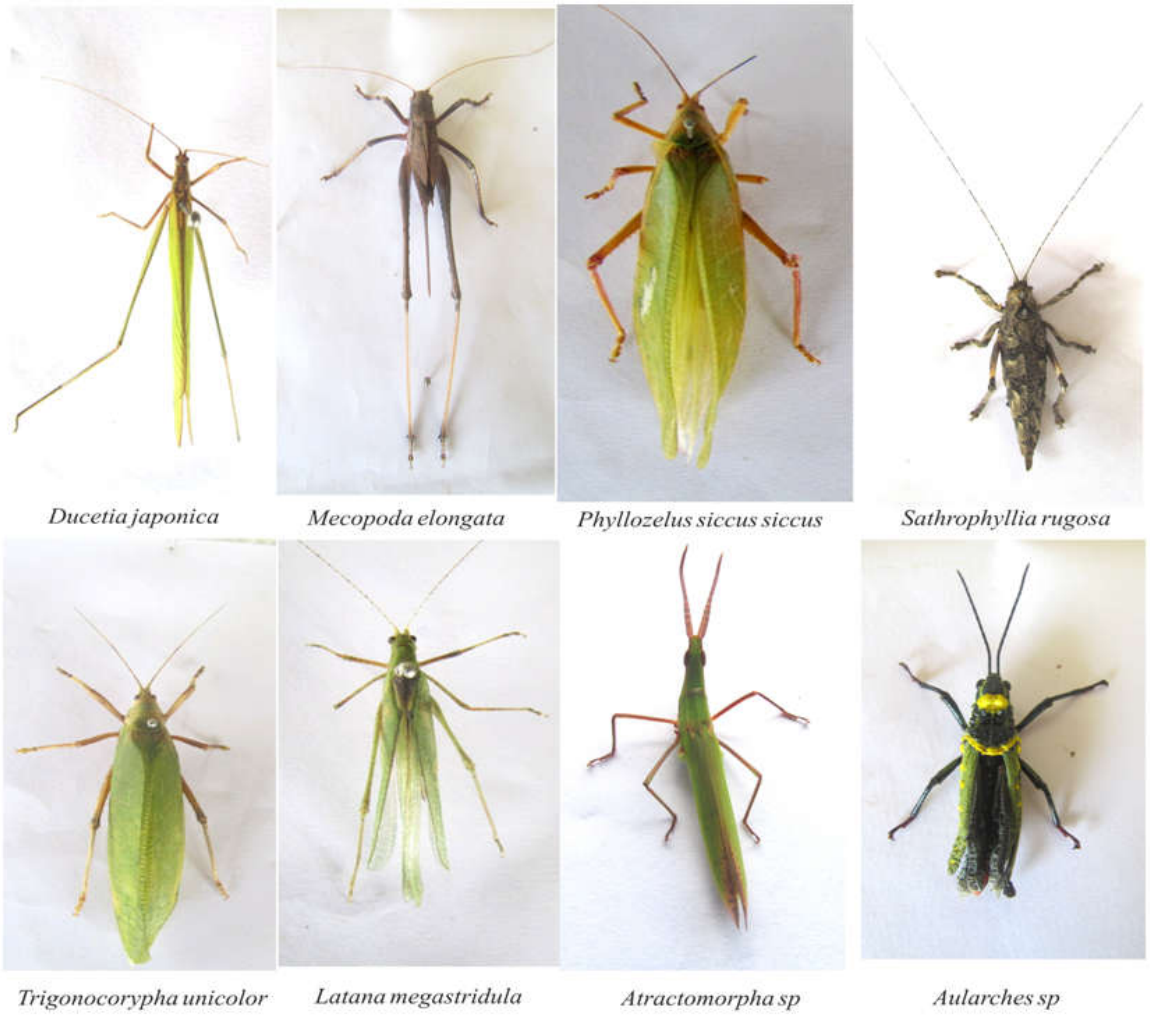


Table 1 Checklist of Grasshoppers from Tilari forest

Sr. No	Family	Species
1	**Acrididae**	*Trilophidia sp*
		Acrida conica
		Catantopes sp
		Gastrimargus africanus africanus
		Teratodes monticollis
		Schistocera americana
		Oxya sp
		Phlaeoba infumata
2	**Tettigoniidae**	*Ducetia japonica*
		Mecopoda elongata
		Phyllozelus siccus siccus
		Sathrophyllia rugosa
		Trigonocorypha unicolor.
		Latana megastridula ingrisch
3	**Pyrgomorphidae**	*Atractomorpha sp*
		Aularches sp

C trachypterus trachypterus

Acknowledgements

Authors are thankful to Prof. Dr. P. R. Patil, Principal R.B. Madkholkar Mahavidyalaya, Chandgad, Kolhapur for providing necessary facilities and financial assistance for this work.

References

Akhtar,H. Usmani, K.Nayeem, R. and Kumar,H (2012). Species Diversity and abundance of Grasshopper fauna (Orthoptera) in rice ecosystem. *Annals of Biological Research*, 2012, 3 (5):2190-2193.

Bhowmik, H.K (1985a).Contribution to the Gryllid fauna of the Western Himalayas (Orthoptera: Gryllidae). Records of the *Zoological Survey of India*, Occasional paper number 73: 1-85.

Bhowmik, H.K (1985b).Outline of distribution with an index-catalogue of Indian grasshopper (Orthoptera: Acrididae). Records of the *Zoological Survey of India*, Occasional paper number 78:1-51.

Chandra, K. and Gupta,S.K.(2007). A checklist of orthoptera from Madhya Pradesh and Chatttisgarh

Chandra, K.Gupta S. K. and Shoshodia, M.S. (2010). A checklist of Orthoptera (Insecta) of India. *Zoological Survey of India* (M.P), India, pp 1-57.

Chopard, L. (1969). The fauna of India and adjacent countries. Orthoptera 2, Grylloidea. The Manager of publication Delhi, Xviii+ 421.

Curry, J.P (1994).Grassland invertebrates ecology influence on soil fertility and effects on plant growth. Chapman and Hall, Landon.

Dey, A and Hazra, A. K (2003). Diversity and distribution of grasshopper fauna of greater kolkata with on their ecology, Memoris, Pub. *Zoological Survey of India* 19(3): 1-118.

Hancock, J.L (1915). IndianTetriginae. Records of the Indian Museum.11: 55-132.

Joern, A (1986).Experimental study of avian predation on coexisting grasshopper population (Orthoptera: Acrididae) in a sand hill, Oikos46: 243-249.

Kirby,W.F. (1994).The fauna of British India, including Ceylon and Burma, Orthoptera (Acrididae).Landon IX + 276PP.

Koli, Y.J. et al (2010). Orthopteran fauna of Chandoli national park, Maharashtra. Lake 2010: Wetlands, Biodiversity and Climate Change

Kumar, H. and Usmani, M. K. (2015). A checklist of Acrididae (Orthoptera: Acridoidea) from Haryana, India. *Acta Zoológica Mexicana* (n. s.), 31(2): 234-238.

Mulkern, G.B (1967**)**. *Annual Review of Entomology.*12: 59-78

Prabhakar, D (2015). An updated checklist of Insecta: Orthoptera of Tamil Nadu with new distributional records. *Biolife* 3(1):263-290.

Risser, P.G. E. C. Binery, H. D.Blocker, S.W. May, W. J. Parton and J. A. Wiens(1981). The true prairie ecosystem. Hutchinson Ross. Pub. Co., Stroudsburg, Penn, pp-557.

Samways, M.J (1997).Conservation biology of Orthopteran In: Gangwer, S.K, Muralirangan Mc, Muralirangan M (eds) the Bionomics of Grasshopper Katydids and their kin CAB international Walligford, PP 481-496.

Scott, J. A., N. R. French and J.W. Leetcham (1979). Pattern of consumption in grasslands. pp.89-105.

Senthilkumar, N. Barthakur, D. Nizara and Borab, N. J (2006). Orthopteran fauna of the Gibbon wildlife sanctuary Assam. *Zoos print Journal* 21(8): 2347-2349.

Shishodia, M. S and Hazra, A. K (1986). Orthoptera fauna of Silent Valley, Kerala. Records of the *Zoological Survey of India* 84(1-4): 191-228.

Shishodia, M.S and Tandon, S.K (1987).Insecta: Orthoptera: Grylloidea and Tridactyloidea, Fauna of Orissa: State fauna series I. *Zoological survey of India*, pp 113-128.

Shishodia, M. S and Barman, R.S (2004). Insecta Orthoptera: Tettigoniidae. Fauna of Manipur: State fauna series 10*, Zoological Survey of India*, pp 139-145.

Shishodia, M. S and Gupta, Sunil Kumar (2009). Checklist of Orthoptera (Insecta) of Himachal Pradesh, India *Journal of Threatened Taxa*. 1(11): 569-572.

Tandon, S. K and Hazra, A. K (1998). Faunal diversity in India Orthoptera, pp183-188. ENVIS Center. *Zoological Survey of India Kolkata*.

Usmani, M. K, Nayeem, R. and Akhtar, H (2012). Field observations on the incidence of Grasshopper fauna (Orthoptera) as a pest of Paddy and pulses in European Journal of *Experimental Biology*, 2012, 2 (5):1912-1917

Waghmare S, Waghmare D, Bhatnagar PS (2013) Species Diversity of Short Horned Grasshopper (Orthoptera: Acrididae) in Selected Grasslands of Solapur District, Maharashtra, India. *J Biodivers Endanger Species* 1:110. doi:10.4172/jbes.1000110

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How to cite this article:

More S. V and Nikam K .N.2016, Studies on Grasshoppers (Orthoptera) In Tilari Forest, Chandgad, Kolhapur District Of Maharashtra (India). *Int J Recent Sci Res.* 7(3), pp. 9457-9460.