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ANT FAUNA OF THE YASHWANTRAO CHAVAN INSTITUTE OF SCIENCE CAMPUS - SURVEY AND SOME PRELIMINARY OBSERVATIONS

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ABSTRACT

The botanical garden and the campus of Yashwantrao Chavan Institute of Science (YCIS), Satara (Long. 17° 41.11', LAT. 74° 0.65' and Alt. 2156 ft. asl) were surveyed for biodiversity of ants. On the basis of preliminary survey a checklist of ant genera and some preliminary observations are reported in this paper.

Key words : Ants, Biodiversity, Eusocial, Formicidae, Nest, Mymecology.

Ants occupy a special place in the terrestrial ecosystem. Tropical habitats, both natural and man-made show a rich ant diversity (Gadagkar *et al.*, 1993). The variations displayed by ants in their social habit and habitat, nest building, feeding and food and general behavior in any ecosystem is relatively unexplored. The literature survey states that ant fauna of India has not been discussed in detail. In the present study an attempt has been made to survey the ant fauna of YCIS campus, Satara.

The 'All out search' method was adopted to collect different species of ants. The ants were physically collected with the help of brush and forceps. Random collections were carried out during day, at different sites in the campus, from January to December 2006. The representative individuals of all species seen were collected and transferred to separate vials containing 70% ethanol. Classification of ants into different subfamilies and genera was done with the help of taxonomic keys provided by Bolton for the Oriental region (Holldobler and Wilson, 1990). The identified and unidentified specimens were labeled and given code numbers and deposited in insectarium of Botany Department, YCIS.

The earliest reference to Indian ants dates

back to susruta, the renowned ancient physician (Ayyar, 1939), who classified ants into 6 groups, based on their economic importance (Veeresh, 1990). However, systemic study and documentation of Indian ants only began during last century.

Ants survive in varied habitats. They are reported from all terrestrial habitats from sub-arctic tundra to equatorial rainforests, from swamp to harsh desert, from seacoast to great altitude and from deep in soil to the tips of highest trees (Bolton, 1994). In the present investigation ants were collected from trees, flowers, under ground, below stones, cracks and crevices in buildings, under wood logs, leaf-litter, rotten fruits, debris, garbage, and dumping yards.

Ants are classified under various Subfamilies of Family - Formicidae of Superfamily- Vespoidea within Order - Hymenoptera of Class - Insecta. The known living ants are classified into 21 subfamilies under which about 300 known genera are systematically arranged. 621 species belonging to 73 genera of 12 subfamilies are reported from India (Varghese, 2003). In the present investigation 46 species belonging to 21 genera of 6 subfamilies were collected from January to December, 2006.

Of the 6 subfamilies reported in the present investigation, Myrmicine ants dominated the campus representing 9 genera followed by members of Formicinae with 5 genera. The subfamily Dolichoderinae was represented by 2 genera, Ponerinae, Aenictinae and Pseudomyrmicinae were represented by single genus each.

Genera *Crematogaster*, *Pheidole*, *Pheidologeton*, *Solenopsis*, *Tetramorium*, *Tapinoma*, *Camponotus*, *Lepisiota*, and *Paratrechina* were abundant in the campus. Genera *Leptogenys*, *Tetraoponera*, *Myrmecaria*, *Dolichoderus*, *Anoplolepis* and *Polyrachis* were frequently observed. Genus *Aenictus* *Aenictus*, *Cardiocondyla*, *Cataulacus*, *Meranoplus* were rarely observed during the study period (Kore, 2005). (Table-1)

Genus *Crematogaster*, *tetraoponera*, *Myrmecaria*, *Tapinoma*, and *Polyrachis* are tree dwellers. Among soil dwellers many nests of *Leptogenys*, *Pheidole*, *Solenopsis*, *Camponotus*, and *Paratrechina* were observed. Of these *Solenopsis* and *Camponotus* dominated the campus. Genus *Aenictus*, *Cataulacus* and *Anoplolepis* were exhibited only one nest and small colony.

Some interesting observations during survey in the campus were as under :

- 1) Workers of *Leptogenys* were carrying a full-grown live millipede and larvae of some other insects to their nest as prey. A single colony of this genus may have thousands of ants. They have a habit of shifting colony frequently with very long trails like a procession and hence species is named as *L. processionalis*.
- 2) Genus *Aenictus* does not have eyes and thus they are commonly known as 'Blind ants'. In spite of this their very agile short trail was noticed. Only single colony was observed once during study period.
- 3) Genus *Tetraoponera* and a species of *Camponotus* are the longest ants among the genera collected.

4) Workers of *Cataulacus* are very slow moving and solitary foragers. Its nest was associated with *Camponotus* at the base of tree trunk. This genus was represented by a single colony during monsoon.

5) *Cardiocondyla* and *Pheidologeton* have very minute body size.

6) *Crematogaster*, *Solenopsis* and *Camponotus* are very aggressive and attacking and most common in the campus.

7) When in action the abdomen of *Crematogaster* reflects back and waggles frequently during attack. This genus nests under bark of plants and dead shoot systems.

8) *Solenopsis* stings severely leaving a burning pain for a longer period hence commonly called as "fire ants". They build polydomous nests by removing underground soil particles.

9) Genus *Myrmecaria* unearths soil particles and builds crater like nest.

10) *Myrmecaria*, *Dolichoderus* and *Camponotus* remain associated with and protect the colonies of aphids for their honey dew secretion.

11) *Crematogaster*, *Polyrachis* and *Tapinoma* are arboreal genera with long and active trails on shoot system of certain plants.

12) Genus *Anoplolepis* nests under foundation of buildings and when disturbed, the workers secrete some acid like chemical through their acidopore, for defense. This genus is commonly known as 'Crazy ants'.

13) *Camponotus* is the largest and widely distributed genus in campus. The workers are bigger among the collected specimens. It nests under base of trees. This genus is diurnal forager.

14) Genus *Paratrechina* is agile and nests in cracks and crevices of building.

15) The winged queens of *Pheidologeton* were dragged by a few workers while shifting colony to a new site.

Table 1 : Check list of ant genera of YCIS campus explored from Jan. 06 to Dec. 06 and abundance of various genera

Subfamily	Genera	No. of Species	Abundance
Ponerinae	<i>Leptogenys</i>	1	Frequent
Aenictinae	<i>Aenictus</i>	1	Rare
Pseudomyrmecinae	<i>Tetraponera</i>	2	Frequent
Myrmicinae	<i>Cardiocondyla</i>	1	Rare
	<i>Cataculacus</i>	1	Rare
	<i>Crematogaster</i>	5	Abundant
	<i>Meranoplus</i>	1	Rare
	<i>Myrmicaria</i>	2	Frequent
	<i>Pheidole</i>	6	Abundant
	<i>Pheidologeton</i>	1	Abundant
	<i>Solenopsis</i>	1	Abundant
	<i>Tetramorium</i>	3	Abundant
	Dolichoderinae	<i>Dolichoderus</i>	2
<i>Tapinoma</i>		2	Abundant
Formicinae	<i>Anoploepis</i>	1	Frequent
	<i>Camonots</i>	5	Abundant
	<i>Lepisiota</i>	1	Abundant
	<i>Paratrechina</i>	2	Abundant
	<i>Polyrhachis</i>	1	Frequent
Unidentified ants	-----	2	Rare

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