



**DIVERSITY OF ANTS (HYMENOPETERA –FORMICIDAE) FROM
PARNER, DISTRICT AHMEDNAGAR, MAHARASHTRA, INDIA**

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Abstract:-

Ants are abundant insects and are considered important in ecosystem functioning they have diverse ecological role including nutrient cycling seed dispersal. This research is carried out from Oct 2020 to Feb 2021 at different site and area of Parner . Total 11 species, 1 Family and 11 genera were recorded. Result obtained shows that Anoplolepis gracilipes, Solenopsis invicta, Lasius niger, Linepithema humile, Paraponera clavata, Formica rufa, Lasius alienus, Prenolepis imparis, Tetramorium caespitum, Formica fusca, Camponotus consobrinus.

Key words :- Biodiversity, Ants , Parner.

Introduction :-

Ants are imperative component of ecosystem not only because of their massive biomass but also because of the role they played in the ecosystem. The ants act as bio indicators to evaluate forest quality and environmental controls because they associated with the various cyclical processes of nature such as nitrogen cycle, carbon cycle and causative to reducing climate change. Ants also act as bio-control agents and has an impotent role in IMP programme. For instance in Australia, Oecophylla ant are also used to control the main pest cashew and mango (1) and in many parts of the world these ants are used as the effective bio-control. The ants belong to the family Formicidae superfamily Formicoidea and order Hymenoptera in the class Insecta. There are more than 25,000 species of ants present worldwide (2) and thus ants are numerous in number of species as well as number of individuals per colony.

Ants are ground dwelling insects they live in underground nest as an ant colony. However their diversity and abundance are influenced by anthropogenic activities. As per the recent classification the Formicidae family is divided into 21 subfamilies and 290 genera, among which Myrmicinae is the largest subfamily

containing 138 genera followed by Formicinae having 39 genera and Ponerinae containing 25 genera. Recently, a new subfamily Martialinae has been added to the family Formicidae. So, the Formicidae family contain 22 subfamily in worldwide. Tropical habitats are rich in ant diversity. But the data on the ants of both natural and manmade habitats are poor especially Indian region. The Indian ant diversity constitute 4598 of Myrmicinae subfamily with genera Pheidole and Crematogaster comprising the most species, 25% of Formicinae subfamily with genera Camponotus and Polyrhachis are most diverse and 14 % of Ponerinae subfamily with genera Leptogenys having the most species. Ants communities are influenced by both biotic and abiotic factors distribution of ant species varies along latitudinal gradients which correspond to gradual changes in a certain environmental factors such as a climate and vegetation factors. Globally there are about 12571 extant ants species as per the recent classification all ants are grouped in 21 sub families all the ants species fall into signal family formicidae this family vespidae of the order hymenoptera which is place in the class insecta.

Literature Survey :-

Dr.Gokul Kale (2018), He studied the Study of Ant Diversity in Various Localities of Akola, Maharashtra, India. Ants are abundant insects and are considered important in ecosystem functioning they have diverse ecological role including nutrient cycling seed dispersal. This research is carried out from January 2018 to April 2018 . During this research ant samples were collected from the two ecological habitats. In this finding ants of about 8 species were found different species were collected through different methods and recorded their diversity. Species such as longicornis, pharaonis, indica, C.sericus, hespera, nigra, spathifera, geminate. Among all the species longicornis ,considering species richness diversified species were mostly found in the month of April followed by month of January and it was very less in February and march during this research ants were collected by using pitfall traps, scented traps and hand collection method ants were generally collected during morning and was preserved the wet preservation methods Shivaji Chavan (2018), he was studied Diversity and distribution of Ants (hymenoptera: formicidae) from nanded region, he study the Ants species. They Survey was conducted during . The Year – 2018 , from Nanded district along with S. R. T. M. U. Nanded, Mudkhed, Kinwat and Penganga River of Maharashtra state India to assess the diversity and distribution of the amazing species coming from the order-Hymenoptera. Under the department of Zoology, School of Life Science, S. R/ T. M. University, Nanded. The study reveal that under the surveyed area there 14 biodiversity of ants belonging to 11 genera and 5 sub-families-Formicidae, Myrmicinae, Pseudomyrmicine, Dolichoderininae and Formicine, The sub family myramicine dominated among different sub families including 7 species. Whereas pseudomyrmicinae, dolichoderinae and formicinae contain 2 species each and sub family formicidae contains least species.

S.Gokulakrishnan (2014), Ant Diversity In Selected Localities Of Thanjaur and cuddalore districts of

Tamilnadu.Astudy tried to explore the distribution of ants in riverine are , cultivable lands and industrial localities around thanjavur and cuddalore district. In the area , twenty one species of ants in fourteen genera were identified. These ant species belong to six

subfamilies:ponerirae, dorylinae, pseudomyrmicinae, myrmicinae, formicinae, and dolichoderinae.The dominant genus was camponoputs and etraponera. Among these three habitats, the similarity of ant species was highest between riverine area and cultivable land. The dominance in riverine area and cultivated area indicated that genera comptonotus is most adapted genera in riverine area and cultivated area . Kamal Adhikari (2019), Diversity and Distribution of Ants (hymenoptera :formicidae) in Gauhati university campus, Assam. Ants are the importants invertebrates play momentous role in the terrestrial ecosystem and also precipitated actively in the intractions that develop the quality of soil. The presence studies of undertaken to investigate the diversity and distribution of ants in Gaugati University campus, Assam, India. The ants were collected from four different habitats that is open area, hilly area, near wet land area and human habitat area from June to September 2017. A total of 21 species of ants belonging to four sub families that is formicinae , pseudomyrmicinae , myrmicinae , and ponerinae were recorded . the myrmicinae sub family was more divers with ten species followed by formicinae with eight species, ponerinae with two species and pseudomyrmicinae were found list diverse with only one species . the shannon-winner species divrcity indicated that the diversity was highest in helly area (2.793) followed by open area (2.291) , humn habitat area (2.265) and lowest in near the wet land area (1.993) .As assam is a part of eastern biodiversity hotspot area but less work has been done earlier on the ant diversity of these region so the present work will not only throw light on ant diversity in the guahati university campus but also in the whole region.

R.J -CHAVHAN (2014) Diversity of ants (hymenoptera :formicidae) from undisturbed and disturbed habitats of great indian bustard wild life sanctuary , (M.S) , India the study of ants diversity undisturbed and disturbed habitat of great indian bustard wild life sanctuary located in maharashtra state , india. From undisturbed and disturbed forest site total 19 and 16 species were collected respectively . among the sub families reported from study Area myrmicinae were dominant with 7 species (35%) , followed by formicinae with 6 species (35%) , pseudomyrmecinae with 3 species (50%) , ponerinae with (10%) and lastly dolichoderinae and dorylinae with one species (5%) each . ants species *Anochetus graeffi* , *Meranoplus* by colour and *Polyrhachis tibialis* were found to be absent from disturbed site were as *Leptogenys chinensis* were not reported from undisturbed forest site . Shannon-wiener diversity index (H') for undisturbed forest site (2.76) was slightly higher than that of disturbed forest site (2.46) ant abundance and composition were significantly different from undisturbed and disturbed forest site .

G.R.ALLEN (2004) Red imported fire ant impact on wildlife: a decade of research. The negative impacts of biological invasion economically and ecologically significant and, while incompletely quantified, they are clearly substantial . Ant family formicidae are an important , although often overlooked , components of many terrestrial ecosystem 6 species of ants are especially striking in their global ability to invade , and their impact. This paper focus on the impacts of the most destructive those species , the red imported fire ants (*Solenopsis invicta*) , and focuses on impacts on negative vertebrates . A red imported fire ants often become dominant ant species infested area outside of their native rain to aggressive foraging behavior , high reproductive capability and lack of predator and / or other competitors the evidence suggest that mammals , birds and herpetofauna vulnerable to negative impacts for fire ants , and some species are more likely to impact to experience to

negative population is logistically difficult , and very few studies have combined replicated experimental manipulation with adequate spatial (>10ha) and temporal (>1y) scale. Thus , most studies have been observational opportunistic , small /scale or natural experiment .

Nayana Pual(2016), Comparison of ants (Hymenoptera:Formicidae) diversity in different habitats of machhad region of Thrissur . We studied the formicidae diversity of machhad region of Thrissur . Five different habitats paddy, banana, rubber, coconut, vegetable garden were selected . 25 species of Formicidae belonging to 4 subfamily (Formicinae, Myrmicinae and ponerinae) were collected. The distribution species in the different subfamily showed a dominance of formicinae with 4 genus (15 species) followed by myrmicinae with 5 genera (6 species) , ponerinae with 2 genera (3 species) and pseudomyrmecinae with list species (1) . The genus *Camponotus* (Mayr) was the most abundant genera with 12 species finding of this preliminary study indicated that much more details study should be conducted to investigate the diversity ants of machhad region of Thrissur.

Objectives:-

1. Collection of Ants and preservation .
2. Identification different key .
3. Research papers.
4. They important role of ecosystem.
5. The collection is done from various areas in Parner , Dist-Ahmednagar, Maharashtra.

Material and Methods:-

Study Area:-

The present study was conducted from Oct 2020 to Feb 2021 at different study site in and around parner city . The ants were collected from different site of parner city dist-ahmednagar , Maharashtra. Specimen were collected from different types of method used. Bait method, ant-well method and forcep-brush-ethanol method, hand picking method used

Sampling method:- Ants were collected by adopting standard sampling technique such as active searching photography , hand picking collection of ant were carried

out during morning and evening. Hours by manual hand picking in different place located parner city ant are preserved as etheyl alcohol 0.1%

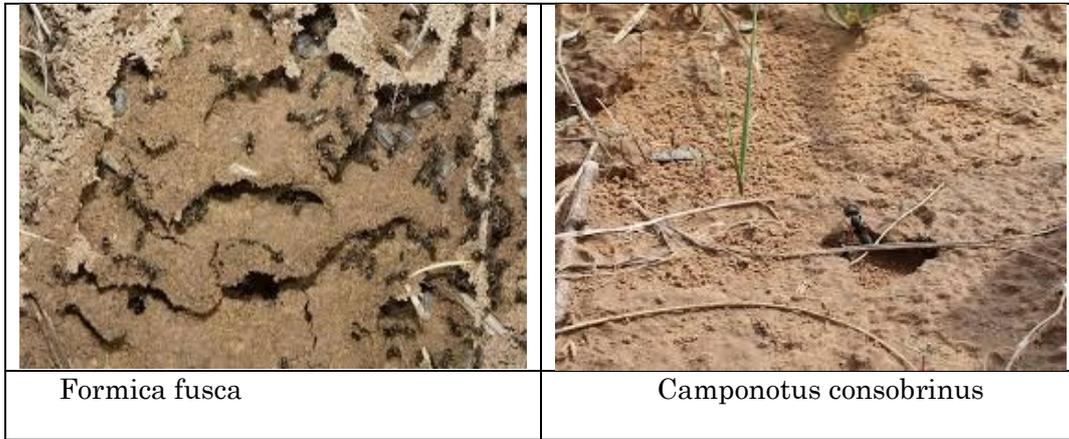
Identification :- Different keys are use in identification and catalog provided by Linnaeus (1758,1761) F.smith (1857), May (1868) Fabricias (1775) were followed for the identification of ants specimen.

Result and Discussion :- The total 11 species represented by 1 families 12 genera were recorded during the period of the study .

Family :Formicidae

1. Anoplolepis gracilipes (F. smith 1857)
2. Solenopsis invicta (Buren 1972)
3. Lasisus niger (Linnaeus 1758)
4. Linepithema humile (Mayr,1868)
5. Paraponera claveta (Fabricias 1775)
6. Formica rufa (Linnaeus 1761)
7. Lasius alienus (FASTER 1850)
8. Prenolpis imparies (Thomus say 1836)
9. Tramoriumm caespitum (Santschi 1927)
10. Formica fusca (Linnaeus 1758)
11. Camponsus consobrinus (Erichson 1842)

		
Anoplolepis gracilipes	Anoplolepis gracilipes	Lasisus nigar
		
Linepithema humile	Paraponera claveta	Formica rufa
		
Lasius alienus	Preolepis imparies	Tetamorium caespitum



The 11 species represented Family Formicidae followed by Anoplolepis gracilipes , Solenopsis invicta , Lasius niger, Linepithema humile , Paraponera clavata, Formica rufa , Lasius alienus , Prenolepis imparis, Tetramorium caespitum , Formica fusca , Camponotus consobrinus .

Smiliar result Shivaji Chavan (2018) with Family Formicidae , 14 different species belong to family – Formicidae , under 5 sub-families and 11 different genera . Butea monosperma, Azadiracta indica, Acacia nilotica were the host trees found to used by these ants in the study area. S. Gokulakrishnan (2014) During the present investigation comparatively in totoally 21 species belonging to 14 genera , that spread over 6 subfamilies were recorded . Of the 6 subfamilies , The Myrmicinae was the most dominant . subfamilies in terms of species richness (7 species) followed by Formicinae (5 species) Ponerinae and Pseudomyrmicinae 3 species , Dolichoderinae (5 species) and the Dorylinae was represented by only one ant species in all the surveyed areas. Kamal Adhikari (2019) smiliar result , a total of 15,471 no. of individuals belonging to 21 species , 14 genera and 4 subfamilies were recorded from the Gauhati University campus, Guwahati Assam. The Myrmicinae was the most dominant subfamily in terms of species richnees 10 species followed by Formicinae 8 species , Ponerinae 2 species and Pesudomyrimicinae 1 species .

Conclusion : Spider collected from different localities in around city during Oct 2020 to Feb 2021. Total 11 species 1 Family Formicidae and 11 genera. Result obtained shows that Fromicidae Anoplolepis gracilipes , Salenopsis invicta, Lasius niger, Linepithema humile, Paraponera clavata , Formica rufa , Lasius alienus , Prenolepis

imparies , Tetramorium caespitum , Fromica fusca , Camponotus consobrinus .

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