

A Recent Review of the Diversity of Ant Species in and Around Chandrapur District Maharashtra (India)

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Abstract: *The review study aims to prepare a checklist of common ant species diversity in and around Chandrapur district of Maharashtra. Ants play very crucial role in environment. Ants are insect belongs to order Hymenoptera and family Formicidae. Ants are present in almost all type of habitat including human settlements, grassland, forest, agriculture, rocks, soil etc. In the mentioned checklist, there are a total of 142 species of ants in 50 genera, representing 8 subfamilies namely Formicinae, Myrmicinae, Pseudomyrmicinae, Ponerinae, Penitinae, Cerapachyinae, Dolichoderine and Dorylinae. Out of these eight subfamilies, Myrmicinae represent the highest number of ant species (70 species) in 16 genera, Formicinae represent the second highest number of ant species (36 species) in 12 genera followed by the Ponerinae represent the third highest number of ant species (15 species) in 9 genera, Dolichoderinae represent the fourth highest number of ant species (10 species) in 6 genera, Dorylinae represent the fifth highest number of ant species (4 species) in 3 genera, Pseudomyrmicinae represent the sixth highest number of ant species (5 species) in 2 genera, Aenictinae and Cerapachyinae represent the seventh and eighth highest number of ant species (1 species) in 1 genera for each subfamily.*

Keywords: *Ants, Diversity, Formicidae, Habitat, Genera*

I. INTRODUCTION

The Arthropoda is the largest phylum in the animal kingdom. Which includes the largest class Insecta. The class insecta contains the order Hymenoptera and Family Formicidae which include Ants along with related wasps and bees. (S.B. Nikalje, N.J.Wadkar, Gaidhane D.M 2023).

Among all insect Ants have most highly organised social life. These are found in almost every types of habitat such as grassland, forest, wetland, bark of trees, leaf litter, soil, rocks, human settlement and decaying organic matter (Mohammad Misbahul Ahsan 2022).

India is 12 known subfamilies of Ants, including; Dolichoderinae, Dorylinae, Myrmicinae, Ponerinae, Formicinae, Pseudomyrmicinae, Aenictinae, Amblyoponinae, Cerapachyinae, Ectatomminae, Proceratiinae and Leptanillinae. (Vaishali J. Badwaik 2022)

Despite their ecological significance, Ants are one of the least studied insect groups in India, especially in terms of taxonomy and ecology. They plays important role by directly interacting with the soil, plants and animals at all trophic level.(Prema Pramod Ratnaparkhi, Dr. Gokul Kale 2018). Due to their abundance, dominance and diverse interactions as predators and also their symbiotic relation with plants and other organisms ants are considered as ideal model organism for measuring and monitoring biodiversity. (BV Sonune, RJ Chavan 2016).

Ants are ground dwelling insects as they inhabit underground colonies. The worker ants come to top surface for foraging, searching and collecting food, exploring the new nests sites. These are tiny but most busy insects and play most important role in pollination of several crops during fertilization period. Ants are found everywhere on earth, except in polar region and these are sub-terrestrial or surface dwellers. (Shivaji Chavan, Syeda Gulrez, Sonali Jondhale 2018).



Ants has positive impact on agricultural systems by quickly consuming large number of insect pest disturbing pest during feeding and egg-laying and increasing soil quality and nutrients. Ants act as indicator for health of the environment because they are quickly response to change in surrounding environment. The process of construction of the several types of nest & foraging activities help to increase soil fertility. Some are completely present in underground while other are partially exposed. These nest consist of corridors and chambers can be covered with natural materials as dead wood, stones or other debris found on the soil surface. (Chate, S. 2021).

II. REVIEW OF LITERATURE

During the literature survey of Ant species in and around district Chandrapur, it was observed that the population of *Camponotus* genera was dominant among the total population of other genera in Formicinae subfamily. The most abundant subfamily is Myrmicinae.

III. OBSERVATION AND RESULT

In the mentioned checklist (Table No. 1 showing checklist of commonly observed Ant species in and around Chandrapur District), there are a total of 142 species of Ants, there are out of which 36 species belongs to **Formicinae**, 70 species belong to **Myrmicinae**, 15 species belong to **Ponerinae**, 10 species belong to **Dolichoderinae**, 5 species belong to **Pseudomyrmicinae**, 4 species belong to **Dorylinae**, 1 species belong to **Aenitinae** and 1 species belong to **Cerapachyinae**. Many of the studies showed that Myrmicinae are dominating the ant species population followed by Fomicinae and Ponerinae.

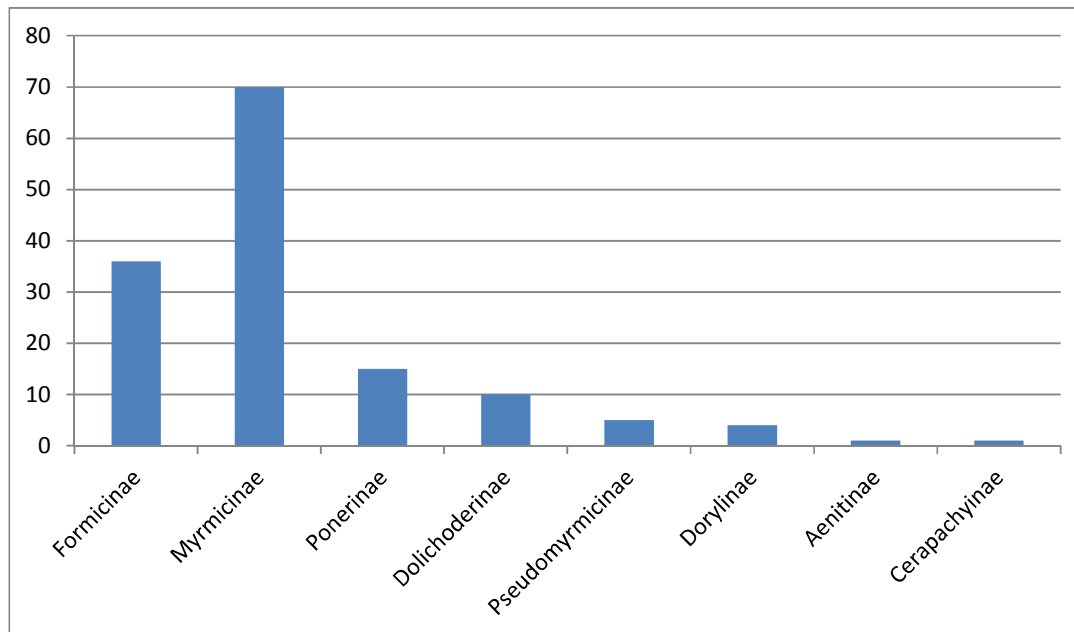


Fig.1 : Graph shows number of Ant species in different subfamilies

IV. DISCUSSION AND CONCLUSION

According to present study, the Ants are inhabit all types of habitat as Forest, Grassland, Agriculture, Rock, Soil, Plants and so on. These all are considered as habitat for ants. Ants are the very important organisms as they play crucial role in decomposition of decaying organisms. Though they are very small in size still they play most important role in maintaing the balance of environment.



Ants are considered bio-indicator due to their rapid response to environmental changes. Ants has positive impact on agricultural systems by quickly consuming large number of pest insects. They also enhance soil quality and also responsible for nutrient recycling.

Present study recorded total 142 species of 50 genera, which represent 8 subfamilies namely Formicinae, Myrmicinae, Pseudomyrmicinae, Ponerinae, Penitinae, Cerapachyinae, Dolichoderine and Dorylinae. Out of this eight subfamilies, Myrmicinae represent highest number of ants species (70 species) in 16 genera, Formicinae represent the second highest number of ants species (36 species) in 12 genera followed by Ponerinae represent the third highest number of ants species (15 species) in 9 genera, Dolichoderinae represent the fourth highest number of ants species (10 species) in 6 genera, Dorylinae represent the fifth highest number of ants species (4 species) in 3 genera, Pseudomyrmicinae represent sixth highest number of ant species (5 species) in 2 genera, Aneitinae and Cerapachyinae represent seventh and eight number of ants species (1 species) in 1 genera for each subfamily.

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Table No. 1 Checklist of Commonly observed Ant species in and Around Chandrapur Distrcit:

Subfamily - Formicinae	Subfamily - Myrmicinae	Subfamily - Pseudomyrmecinae
1. <i>Anoplolepis gracilipes</i>	1. <i>Aphaenogaster beccarii</i> (Emery, 1887)	1. <i>Tetraponera allaborans</i> (Walker, 1859)
2. <i>Brachymyrmex patogonicus</i>	2. <i>Aphaenogaster longiceps</i> (Smith, F., 1858)	2. <i>Tetraponera nigra</i> (Jerdon, 1851)
3. <i>Camponotus angusticollis</i> (Jerdon, 1851)	3. <i>Aphaenogaster sardoa</i>	3. <i>Tetraponera rufonigra</i> (Jerdon, 1851)
4. <i>Camponotus barbatus taylori</i> (Forel, 1892)	4. <i>Aphaenogaster schurri</i> (Forel, 1902)	4. <i>Pseudomyrmex brunneus</i> (Smith, F., 1877)
5. <i>Camponotus compressus</i> (Fabricius, 1787)	5. <i>Cataulacus latus</i> (Forel, 1891)	5. <i>Pseudomyrmex pallides</i>
6. <i>Camponotus criniceps</i> (Mayr, 1879)	6. <i>Cardiocondyla carbonaria</i> (Forel, 1907)	
7. <i>Camponotus dolendus</i> (Forel, 1892)	7. <i>Cardiocondyla wroughtonii</i> (Forel, 1890)	
8. <i>Camponotus gigas</i> (Latreille, 1802)	8. <i>Crematogaster artifex</i> (Forel, 1902)	
9. <i>Camponotus irritans</i> (Smith, 1857)	9. <i>Crematogaster aberrans</i>	
10. <i>Camponotus japonicas</i>	10. <i>Crematogaster biroi</i> (Mayr, 1897)	
11. <i>Camponotus maculatusbasalis</i> (Smith, 1878)	11. <i>Crematogaster brunnea contemta</i>	
12. <i>Camponotus novaeboracensis</i>	12. <i>Crematogaster diffusa</i> (Jerdon, 1851)	
13. <i>Camponotus parius</i> (Emery, 1889)	13. <i>Crematogaster ebenina</i> (Forel, 1902)	
14. <i>Camponotus pennsylvanicus</i>	14. <i>Crematogaster hodgsoni</i> (Forel, 1902)	
15. <i>Camponotus rufoglaucus</i> (Jerdon, 1851)	15. <i>Crematogaster ransonneti</i>	
16. <i>Camponotus sericeus</i> (Fabricius, 1798)	16. <i>Crematogaster rongenfori</i>	
17. <i>Camponotus variegates</i>	17. <i>Crematogaster rothneyi</i> civa (Forel, 1902)	
18. (Smith)	18. <i>Crematogaster perelegans</i> (Forel, 1902)	
19. <i>Camponotus wasmanni</i> (Emery, 1893)	19. <i>Crematogaster subnuda</i>	
20. <i>Crematogaster rothneyi</i>	20. <i>Crematogaster sp</i>	
21. <i>Formica pollidefulva</i>	21. <i>Crematogaster wroughtonii</i> (Forel, 1902)	
22. <i>Formica rufa</i>	22. <i>Lophomyrmex quadrispinosus</i> (Jerdon, 1851)	
23. <i>Lasius americanus</i>	23. <i>Messor instabilis</i> (Smith, 1858)	
24. <i>Lepisiota bipartite</i>	24. <i>Meranoplus bicolor bicolor</i> (Guerin-Meneville, 1844)	
25. <i>Lepisiota capensis</i> (Mayr, 1862)	25. <i>Monomorium atomum</i> (Forel, 1902)	
26. <i>Lepisiota ffrauenfeldi</i> (Mayr, 1855)		
27. <i>Lepisiota opaca pulchella</i> (Forel, 1892)		
28. <i>Lepisiota sericea</i> (Forel, 1892)		
		Subfamily - Ponerinae
		1. <i>Anochetus graeffei</i>
		2. <i>Anochetus sp.</i>
		3. <i>Brachyponera luteipes</i> (Mayr, 1862)
		4. <i>Brachyponera jerdonii</i> (Forel, 1900)
		5. <i>Diacamma ceylonense</i>
		6. <i>Diacamma rugosum</i> (Le Guillou, 1842)
		7. <i>Hypoponera sp.</i>
		8. <i>Leptogenys chinensis</i> (Mayr, 1870)
		9. <i>Leptogenys processionalis</i> (Jerdon, 1851)
		10. <i>Leptogenys diminuta</i> (Fred, Smith, 1858)
		11. <i>Leptogrmys falcigera</i>
		12. <i>Mesoponera manni</i> (Viehmeyer, 1924)
		13. <i>Odontoponera denticulata</i> (Smith, 1858)
		14. <i>Platythyrei sagei</i>
		15. <i>Pachycondyla sulcata</i> (Mayr, 1867)



29. <i>Oecophylla smaragdina</i> (Fabricius, 1775)	26. <i>Monomorium destructor</i> (Jerdon, 1851)	Subfamily - Aenitinae
30. <i>Paratrechina longicornis</i> (Latreille, 1802)	27. <i>Monomorium dichroum</i> (Forel, 1902)	1. <i>Aenictus doryloides</i> (Wilson, 1964)
31. <i>Plagiolepis jerdonii</i>	28. <i>Monomorium indicum</i> (Forel, 1902)	2. <i>Aenictus ceylonicus</i>
32. <i>Polyrhachis dives</i>	29. <i>Monomorium indica</i> (Weber, 1950)	Subfamily - Cerapachyinae
33. <i>Polyrhachis exercita obtusisquama</i>	30. <i>Monomorium latinode</i>	1. <i>Cerapachys rufus</i> (Jerdon)
34. <i>Polyrhachis lacteipennis</i> (Smith, F., 1858)	31. <i>Monomorium minimum</i>	
35. <i>Polyrhachis rastellata</i> (Latreille, 1802)	32. <i>Monomorium pharaonis</i> (Linnaeus, 1857)	Subfamily - Dolichoderinae
36. <i>Polyrhachis tibialis</i> (Smith, F., 1858)	33. <i>Monomorium scbriceps</i>	1. <i>Dolichoderus affinis</i> (Emery)
37. <i>Syscia augustae</i> (Wheeler, W. M., 1902)	34. <i>Monomorium subopacum</i> (Smith, F., 1858)	2. <i>Dilichoderus sundari</i> (Mathew and Tiwari, 2000)
	35. <i>Monomorium sp.</i>	3. <i>Dorymyrmex bicolor</i> (Wheeler, W. M., 1906)
	36. <i>Myrmecaria brunnea</i> (Saunders, 1842)	4. <i>Forelius mccoocki</i> (McCook, 1879)
	37. <i>Myrmecina american</i>	5. <i>Iridomyrmex anceps</i> (Roger, 1863)
	38. <i>Solenopsis germinate</i> (Fabricius, 1804)	6. <i>Tapinoma indicum</i> (Forel, 1895)
	39. <i>Solenopsis molesta</i> (Buren, 1972)	7. <i>Tapinoma sessile</i> (Say, 1836)
	40. <i>Solenopsis aurea</i>	8. <i>Tapinoma melanocephalum</i> (Fabricius 1793)
	41. <i>Pheidologeton diversus</i> (Jerdon, 1851)	9. <i>Technomyrmex albipes</i> (Smith, 1861)
	42. <i>Pheidologeton flavens</i>	10. <i>Technomyrmex brunneus</i> (Forel, 1895)
	43. <i>Pheidologeton affinis</i>	
	44. <i>Pheidole dentate</i>	
	45. <i>Pheidole hyatti</i>	
	46. <i>Pheidole hoogwerfi</i> (Forel, 1902)	
	47. <i>Pheidole geton noda</i>	
	48. <i>Pheidole indica</i>	
	49. <i>Pheidole lamellinoda</i> (Forel, 1902)	
	50. <i>Pheidole megacephala</i> (Fabricius, 1793)	
	51. <i>Pheidole parva</i> (Mayr, 1865)	
	52. <i>Pheidole spathifera</i> (Forel, 1902)	
	53. <i>Pheidole striativentris</i> (Mayr, 1878)	



	<p>54. <i>Pheidole sulcaticeps</i> (Roger, 1863)</p> <p>55. <i>Pheidole watsoni</i></p> <p>56. <i>Pheidole woodmasoni</i> (Forel, 1885)</p> <p>57. <i>Pogonomyrmex barbatus</i></p> <p>58. <i>Tetramorium bicarinatum</i></p> <p>59. <i>Tetramorium caespitum</i> (André, 1887)</p> <p>60. <i>Tetramorium guineense</i> (Fabricus, 1793)</p> <p>61. <i>Tetramorium mayri</i> (Forel, 1912)</p> <p>62. <i>Tetramorium simillimum</i> (Smith, 1851)</p> <p>63. <i>Tetramorium smithi</i> (Mayr, 1879)</p> <p>64. <i>Tetramorium walshi</i></p> <p>65. <i>Trichomyrmex criniceps</i> (Mayr, 1879)</p> <p>66. <i>Trichomyrmex destructor</i></p> <p>67. <i>Trichomyrmex glaber</i> (André, 1883)</p> <p>68. <i>Trichomyrmex scabriceps</i> (Mayr, 1879)</p> <p>69. <i>Trichomyrmex wroughtoni</i> (Forel, 1902)</p> <p>70. <i>Wasmania auropunctata</i></p>	<p>Subfamily – Dorylinae</p> <ol style="list-style-type: none"> 1. <i>Cerapachys longitarsus</i> (Mayr, 1879) 2. <i>Dorylus orientalis</i> (Westwood, 1853) 3. <i>Dorylus labiatus</i> (shuckard, 1840) 4. <i>Lioponera longitarsus</i> (Mayr, 1879)
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Figure 1: Satellite Image of Chandrapur District (Red Border) [<https://earth.google.com>]

