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A preliminary study on some of the insect fauna during rainy season in the agricultural field of Karanja (Ghadge), District Wardha (Maharashtra)

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Abstract
A survey of the agriculture field of Karanja (Ghadge), District Wardha during the rainy season was undertaken to study the insect fauna. During the study about 44 species of insect were identified belonging to 9 orders and 28 families. The order Lepidoptera was found to be the dominant order with 18 species, followed by Coleoptera and Hemiptera with 9 species each, Orthoptera with 3 species and Hymenoptera, Mantodea, Araneae Blattodea and Diptera with one species each. The insects recorded were an agricultural pests and predatory insects.

Keywords: Insect pest, Karanja (Ghadge), diversity, rainy season

Introduction
India is an agricultural country. About 70% of the rural population depends on the agriculture field. There are various types of agricultural crops grown during the rainy season in a different areas of Maharashtra. During the rainy season there occurs the incidence of various insect pests on different types of agricultural crops. These insect pests cause serious damage to the agricultural crops resulting in great loss in the production. Worldwide more than 10,000 species of insect pest found to be damaged by the different types of food plants (Dhaliwal *et al.*, (2007) [3]. Various workers have done their studies related to the diversity of insect pests in different parts of Maharashtra. Mahajan D M and Patil R D (2014) [5] have studied Plant and insect species diversity from Western Satpuda and reported 443 insect species belonging to 102 families and 19 orders. Aland S R *et al.*, (2010) [1] have recorded 82 species belonging to 47 genera and 17 families of order hymenoptera from Amba reserved forest of Kolhapur, Western ghats. Dadmal S M and Khadakkar S (2014) [2] have recorded 19 species of scarab beetles' diversity belonging to 10 genera from Akola. Nikam K N and More S V (2016) [6] recorded 44 species of insects belonging to 9 orders from Jangamhatti area, Chandgad, district, Kolhapur. Salunke R N and More S V (2017) [8] recorded 17 insect pests from agriculture and forest areas of Chandgad tahsil, district Kolhapur. Jagdale P and Magdum S (2017) [4] have recorded Dung beetles of 24 types belonging to 14 genera and 3 families from Nashik. Wankhade V *et al.*, (2014) [10] have studied the diversity of coleopteran insects from the Sawanga-Vithoba Lake region, District Amravati and recorded 27 species of beetle belonging to 7 families. Vairale A B (2017) [9] have studthe ied diversity of spiders fthe rom agro-ecosystem of tahsil Sangrampur, district Buldhana and reported 143 species of spiders belonging to 63 genera and 11 families. Rajgurav G D *et al.*, (2018) [7] have studied the spider diversity of Ambegaon tahsil, district Pune and reported 58 species of spiders belonging to 38 genera and 5 families.
However, no records are available on the insect fauna diversity of Karanja (Ghadge), tahsil of district Wardha, Maharashtra. Therefore, the present study aims to prepare a list of occurrences of insect pests during the rainy season in the given area.

Material and Methods
The present study was carried out in Karanja (Ghadge), located in district Wardha of Nagpur division of the Vidarbha region of Maharashtra.

A survey of the agriculture field of Karanja (Ghadge) was carried out from July 2021- September 2021 to study the insect fauna during the rainy season in the agriculture field of the given area. The field survey includes various agricultural crops and plants. The insect pest observed during the field survey was captured on the camera. The insect pest recorded were identified with the help of various research papers, literature available and internet sources. The insect pest identified was arranged according to their order and family.

Result and Discussion

A field survey during the rainy season from July 2021to to September 2021 records 44 species of insects belonging to 9 orders and 28 families. Lepidoptera was found to be the dominant order with 18 species with a maximum of 8 species recorded from the family Erebidae. From order Coleoptera and Hemiptera, each 9 species are recorded with maximum species recorded from family Meloidae and Pentatomidae from this order respectively. From order Orthoptera 3 species were recorded with a maximum of 2 species from the family Acrididae and the least only one species was recorded each from order Hymenoptera, Mantodea, Araneae Blattodea and Diptera.

From the present study it is confirmed that the order Lepidoptera is found to be dominant followed by Coleoptera, Hemiptera, Orthoptera. At the same time, very least insects are recorded from Order Hymenoptera, Mantodea, Araneae, Blattodea and Diptera. The insects recorded in this study are some agricultural pests and some are predatory insects. This preliminary study on the insect pest will give the record of the occurrence and dominance of various agricultural and predatory insect during the rainy season in the agriculture field of Karanja (Ghadge).

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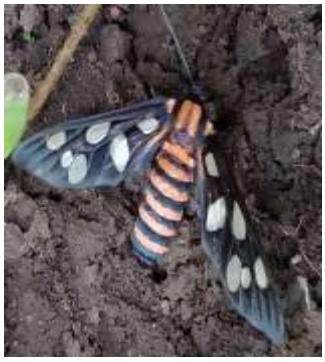
Table 1: List of Insects recorded & identified during the rainy season in the study area

Sr. No	Common Name	Scientific Name	Family	Order
1.	Castor Semilooper	*Achaea Janata* (Linnaeus, 1758)	Erebidae	Lepidoptera
2.	Wasp Moth	*Amata passalis* (Fabricius, 1781)	Erebidae	Lepidoptera
3.	Tussock Moth	*Euproctis leithiana* (Moore, 1879)	Erebidae	Lepidoptera
4.	Fall Webworm	*Hyphantria cunea* (Drury, 1773)	Erebidae	Lepidoptera
5.	Unknown	*Rajendra vittata* (Moore, 1879)	Erebidae	Lepidoptera
6. (a)	Common hairy caterpillar	*Spilarctia obliqua* (Walker, 1855)	Erebidae	Lepidoptera
6. (b)	Bihar Hairy caterpillar	*Spilosoma obliqua* (Walker, 1855)	Erebidae	Lepidoptera
7.	Heliotrope Moth	*Utetheisa pulchelloides* (Hampson, 1907)	Erebidae	Lepidoptera
8.	Corn Earworm	*Helicoverpa zea* (Boddie, 1850)	Noctuidae	Lepidoptera
9.	Tobacco Cutworm	*Spodoptera litura* (Fabricius, 1775)	Noctuidae	Lepidoptera
10.	Cabbage looper	*Trichoplusia ni* (Hubner, 1800-1803)	Noctuidae	Lepidoptera
11.	Eggplant fruit borer or brinjal fruit borer	*Leucinodes orbonalis* (Guenee, 1854)	Crambidae	Lepidoptera
12.	Unknown	*Parotis marginata* (Hampson, 1893)	Crambidae	Lepidoptera
13.	Oleander Hawk Moth caterpillar	*Daphnis nerii* (Linnaeus, 1758)	Sphingidae	Lepidoptera
14.	Tersa Sphinx moth caterpillar	*Xylophanes tersa* (Linnaeus, 1771)	Sphingidae	Lepidoptera
15.	Tawny Coster caterpillar	*Acraea terpsicore* (Linnaeus, 1758)	Nymphalidae	Lepidoptera
16.	Common Mormon butterfly caterpillar	*Papilio polytes* (Linnaeus, 1758)	Papilionidae	Lepidoptera
17.	Bagworm	*Psyche* sp.	Psychidae	Lepidoptera
18.	Unknown	*Eupterote* sp.	Eupterotidae	Lepidoptera
19.	Blister Beetle	*Epicauta* sp.1	Meloidae	Coleoptera
20.	Blister Beetle	*Epicauta* sp.2	Meloidae	Coeloptera
21. (a)	Blister Beetle	*Hycleus polymorphus* (Pallas, 1771)	Meloidae	Coleoptera
21. (b)	Blister Beetle	*Hycleus polymorphus* (Pallas, 1771)	Meloidae	Coleoptera
22.	Blister Beetle	*Nemognatha* sp.	Meloidae	Coleoptera
23.	Flower Chafer Beetle	*Gametis versicolor* (Fabricius, 1775)	Scarabaeidae	Coleoptera
24.	Metallic Wood Boring Beetle	*Euchroma gigantea* (Linnaeus, 1758)	Buprestidae	Coleoptera
25.	White or Grey Weevil	Myllocerus sp.	Curculionidae	Coleoptera
26.	Lady bird beetle	*Cheilomenes sexmaculata* (Fabricius, 1781)	Coccinellidae	Coleoptera
27.	Short-horned leaf beetle	*Clytra* sp.	Chrysomelidae	Coleoptera
28.	Stink bug	*Erthesina acuminata* (Dallas, 1851)	Pentatomidae	Hemiptera
29.	Predatory stink Bug	*Andrallus spinindens* (Fabricius, 1787)	Pentatomidae	Hemiptera
30.	Brown marmorated stink bug	*Halyomorpha halys* (Stal, 1855)	Pentatomidae	Hemiptera
31.	Green Stink bug	*Nezara viridula* (Linnaeus, 1758)	Pentatomidae	Hemiptera
32.	White Flatid Planthopper	*Flatormensis* sp.	Flatidae	Hemiptera
33.	Leaf footed bug	*Acanthocephala* sp.	Coreidae	Hemiptera
34.	Citrus mealybug	*Planococcus citri* (Risso, 1813)	Pseudococcidae	Hemiptera
35.	Sugarcane Spittlebug	*Callitettix versicolor* (Fabricius, 1794)	Cercopidae	Hemiptera
36.	The Bean Bug	*Riptortus pedestris* (Fabricius, 1775)	Alydidae	Hemiptera
37. (a)	Hooded Grasshopper (Brown)	*Teratodes monticollis* (Gray,1832)	Acrididae	Orthoptera
37. (b)	Hooded Grasshopper (Green)	*Teratodes monticollis* (Gray,1832)	Acrididae	Orthoptera
38.	Mole Cricket	*Gryllotalpa* sp.	Gryllotalpidae	Orthoptera
39.	Bush -Cricket	*Hexacentrus* sp.	Tettigoniidae	Orthoptera
40.	Mustard Sawfly	*Athalia lugens* (Klug, 1813)	Tenthredinidae	Hymenoptera
41.	Stick mantis	*Schizocephala bicornis* (Linnaeus, 1758)	Eremiaphilidae	Mantodea
42.	Garden Spider	*Argiope* sp.	Araneidae	Araneae
43.	Forest Cockroach	*Ectobius* sp.	Ectobiidae	Blattodea
44.	Lovebug	*Plecia* sp.	Bibionidae	Diptera

Plate 1

1. *Achaea janata*



2. *Amata passalis*

3. *Euproctis leithiana*

4. *Hyphantria cunea*

5. *Rajendra vittata*

6. (a) *Spilarctia obliqa*

6. (b) *Spilosoma obliqua*

7. *Utetheisa pulchelloides*

8. *Helicoverpa zea*

9. *Spodoptera litura*

10. *Trichoplusia ni*

11. *Leucinodes orbonalis*

12. *Parotis marginata*

13. *Daphnis nerii*

14. *Xylophanes tersa*

Plate 2

15. *Acraea terpsicore*

16. *Papilio polytes*

17. *Psyche* sp.

18. *Eupterote* sp.

19. *Epicauta* sp. 1

20. *Epicauta* sp. 2

21. (a) *Hycleus polymorphus*

21. (b) *Hycleus polymorphus*

22. *Nemognatha* sp.

23. *Gametis versicolor*

24. *Euchroma gigantea*

25. *Myllocerus* sp.

26. *Cheilomenes sexmaculata*

27. *Clytra* sp.

28. *Erthesina acuminata*

Plate 3

29. *Andrallus spinidens*

30. *Halyomorpha halys*

31. *Nezara viridula*

32. *Flatormensis sp.*

33. *Acanthocephala* sp.

34. *Planococcus citri*

35. *Callitettix versicolor*

36. *Riptortus pedestris*

37.(a) *Teratodes monticollis*

37. (b) *Teratodes monticollis*

38. *Gryllotalpa* sp.

39. *Hexacentrus* sp.

40. *Athalia lugens*

41. *Schizocephala bicornis*

42. *Argiope* sp.

43. *Ectobius* sp.

44. *Plecia* sp.

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