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Studies of Biodiversity of Wasps

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Abstract

Wasps belongs to order *Hymenoptera* ,Clade *Aculeata* ,can sting their pray. These are narrow waisted insects (Suborder Apocrita).These are Eusocial insects .These are important biological pest control agents.

Key Words :Hymenoptera ,Aculeata ,Wasps ,Vespidae.

Introduction

Materials and Methods

Materials and Methods

Field observations were made during March 2015 to November 2022 in different areas and varied habitats like cultivated areas , agriculture areas ,open fields ,vegetable areas , parks ,mountains ,hilly areas.

Observations and Results**1. *Vespa Orientalis***

Belongs to Order Hymenoptera ,family Vespidae . Found in Madagascar ,South Europe ,Asia ,Northeast Africa .Nest underground . Old world Hornet. Found near sugar storage, honey . sting painful . humans have allergy to sting.

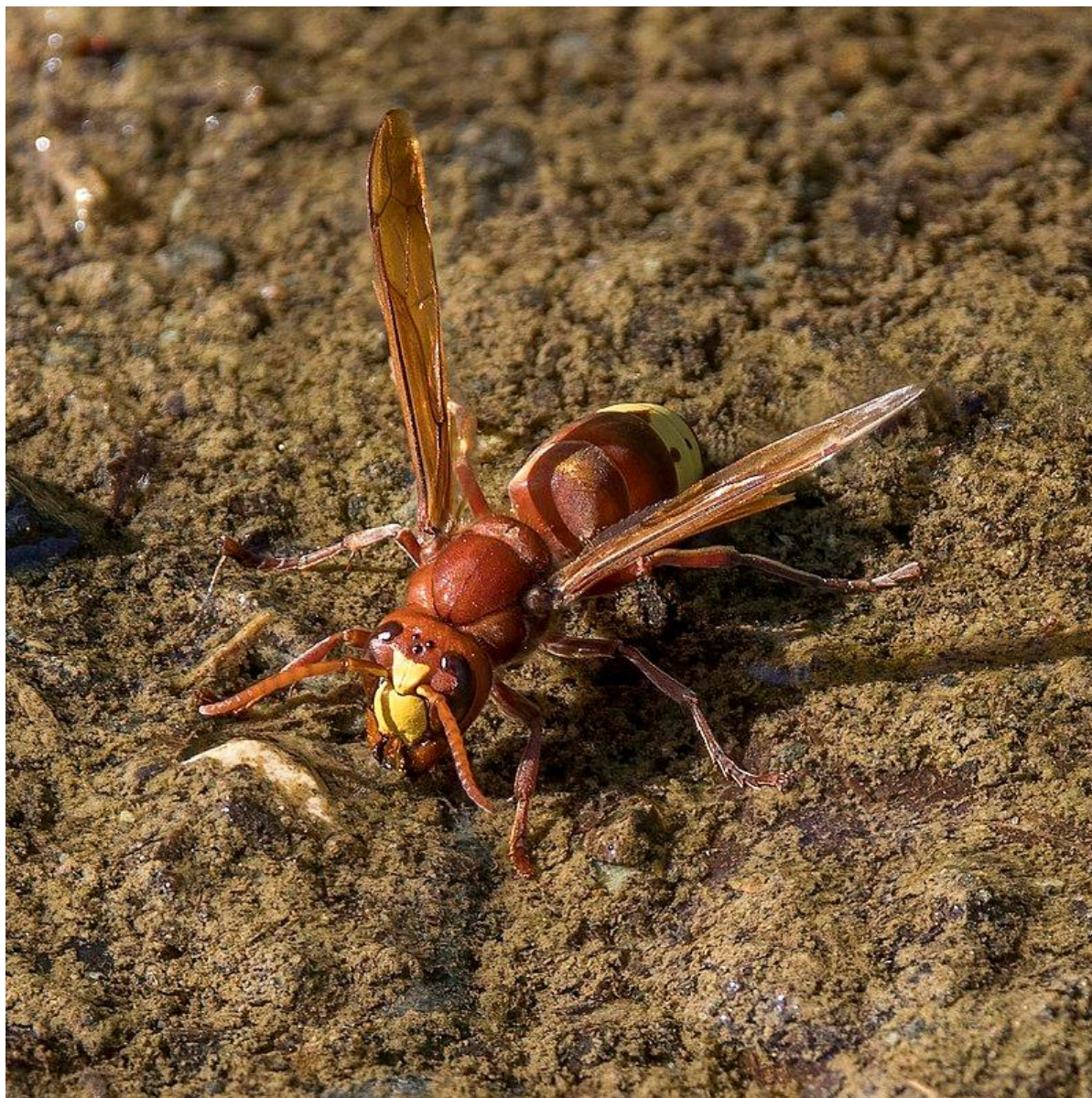


Image 1. : *Vespa orientalis*

2. *Polistes olivaceus* (Umbrella Wasp) (Indian Wasp)

Belongs to family Vespidae. Also known as oriental paper wasp, yellow paper wasp, Macao wasp.

Most common Indian wasp. Build big paper nest becomes active in summers and inactive in winters.



Image 2. : *Polistes olivaceus*

3. *Polistes flavus*



Belongs to family Vespidae, Subfamily Polistinae.

Found in Asia. Also known as yellow paper wasp.



4. *Polistes wattii*

Belongs to Super family Vespoidea ,family Vespidae.

3. *Polistes dominulus*



Image 3. : *P. dominulus*

Belongs to family vespidae ,subfamily polistinae. It is also known as European paper wasp. dominant female lays eggs. lek based mating system. Invasive species in North America and Canada.

4. *Polistes versicolor*



Image 4. : *Polistes versicolor*

Belongs to family Vespidae.

Also known as yellow paper wasp , Variegated paper wasp , subtropical social wasp. Yellow bands are distinct on thorax and abdomen.

5. *Vespula vulgaris*Image 5.: *Vespula vulgaris*

Belongs to family Vespidae. Also known as common wasp. Found in Newzealand , India ,China ,Ireland ,Germany ,UK.

6. *Vespula germanica* (German W)

Image 6 : *Vespula germanica*

Belongs to family Vespidae ,genus vespula ,also known as German Wasp. Found in Temperate north ,Chile ,Argentina ,Germany ,North Africa ,Europe. Size 13 mm long .Temporal polyethism (age based deviation of labour).

7.*Vespula atropilosa*(Prairie W)



Image 7. : *Vespula atropilosa*

Belongs to family Vespidae ,Genus Vespula. Also known as Prairie yellow jacket.Xanthic and Melanic abdominal colour.West and mid America and South Canada .Nest in Rodent burrows.

8. *Vespula pensylvanica* (West Yellow Jacket)



Image 8.: *Vespula pensylvanica*

Belongs to family Vespidae ,genus vespula , Found in North America ,Invasive in Hawaii ,Nearctic species.Reproduction constrains in Cold weather.

Yellow and black pattern.

9. *Vespula maculifrons* (N. America Yellow Jacket)



Image 9.: *Vespula maculifrons*

Belongs to family Vespidae.

Also known as East Yellow Jackets , Found in North America, Social insects , Aggressive , Sting is painful.

10. *Vespula alascensis* (N. America Yellow Jacket)



Image 10. :*Vespula alascensis*

Belongs to family Vespidae .Also kn as Common yellowjacket .It is found in North America.

11. *Vespula squamosa* (South Yellow Jacket)

Image 11.: *Vespula squamosa*

Belongs to family Vespidae.

Also known as south yellow jacket ,social wasp. Found in Central ,North and East America.it has parasitic relation with *V. vidua* .sting is painful venomous.



Image : V. squamosa nest.

12. *Dolichovespula sylvestris* (Tree Wasp)

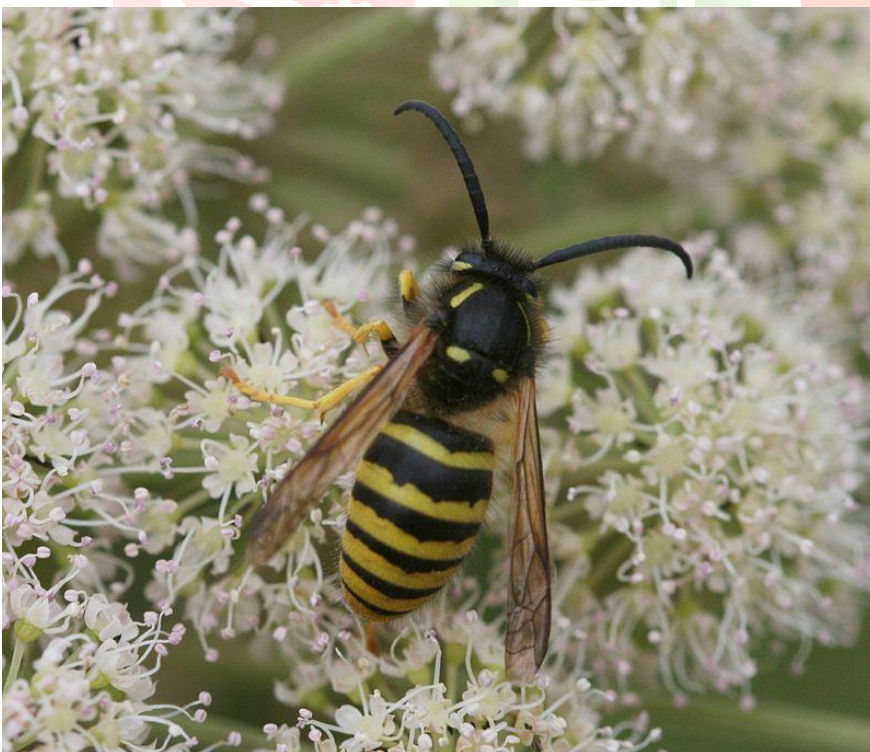


Image 12 : *Dolichovespula sylvestris*

Belongs to vespidae ,It is Eusocial wasp.

Worker policing & Anarchic syndrome is present, haplodiploid sex system.

13.*Dolichovespula arenaria* (Aerial Yellow Jacket)



Image 13: *Dolichovespula arenaria*

Belongs to Hymenoptera ,family vespidae. Found in North America.

Also kn as yellow hornet ,yellow jacket ,sandhill.



Image14. : *D. arenaria* on goldenrod .

14.*Dolichovespula maculate* (Bald Hornet).

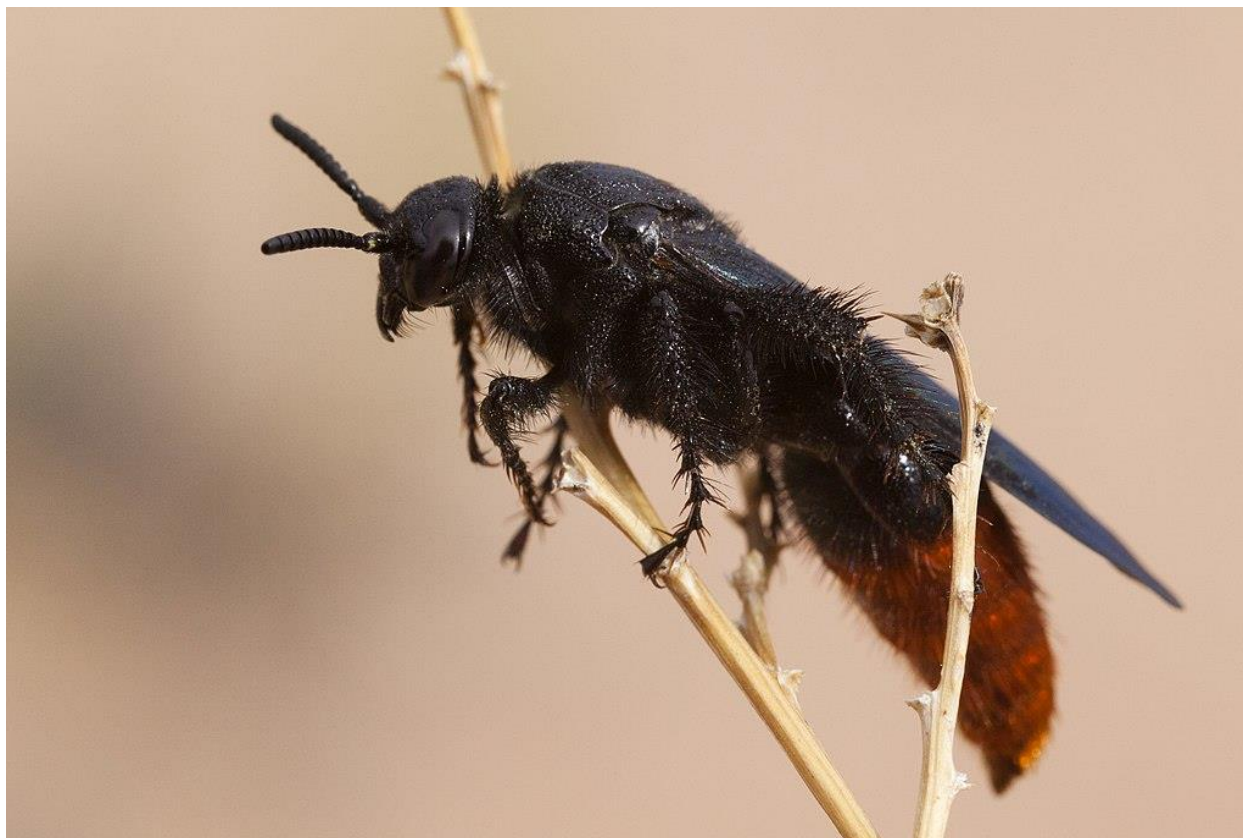


Image 15.: *Dolichovespula maculate*

Belongs to family Vespidae ,subfamily vespinae ,Eusocial ,cosmopolitan wasp. Also known as bald wasp , bull wasp , blackjacket wasp ,

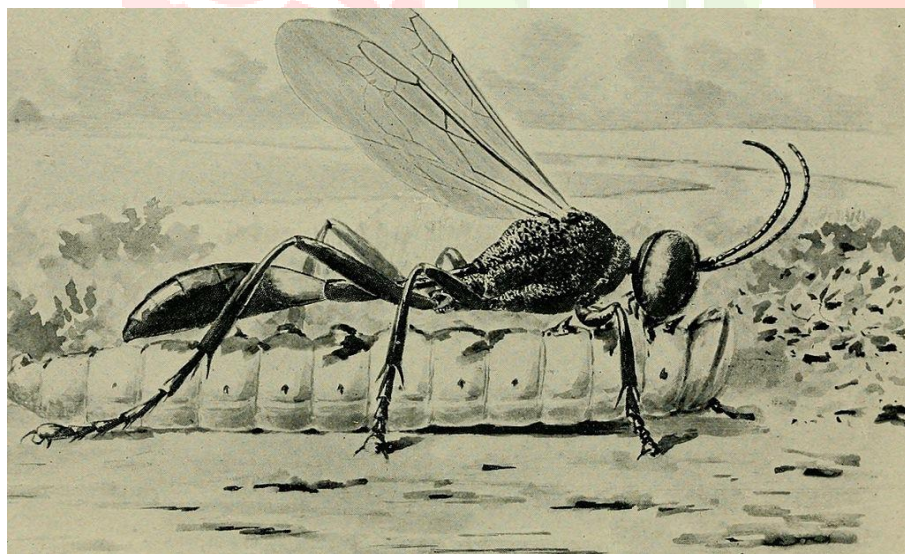
White face wasp , white tail wasp , spruce wasp , bald face wasp .

15 . *Triscolia ardens*

Image 16: *Triscolia ardens*

Found in North America. Belongs to family scoliidae. habitat is open fields.

Scolia dubia without yellow spots. female short antennae, male long antennae, 3 pseudostings, Burrow underground.

16. *Ammophila urnaria*Image 17: *Ammophila urnaria*

Belongs to family Sphecidae. Black or red wasp. Paralyse caterpillar to feed larva. feed on flower of sorrel or onion.

Kleptoparasite.

17. *Sphex pensylvanicus*Image 18: *Sphex pensylvanicus*

Belongs to family spheacidae .also kn as black wasp.found in North America ,Asia ,South America.
Larva feed on insects.

18. *Dolichovespula norwegia*

Image 19: *Dolichovespula norwegia*

Belongs to family Vespidae.

D.norwegia is eusocial wasp.

Found in UK ,Ireland ,Scotland.

Pollinates snowberry & blueberry.

19.*Auplopus carbonarius*



Image 20.*Auplopus carbonarius*

Spider wasp, belongs to family Pompilidae.

It forms barrel shaped nest ,in which it stores spiders and larva develop.

20. Sphecius grandis

Image 21: Sphecius grandis

Belongs to family Crabronidae.

Found in central America, south America, nearctic and neotropic regions, kills cicada, so known as cicada killer wasp.

21. *Exeirus lateritius* (Cicada killer Wasp).



Image 22. Exeirus lateritius (Cicada killer Wasp).

Belongs to Hymenoptera, family crabronidae, ground dwelling wasp, solitary wasp, predatory wasp. Cicada killer wasp, kills 200 sp of cicadas.

22. *Megarhyssa macrurus* (Long tail giant Ichneumonid Wasp).Image 23 :. *Megarhyssa macrurus*

Belongs to order Hymenoptera and family Ichneumonidae, *Megarhyssa macrurus*: Long tail ichneumonid wasp, parasitoid wasp, long ovipositor, used to deposit egg into dead wood tunnel.

Megarhyssa macrurus parasitoid on larvae of *Tremex columba*. They paralyse them, lay their egg, consume their host, pupate and emerge in summer.

23. *Tremex columba*

Also known as pigeon tremex horntail.



Image 24 : *Tremex columba*

24.*Dipogon subintermedius*



Image 25.:*Dipogon subintermedius*

It is also known as spider wasp.

Belongs to family Pompilidae.

Belongs to subfamily Ceropalinae.

These are kleptoparasites of pompilids .

Ectoparasites of spiders. These use forelegs to dig.

Strong neurotoxin pompilidotoxin (PMTX) is released by these species.

Conclusion

Total 24 species of wasps were observed , 17 (Maximum number of Wasps) belongs to family vespidae , 01 (Auplopus carbonarius) belongs to family Pompilidae.

Belongs to subfamily Ceropalinae, 02 (*Megarhyssa macrurus*) belongs to family *ichneumonidae* , 02(*Sphecus grandis*) belongs to family crabronidae.02(*Ammophilus urnaria* & *Spheg pensylvanicus*) belongs to family Sphecidae ,*Triscolia ardens* belongs to family Scoliidae . Maximum number of wasps belongs to family Vespidae.

References :

1. Cresswell, Stephen (2020). “ Megarhyssa macrurus , Long tailed giant Ichneumonid wasp .” American Insects .2020.
- 2 “Long-tailed Giant Ichneumon wasp.”MCD Field Guide .Missouri Department of Conservation .2020.
- 3.Bug Eric :Wasp Wednesday ,Triscolia ardens.2011.
4. Eaton ,Eric R. and Kaufman ,Ken .Kaufman Field guide to insects of North America ,2007. Houghton – Milin Co.,pp 350-351.
5. Wenseleers ,Tom ; A. Tofilski ;F.L.W. Ratnieks (2005). “Queen and worker policing in the tree wasp Dolichovespula sylvestris .” Behavioral Ecology and Sociobiology .58:80-86.
6. Foster, Kevin R. (2001) . “Colony kin structure and male production in Dolichovespula Wasps.” Molecular Ecology .10(4): 1003-1010.2001.
- 7.Saigo ,T.K. Tsuchida (2004). Queen and worker policing in monogynous and monandrous colonies of a primitively eusocial wasp. “ Proc Biol Sci .271 (6): S509-S512.
8. Carpenter ,James M.; Glare ,Travis R. Misidentification of Vespula alascensis as V. vulgaris in N. America (Hymenoptera : Vespidae ,Vespinae)” (PDF) .AMNH Research Library Digital Repository .American Museum of Natural History .2016.
9. G.R. Mullen & L.A. Durden 2019. Medical and Veterinary entomology .2019 .p.461 .
10. Bugguide .net.Species Vespula alascensis.
11. M.E. Archer 2012 : Vespinae of the world .2012 .pp 40 ,43-45,50,51,177,180,183,184,199,204 ,241-244,249,282,283.
12. “Polistes versicolor (Oliver ,1791).” GBIF.Org.2017.
13. Taxonomy for Polistes versicolor (Olivier 1791). 2017.
14. Zara ,Fernando ,and Jose Balestieri .” Behavioural Catalogue of Polistes versicolor Olivier (Vespidae :Polistinae) Post –emergent Colonies .” Naturalia 25 (2000): 301-19.