

# Review of: "[Mini Review] The Family Micropezidae (Insecta: Diptera)"

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Micropezidae are extraordinarily interesting group of Acalyptrate Diptera. They are distributed worldwide and their ecology deserves attention for several reasons: they are mimics of Hymenoptera and they exhibit even behavioural mimicry (imitation of antennae with front legs), so they can serve as perfect model for study of evolution of mimicry and behaviour in insects. Moreover, as some species have herbivorous larvae feeding on some species of Zingiberaceae and Fabaceae, they could also affect agricultural production. And as author wrote, not much attention has been given to this family so far. Therefore, I highly appreciate any paper regarding this family.

However, in the present form, I can't recommend this mini-review for the publication. Current manuscript presents some information on larval and adult habitat ecology of Micropezidae, but these information are presented in very chaotic way. The objective of the review is stated as "to verify the mimicry behavior of ants and wasps in the Family Micropezidae", but then, almost nothing is written about their mimicry. The review itself is based on 5 papers, but 3 of them don't say anything about the ecology of Micropezidae (or if they do, author don't explain it). There is no discussion section in the paper, so no informative summary is presented and thus, the manuscript doesn't provide any additional value to original papers.

Also, the manuscript should be improved formally: many information in the manuscript are not presented clearly enough; figures have very poor quality and often doesn't follow the text where they are referred, some information are mentioned many times repeatedly in the manuscript; there are some contradictions and inconsistencies among various parts of the manuscript; the text should be checked for typos (e.g. missing spaces between words etc.) Below, I list the ambiguities I noticed in the manuscript.

The manuscript clearly deserve far more work and more concentration during writing - but after that, I highly recommend to accept the manuscript for publication.

## Abstract

In the sentence "The Micropezidae mimic ants; others mimic wasps and are especially similar in appearance to some ichneumonid wasps.", I guess you wanted to say "some Micropezidae mimic - and other Micropezidae mimic wasps" - but current sentence could be interpreted as "Micropezidae mimic ants, others (i.e. not Micropezidae) mimic wasps".

## Figures

Images are of very poor quality, e.g. in Figure 6, it is even not possible to read the labels of parts of the wing. Maybe this is an issue only in the version for review, but if not, I recommend to try to get better pictures.

## 1.3. Bioecology

You wrote "Species of the genus *Mimegralla* Rondani and *Calobata* Meigen can develop on rhizomes and roots of ginger or other plants (Figures 7A-7B)", but in the figures 7A and 7B, there are genera *Badisis* and *Cliobata*, not *Mimegralla* and *Calobata*. Could you clarify this

Also, I would also appreciate if you could be more specific, which species of *Mimegralla* and *Calobata* is known to develop on which plant. Genus *Mimegralla* is very diverse and has wide geographic range, so it would be more informative if you specify which species of *Mimegralla* in which geographic region is known to feed on which plant.

Moreover, as I know, genus *Micropeza* is also known to feed of roots of some plants (mainly Fabaceae, as I know) - why you didn't mention this genus when you are writing about herbivorous Micropezidae?

In the sentence "Some representatives of the subfamily Calobatinae may exhibit predatory habits in extreme cases; however, this is a Holarctic distribution group some species develop in rotting wood and is found in old forests", it is not clear which group are you talking about: you mean Calobatinae have Holarctic distribution, and some species of Calobatinae develop in rotting wood? Or you mean the predatory species of Calobatinae are Holarctic and other Calobatinae occurs in tropics and these tropical Calobatinae develop in rotting wood? Please, explain this more clearly.

Moreover: are you sure that Calobatinae are the only subfamily that exhibit predatory habits? And are you sure they do it only in extreme cases? I'm afraid these claims are false and predatory behaviour is in reality far more widespread among various subfamilies of Micropezidae.

You repeat here the sentence "The Micropezidae mimic ants; others mimic wasps and are especially similar in appearance to some ichneumonid wasps." Could you please be more specific and explain which representatives of Micropezidae mimic ants and which mimic something else?

In the sentence "The terrestrial larvae; saprophagous (in decaying wood and vegetable matter); app.", what do you mean by "app."?

## 2. Methods and 3. Manuscript selection

You describe how you searched for the studies, but then (before you get into particular studies), I would expect some summary information on how many studies you found, what was their geographical and taxonomic coverage, what was their methodology etc. And could you also list here the studies you selected for more detailed description and why you selected these ones?

### 3.1. Study 1

I highly appreciate the information described in this chapter, but it doesn't seem meaningful to separate this chapter from the Introduction: in this chapter, you are basically repeating the information already mentioned in introduction (particularly in chapter 1.3. Bioecology), the only difference is that here, you present the information in a bit more expanded and bit more clear way. To make your review more clear and better arrange, I suggest either to rewrite the introduction in more general way (to avoid redundancy), or to re-arrange the manuscript not by original studies (3.1. Study 1, 3.2. Study 2 etc.), but by topics (e.g. 3.1. larval ecology, 3.2. adult feeding ecology, 3.3. adult mimicry behaviour).

You write "At least one species of *Metopochetus curvus* McAlpine, 1998, was observed to wave its hindlegs instead, though these are not conspicuously colored (Figure 18)", but the fly on Figure 18 is waving its front legs, not hind legs.

### 3.2. Study 2

This chapter is in contradiction with your claim that subfamily Calobatinae is the only one that exhibit predatory habits. Please, fix it in the introduction.

You wrote "Adults of *Taeniaptera lasciva* (Fabricius, 1798) have been recorded as predators of sugarcane borer *Diatraea saccharalis* (Fabricius, 1794) (Lepidoptera: Crambidae) in Barbados (Figure 19)", but in Figure 19, there is *Taeniaptera annulata*, not *Taeniaptera lasciva*.

You wrote "One Malaise trap was installed in each habitat (Figure 20)", but there is no Malaise trap on Figure 20.

### 3.3. Study 3, 3.3. Study 3, and 3.5. Study 5

In contrast with previous studies, you mentioned clearly, where and how was the survey conducted - which I appreciate. But I'm missing here any information on what these studies say about ecology of Micropezidae... you only mention that they were recorded - but does it say something about your objective (which is "to verify the mimicry behavior of ants and wasps in the Family Micropezidae")? Or at least, does it say something about their ecology in general? Maybe it does - maybe you can use the data from these studies to show the associations of various species of Micropezidae to specific habitats and use this information as a proxy for their ecological roles. Or maybe, you could use the data from these studies to show which species of Micropezidae co-occur with which species of ants/wasps/ichneumonids to test your hypothesis on the mimicry behaviour. But without proper explanation, these chapters don't provide any information on Micropezidae.

## 4. Conclusion

This chapter doesn't look like conclusion made from the five studies described above, neither it answer on the question stated in the objectives. Did you verify that Micropezidae exhibit the mimicry behavior of ants and wasps, or not, as you asked in the objectives?

I would highly recommend to add a chapter "Discussion" between "3. Manuscript selection" and "4. Conclusion" and to

summarise there what is known and what is not, which proportion of the diversity of the family has been studied, which subfamilies are known and which are not, which ecological information on Micropezidae could be and which could not be estimated from the occurrence data provided by studies 3, 4, and 5 etc. Without it, the presented manuscript does not fulfill the role of the review - which is a shame, because I find Micropezidae as extremely interesting and deserving more attention, and such review on ecology of tropical species is highly needed.