Winged Ants

The Queen ♀

Dichotomous key to genera of winged ♀♀ ants in the World
The Wings of Ants: morphological and systematic relationships

Stefano Cantone
Winged Ants

The Male ♂ - The Queen ♀

Dichotomous key to genera of winged ♂♂ ants in the World
Behavioral Ecology of Mating flight
Dichotomous key to genera of winged ♀♀ ants in the World
The Wings of Ants: morphological and systematic relationships

With this second book, I conclude a first review about to the caste of Winged Ants.

The goal of this works has been to provide an overview of current knowledge on the wings of ants and features on the morphology of the winged caste in extant genera.

The presentation of Dichotomous Keys of the Winged Male (Cantone, 2017) and Winged Queen (Cantone, 2018), represents the first comprehensive taxonomic study on the winged caste of ants, showing the distribution of the different morphologies of Forewings and Hindwings in the genera of the family Formicidae.

I promise myself in the near future, if I have the chance, to improve and expand these works by publishing a second edition of Winged Ants.

Stefano Cantone
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Introduction


In the first Chapter, I present the morphology of the ant wings by dividing the Forewings into four Typologies and the Hindwings into three Typologies, using the same criteria of the book concerning the Winged Male (Cantone, 2017).

In the second Chapter, I present a Dichotomous Key for a taxonomic identification of Winged Queen of 244 genera.

In the third Chapter, I describe the salient morphological characteristics of the Winged Queens genera used in the dichotomous key and other morphological characteristics useful for a first identification. For each genus described, moreover, I list the main bibliographic references and the data related to the strategy and the mating flight period.

In the fourth Chapter, I present an analysis of distribution of the different Typologies of wings, fore and hind, both male and queen, for each Subfamily of ants.

I thank the recherchers of the website AntCat taxonomic catalog Bolton, AntWeb and AntWiki for the support bibliografico and the photos available: “fantastic” contribution for scientific avance in the known of family Formicidae (Insecta: Hymenoptera).
1. Morphology of Ant Wings

For an identification at the taxonomic level of genus of the Winged ♀♀, I found morphological descriptions in 244* genera, from about 334 genera extant known in the World (AntCat, 2018) and belonging to all the 17 subfamilies of the family Formicidae (Hymenoptera). Are unknown 95 genera of Winged Queen or known only ♀♀ dealate or Wingless (Ergatogyne or Gamergate).

This study based in: publications of morphological descriptions; some photos published on Antweb websites that deposited in entomological collections of various Museums; my personal collection of Winged Ants.

In order to write up a Dichotomous Key on 244 genera of Winged ♀♀ ants in the World, I have chosen some morphological characteristics that are encountered in the majority of published descriptions. For each genus studied, I provide bibliographic references so is possible to confirm the taxonomic identification using other morphological features.

* In some genera of the Subfamily Ponerinae (6), Formicinae (2), Leptanillinae (3), Myrmecinae (9) is unknown the wings of Queen but, I assume that have the same wings of the other genera in the Subfamily Ponerinae or same wings of the Male and, when possible, they have been included in the Key.
1.1 The study of the wings

In this study, I deepen the morphology aspects of the forewings and hindwings of Winged ♀♀ ants, which represent the main characteristic on which my dichotomous key is written.

1.1.1 Brief review of ants’ wings studies

The scholar Nylander (1846) was the first one to describe the wings of the European Formicidae family. Later, Mayr (1855), in the study of the morphology of the Formicidae family of the Austrian Empire, provided a more detailed description of the ants’ wings giving the name to the nervation that forms the cells using as the model the forewings of the genus Formica.

The first real comparative analysis of the ants forewings, was written by Prof. Carlo Emery (1877 and 1913), the most illustrious taxonomist of the Formicidae family.

Subsequently other comparative studies of the ants forewings was published by: Brown and Nutting (1949) with a phylogenetic interpretation; Ogata (1991) who classified the forewings of the Formicidae family into four types, according to the structure of the venation and cells;Perfilieva (2010) classifying the forewings into five types, relying, like Ogata.

The only one, comparative study on the hindwings of the family Formicidae was made by Kusnezov (1962).

A new comparative studie published by Cantone (2017), shows a classification of the forewing and hindwing with a dichotomous key of the Winged Males ants in the World.

1.1.2 Classification and analysis of the forewings and hindwings of Winged Ants

In this study, in the same way as the previous study on Winged Male ♂ ants (Cantone, 2017), I presented a classification of the Forewings of the Winged Queen ♀♀ ants divided into four Typologies and I classify the Hindwings into three Typologies (see Table 1 and 2). In both cases, the diversity of the Typologies represented by a gradual reduction in wing venation, as studied by the aforementioned researchers.

This study is based on the Winged ♀♀ of 244 genera of ants belonging to all 17 subfamilies currently present in the World.

In reference to the Forewings, I based my work in particular on the presence/absence of subMarginal cells and Discoidal cells in Typologies I, II and III, and a drastic reduction of veins in Typology IV. Regarding the Hindwings, I based my work on the presence/absence of M2 vein in the Typologies I and II and on a strong reduction of veins in Typology III.

Below I describe the characteristics of the wings in the different Typologies.
1.1.3 Morphology description Forewing

Forewings of Typology I (figs 1-2)

The morphology represented by this Typology called by some authors as "complete". In fact, it represents a more complex structure of ants’ wings venations, where the two Submarginal cells, the Discoidal cell and the Marginal cell are always present. The Marginal cell can be open or closed. In some cases, the Submarginal 2 cell can be incomplete due to the reduction of the Rs 2 + 3 vein (see Cantone, 2017).

In the 244 genera, I encountered the forewings of Typology I in Winged ♀ ♂ ants in 79 genera belonging to 12 Subfamilies (see Tables 3 and 4).

Cells

Veins and Cross-veins

Figure 1 - Forewing of Odontomachus sp. ♂
Cells

Veins and Cross-veins

Figure 2 - Forewing of *Pheidole* sp. ♀
Veins: C: Costa; Sc: SubCosta; M: Media; Cu: Cubitus; A: Anal; Rs: Radial sector; R: Radius
Cross-veins: cu-a: cubitus+anal; m-cu: media+cubitus; rs-m: radial sector+media; r-rs: radius+radial sector.
Forewings of Typology II (figs 3 to 5)

In this Typology II, the forewings differ from the previous Typology I due to the absence of the Submarginal 2 cell. In the 244 genera studied, the Typology II known in winged ♀♂ of 109 genera belonging to 11 Subfamilies (see Table 5 and 6). The structure of the venation differs in genera, and in rare cases in species belonging to the same genus, for the position of the M4 vein and for this reason, as described by Prof. Carlo Emery, these refer respectively as "solenopsis type" or "formica type".

Cells

Veins and Cross-veins

Figure 3 - Forewing of Azteca sp. ♀, “formica type”
Veins: C: Costa; Sc: Subcosta; M: Media; Cu: Cubitus; A: Anal; Rs: Radial sector; R: Radius
Crossveins: cu-a: cubitus+anal; m-cu: media+cubitus; rs-m: radial sector+media; r-rs: radius+radial sector.
Cells

Veins and Cross-veins

Figure 4 - Forewing of Solenopsis sp. ♀, “solenopsis type”
Veins: C: Costa; Sc: Subcosta; M: Media; Cu: Cubitus; A: Anal; Rs: Radial sector; R: Radius
Crossveins: cu-a: cubitus+anal; m-cu: media+cubitus; rs-m: radial sector+media; r-rs: radius+radial sector.
Figure 5 - Forewing of *Cephalotes* sp. ♀, “solenopsis type”

Veins: C: Costa; Sc: Subcosta; M: Media; Cu: Cubitus; A: Anal; Rs: Radial sector; R: Radius

Crossveins: cu-a: cubitus+anal; m-cu: media+cubitus; rs-m: radial sector+media; r-rs: radius+radial sector.
Forewings of Typology III (figs 6 to 8)

The wings of this Typology characterized by the absence of Submarginal 2 cell and Discoidal cells. In the 244 genera studied there are winged ♀♂ of 96 genera belonging to 6 subfamilies (see Table 7-8). Also in this Typology as in the Typology II, it can be distinguished "solenopsis type" and "formica type" wings according to the position of the M4 vein.

Cells

Vein and Cross-veins

Figure 6 - Forewing of Atta sexdens ♀, “formica type”
Veins: C: Costa; Sc: Subcosta; M: Media; Cu: Cubitus; A: Anal; Rs: Radial sector; R: Radius
Crossveins: cu-a: cubitus+anal; m-cu: media+cubitus; r-rs: radius+radial sector.
Veins and cross-veins

Figure 7 - Forewing of *Dorymyrmex* sp. ♀, “solenopsis type”
Veins: **C**: Costa; **Sc**: Subcosta; **M**: Media; **Cu**: Cubitus; **A**: Anal; **Rs**: Radial sector; **R**: Radius
Crossveins: **cu-a**: cubitus+anal; **m-cu**: media+cubitus; **r-rs**: radius+radial sector.
Cells

Veins and cross-veins

Figure 8 - Forewing of *Nylanderya* sp. ♀, “formica type”
Veins: C: Costa; Sc: Subcosta; M: Media; Cu: Cubitus; A: Anal; Rs: Radial sector; R: Radius
Crossveins: cu-a: cubitus+anal; m-cu: media+cubitus; r-rs: radius+radial sector.
**Forewings of Typology IV (figs 9-10)**

In this latter Typology, there is a drastic decrease of the venation with the absence of subMarginal and Discoidal cells, the Marginal cell is open or absent. In this Typology are also included those genera that have very few veins. In the 244 genera studied, there are winged ♀♂ of 7 genera belonging to 3 subfamilies (see Tables 9 and 10).

**Cells**

![Diagram of forewings with labeled parts]

**Veins and cross-veins**

![Diagram of veins and cross-veins]

Figure 9 - Hindwing of *Dorymyrmex* sp ♂
Veins: **C**: Costa; **Sc**: Subcosta; **M**: Media; **Cu**: Cubitus; **A**: Anal; **Rs**: Radial sector; **R**: Radius
Crossveins: **cu-a**: cubitus+anal.
Cells

Veins and cross-veins

Figure 10 - Forewing with strong vein reduced
Veins: C: Costa; Sc: Subcosta; M: Media; Cu: Cubitus; A: Anal.
1.1.4 Morphology description Hindwing

Hindwings of Typology I (figs 11 to 13)

In this Typology, are represented wings that have a more complete venation of the family Formicidae. Basal and subBasal cells are always present. They differ in genera for the presenceabhence of the Jugal lobe. They are present in the genera of Subfamilies Amblyoponinae, Dolichoderinae, Dorylinae, Ectatomminae, Heteroponerinae, Mirmeciinae, Ponerinae and Paraponerinae. The Jugal lobe is present in some genera of Subfamilies Ponerinae, Ectatomminae, Mirmeciinae and Paraponerinae.

Cells

Veins and cross-vein

Figure 11 - Hindwing of *Odontomachus* sp. ♀
Cells

Vein and cross-vein

Figure 12 - Hindwing of *Acanthoponera* sp. ♀
Cells

Veins and cross-veins

Figure 13 - Hindwing of *Azteca* sp. ♀
Hindwings of Typology II (figs 14 to 17)

In this Typology II the wings differ from the Typology I due to the absence of the Media 2 vein and the never present Jugal lobe. They are present in the genera of Subfamilies Amblyoponinae, Aneuretinae, Agroecomyrmecinae, Dolichoderinae, Dorylinae, Ectatomminae, Heteroponerinae, Formicinae, Myrmicinae, Ponerinae, Proceratiinae and Pseudomyrmecinae.

Cells

Veins and Cross-veins

Figure 14 - Hindwing of *Anillidris bruchi* ♀
Cells

Veins and Cross-veins

Figure 15 - Hindwing of Pheidole sp. ♀
Cells

Vein and Cross-veins

Figure 16 - Hindwing of *Brachymyrmex* sp ♀
Cells

Veins and Cross-veins

Figure 17 - Hindwing of *Atta sexdens* ♀
Hindwings of Typology III (fig. 18)

In this latter Typology there is such a drastic reduction of veins that in some genera there are reduced or absent Anal vein and the subBasal cell absent. In the extreme cases with cell absent.
They are present in the genera of Subfamilies Amblyoponinae, Apomirminae, Dolichoderinae, Dorylinae, Leptanillinae, Martialinae, Myrmicinae and Proceratiinae.

Cells

Veins and cross-veins

Figure 18 - Hindwing of *Myrmocrypta* sp ♀
1.1.5 Morphological variations in the Forewing

Changes in the Typology of the forewings can be found in species belonging to the same genera and in some cases in individuals belonging to the same species (see Chapter 3).

In some cases, there may be slight changes due to malformations in the development of the veins, are which clearly identifiable and which I do not consider in this study.

These rare variations in the structure of the veins, could be encountered in individuals of some genera, especially in the Forewings. These variations encountered in individuals in the population, presenting the formation of cells or veins in positions and shapes clearly unusual.

Below, I show an example of these variations in the forewings of some ♀♀♀ of a population of Solenopsis sp.
1.1.6 References

-AntCat (2018) www.antcat.org
1.2 Typologies Summary of the ant wings

The Dichotomous Key uses as the main morphological characteristic the Forewing and Hindwing Typologies. In Table 1 and 2 show the Typologies summary of the Forewings and Hindwings.

Forewings Typologies Summary

<table>
<thead>
<tr>
<th>Typology I</th>
<th>Typology II</th>
<th>Typology III</th>
<th>Typology IV</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Forewing Typology I" /></td>
<td><img src="image2" alt="Forewing Typology II" /></td>
<td><img src="image3" alt="Forewing Typology III" /></td>
<td><img src="image4" alt="Forewing Typology IV" /></td>
</tr>
</tbody>
</table>

Table 1 – Forewings Typologies Summary

Hindwings Typologies Summary

<table>
<thead>
<tr>
<th>Typology I</th>
<th>Typology II</th>
<th>Typology III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5" alt="Hindwing Typology I" /></td>
<td><img src="image6" alt="Hindwing Typology II" /></td>
<td><img src="image7" alt="Hindwing Typology III" /></td>
</tr>
</tbody>
</table>

Table 2 – Hindwings Typologies Summary
2. Dichotomous key to genera of winged ♀♂ ants in the World

This key based, as main characteristics, on the front and hind wings using the classification by Typologies shown in paragraph 1.2 (Table 1 and 2).

This key uses same criterion used in the previous Book: Winged Ants, The Male (Cantone, 2017*).

For the other morphological characteristic the terminology used in the Winged ♀♂ key is found in Hölldobler and Wilson, 1990* and Bolton, 1994*, relating to the caste of workers.

Like all dichotomous key, you require further study of the bibliography to achieve a scientifically exact taxonomic identification.

In some cases, the use of few morphological characteristics did not allow me to separate some genera in the key; in these cases refer to the description and the bibliography present in the genus.

*  
2.1 Dichotomous key to forewings of Typology I

The Winged ♀♀♀ ants of 79 genera have a structure of the Forewing of Typology I (Table 4). These taxonomically classified in 12 Subfamilies (Table 3).

**Forewing of Typology I**

<table>
<thead>
<tr>
<th>subfamily</th>
<th>genera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amblyoponinae</td>
<td>5</td>
</tr>
<tr>
<td>Aneuretinae</td>
<td>1</td>
</tr>
<tr>
<td>Dolichoderinae</td>
<td>12</td>
</tr>
<tr>
<td>Dorylinae</td>
<td>4</td>
</tr>
<tr>
<td>Ectatomminae</td>
<td>3</td>
</tr>
<tr>
<td>Heteroponerae</td>
<td>2</td>
</tr>
<tr>
<td>Myrmeciinae</td>
<td>2</td>
</tr>
<tr>
<td>Myrmicinae</td>
<td>10</td>
</tr>
<tr>
<td>Ponerinae</td>
<td>35</td>
</tr>
<tr>
<td>Paraponerinae</td>
<td>1</td>
</tr>
<tr>
<td>Proceratiinae</td>
<td>1</td>
</tr>
<tr>
<td>Pseudomyrmecinae</td>
<td>3</td>
</tr>
<tr>
<td><strong>12</strong></td>
<td><strong>79</strong></td>
</tr>
</tbody>
</table>

Table 3 - The Subfamilies of the Family Formicidae and the respective numbers of genera which present Winged ♀♀♀ with Forewings of Typology I.
<table>
<thead>
<tr>
<th>Genera of the Winged ♀♀ Ants with Forewings of Typology I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthoponera</td>
</tr>
<tr>
<td>Acanthostichus (part)</td>
</tr>
<tr>
<td>Amblyopone (part)</td>
</tr>
<tr>
<td>Aneuretus</td>
</tr>
<tr>
<td>Anillidris</td>
</tr>
<tr>
<td>Anochetus</td>
</tr>
<tr>
<td>Anonychomyrma (part)</td>
</tr>
<tr>
<td>Aphaenogaster (part)</td>
</tr>
<tr>
<td>Asphinctopone</td>
</tr>
<tr>
<td>Austroponera</td>
</tr>
<tr>
<td>Belonopelta</td>
</tr>
<tr>
<td>Bothroponera</td>
</tr>
<tr>
<td>Brachyponera</td>
</tr>
<tr>
<td>Buniopone</td>
</tr>
<tr>
<td>Centromyrmex</td>
</tr>
<tr>
<td>Chrysapace</td>
</tr>
<tr>
<td>Cylindromyrmex</td>
</tr>
<tr>
<td>Cryptopone</td>
</tr>
<tr>
<td>Doleromyrma</td>
</tr>
<tr>
<td>Dolichoderus</td>
</tr>
</tbody>
</table>

Table 4 – Winged ♀♀ of 79 genera of the Formicidae family which present Forewings of Typology I. In brackets, the term "part" means that species of the same genus have different Forewings Typologies.

In some genera of the subfamily Ponerinae I do not know the wings of the ♀♀, so I guess they have the same morphology of veins of other genera with Forewing of Typology I and Hindwing of Typology I. In relation to the Hindwing I do not know the presence / absence of Jugal lobe, so in the dichotomous key I inserted these genera into different keys (with Jugal lobe or without Jugal lobe); these genera are: Asphinctopone, Austroponera, Belonopelta, Buniapone, Emeryopone, Loboponera, Mayaponera, Promyopias.
This key divided into two Sections:

**Alpha** ($\alpha$) and **Beta** ($\beta$)

**Section $\alpha$ p. 34**
Hindwing Typology I

**Section $\beta$ p. 40**
Hindwing Typology II

The difference between the two Typology, I and II of the Hindwing evidenced in the presence/absence of 2M vein, indicated in the above figure with an arrow.
Forewing of Typology I

Section α

In this Section are presented genera which exhibit the Hindwing of Typology I.

This Section divided into two Parts: A and B

Part A p. 35

Part B p. 38

Part A: Hindwing of Typology I with Jugal lobe (arrow in figure)
Part B: Hindwing of Typology I without Jugal lobe
Forewing of Typology I

Section $\alpha$

**Part A**

1. Mandibles elongate: linear, subtriangular or falcate...2

- Mandibles triangular...10

2. Antennae with 1° article of the Funiculus in length $>$ than the 2° article...3

- Antennae with 1° article of the Funiculus in length $\leq$ than the 2° article...6
3. Antennae filiform...*Anochetus*
   - Antennae versus clavate or clavate...4
4. Clypeus with median tooth...5
   - Clypeus with blunt median projection...*Buniapone*
5. Mandibles linear/falciform dentate; Neotropical region...*Belonopelta*
   - Mandibles subtriangular dentate; Indo-Oriental region...*Emeryopone*
   - Mandibles linear edentate or denticulate, Afrotropical region...*Promyopias*
6. Antennae versus clavate; Mandibles subtriangular/falcate dentate...*Psalidomyrmex* (part)
   - Antennae versus clavate; Mandibles linear with median large tooth or edentate...

*Plectroctena*
   - Antennae filiform; Mandibles linear...7
7. Petiole with very long peduncle anteriorly...*Notomyrmecia*
   - Petiole sessile or with short peduncle anteriorly...8
8. Mandibles apically straight...*Harpegnathus*
   - Mandibles apically curved...9
9. Head elongate, sub-rectangular...*Odonthomachus*
   - Head not as above; in some case with strong constriction between 1° and 2° segment of the Gaster (in some species the 1° segment very short than the 2°, which can be confused with the PosPetiole)...*Myrmecia*
10. Antennae with 1° article of the Funiculus in length > than the 2° article...11
   - Antennae with 1° article of the Funiculus in length ≤ than the 2° article...17
11. MetaTibiae with one Spur...12
   - MetaTibiae with two Spurs...14
12. Frontal lobe strongly developed...*Loboponera*
   - Frontal lobe normal...13
13. Clypeus with antero-lateral tooth...*Asphinctopone*
   - Clypeus not as above; Tarsus with spiniform setae...*Centromyrmex* (part)
14. Petiole armed with spines dorsally (3 or more); Propodeum armed with two spines...*Phrynoponera*
   - Petiole with short teeth dorsally ...*Pseudoneoponera*
   - Petiole without spines or teeth dorsally...15
15. First gastral sternite without Prora or inconspicuous...*Brachyponera*
   - First gastral sternite with Prora...16
16. *Bothroponera, Euponera, Austroponera, Ectomyrmex, Centromyrmex*
17. MetaTibiae with one Spur...18
   - MetaTibiae with two Spurs...20
18. Pretarsal Claws simples...*Psalidomyrmex*
   - Pretarsal Claws bifid or with submedian tooth...19
19. Inferior pronotal margins, just in front of each anterior coxa, with tooth...

*Rhytidoponera* (part)
   - Inferior pronotal margins angulate, without tooth...*Ectatomma*
20. Antennal Scrobe present...*Paraponera*
21. Clypeus denticulate... *Odontoponera*
   - Clypeus not denticulate... 22
22. Clypeus elevated medially... *Paltothyreus*
   - Clypeus not as above... 23
23. Broad insertion of the Clypeus between the frontal lobe... 24
   - Narrow insertion of the Clypeus between the frontal lobe... 25
24. Preocular carine absent; Petiole articuled midheight on the anterior face of the first gastral segment... *Platythyrea*
   - Preocular carine present; Petiole articuled low on the anterior face of the first gastral segment... *Megaponera*
25. Inferior pronotal margins, just in front of each anterior coxa, with tooth... *Rhytidoponera*
   - Inferior pronotal margins, just in front of each anterior coxa, without tooth ... 26
26. Hypopygium with area of stout setae... *Pachycondyla*
   - Hypopygium without area of stout setae... 27
27. The Propodeum well below the Mesonotum... *Mayaponera,*
   - The Propodeum level with the Mesonotum... 28
28. Afrotropical, Indo-Australian and Australia region... *Mesoponera*
   - Neotropical region... 29
29. Metapleural gland orifice without a posterior U-shaped cuticular lip... *Rasopone*
   - Metapleural gland orifice with a posterior U-shaped cuticular lip... *Neoponera*
Forewing of Typology I

Section $\alpha$

Part B

1. MetaTibiae with one Spur...2
   - MetaTibiae with two Spurs...14
2. Frontal lobe strongly developed...Loboponera
   - Frontal lobe normal...3
3. Propodeum armed with two spines to small teeth...4
   - Propodeum unarmed...6
4. Dorsum of Head lacking a median longitudinal costa...Gnamptogenys (part)
   - Dorsum of Head with conspicuous medial longitudinal costa...5
5. Palp formula 6:4...Acanthoponera
   - Palp formula 4:3 or less...Heteroponera
6. Scape short and massive...7
   - Scape long and not massive...8
7. Neotropic region...Acanthostichus
   - Afrotropical and Indo-Australian region...Parasyscia
8. Sting absent or vestigial...Anonychomyrma
   - Sting present...9
9. Clypeus with antero-lateral tooth...Asphinctopone
   - Clypeus without antero-lateral tooth...10
10. Frontal lobe widely separated throughout their length...11
    - Frontal lobe closely confluent...12
11. Inferior pronotal margins, just in front of each anterior coxa, with tooth...Rhitydoponera
    - Inferior pronotal margins not as above...Gnamtogenys
12. MesoTibiae with stout traction setae dorsally...Cryptopone (Part)
    - MesoTibiae without stout traction setae dorsally...13
13. Subpetiolar process with a simple lobe...Hypoponera
    - Subpetiolar process with fovea (depression) postero-ventrally...Ponera
14. Petiole entirely articulated on the first segment of the Gaster...15
    - Petiole articulated ventrally or midheight on the first segment of the Gaster...17
15. Mandibles blunt at apex and very long, longer than Head...Mystrium
    - Mandibles pointed at apex, not as long as Head...16
16. Clypeus, on the front margin, with few denticles and with antero-lateral teeth...*Myopopone*
   - Clypeus, on the front margin, with more denticles...*Amblyopone*
   - Clypeus, on the front margin, with blunt teeth...*Stigmatomma, Fulakora*
17. Mandibles elongate subtriangular/falcate/linear...*18*
   - Mandibles triangular, not elongate...*22*
18. Pretarsal Claws pettinate...*Leptogenys*
   - Pretarsal Claws simple or with submedian tooth...*19*
19. Clypeus with small tooth antero-medially; Neotropical region...*Belonopelta*
   - Clypeus with large tooth antero-medially; Indo-Australian, Oriental and Middle Eastern region...*Emeryopone*
   - Clypeus straight antero-medial...*20*
20. Afrotropical region, Mandibles linear edentate or denticulate...*Promyopsias*
   - Indo-Australian and Australia region...*21*
21. Mandibles subtriangular elongate dentate...*Buniapone*
   - Mandibles linear dentate...*Myopsias*
22. Eyes placed in the back half of the head ...*23*
   - Eyes placed at the front half of the head...*24*
23. Indo-Australian and Madagascar region...*Chrysapace*
   - Neotropical region...*Cylindromyrmex*
24. Tarsus with stout traction setae... *Cryptopone, Pseudoponera*
   - Tarsus without stout traction setae...*25*
25. Maxillary palp of 2 articles...*26*
   - Maxillary palp of 4 articles...*27*
26. Mandibles without a basal pit...*Parvaponera*
   - Mandibles with a basal pit...*Euponera*
27. Neotropical region...*Mayaponera*
   - Indo-Australian and Australia region...*Austroponera*
Forewing of Typology I

Section $\beta$

This Section divided into two Parts: A and B

**Part A p. 41**
Petiole

**Part B p. 42**
Petiole and PostPetiole
Forewing of Typology I

Section $\beta$

**Part A**
Petiole

1. Sting present and developed...2
   - Sting vestigial or absent...8
2. Petiole with peduncle anteriorly very long... *Aneuretus*
   - Petiole sessile...3
3. Clypeus with blunt teeth antero-marginally... *Fulakora*
   - Clypeus antero-marginally without teeth...4
4. Frontal lobe widely separated throughout their length...5
   - Frontal lobe closely confluent...6
5. Dorsum of Head lacking a median longitudinal costa... *Gnamptogenys*
   - Dorsum of Head with conspicuous medial longitudinal costa... *Heteroponera*
6. Antennal Socket completely visible; Gaster strongly curved... *Proceratium*
   - Antennal Socket completely or partially covered by the Frontal lobe; Gaster not curved...7
7. Subpetiolar process with a simple lobe... *Hypoponera*
   - Subpetiolar process with fovea (depression) postero-ventrally... *Ponera*
8. Hypostoma antero-laterally in the form of an expanded flange... *Dolichoderus*
   - Hypostoma antero-laterally not as above...9
9. Palp formula 3:4... *Anillidris*
   - Palp formula 6:4...10
10. Forewing with Discoidal cell open; Petiole without distinct node... *Technomyrmex*
    - Forewing with Discoidal cell closed; Petiole with distinct node...11

1. Antennae with 10 articles...*Pheidole* (part)
   - Antennae with 11 articles...*Myrcidris*
   - Antennae with 12 articles...2
2. Propodeum unarmed...3
   - Propodeum armed with spines or teeth...6
3. MetaTibiae with one Spur...4
   - MetaTibiae with two Spurs...5
4. Forewings with Rs2+3 vein incomplete; Mandibles with more than 12 teeth...*Manica*
   - Forewings with Rs2+3 vein complete; Mandibles with 7-8 teeth rarely more...*Messor*
5. Mandibles with proximal tooth on the basal margin; Neotropical region...*Pseudomyrmex*
   - Mandibles without proximal tooth on the basal margin; Afrotropical, Madagascar, Indo-Australian and Australia regions...*Tetraponera*
6. Eyes anteroventrally in form tapening close to the mandibolar insertion; Mediterranean region...*Goniomma*
   - Eyes not as above...7
7. Frontal lobe enormously; Antennal Scrobe present; Neotropical region...*Stegomyrmex*
   - Frontal lobe normal; Antennal Scrobe absent...8
8. Antennae clavate with 3 articles club...*Pheidole*
   - Antennae filiform, versus clavate or clavate with 4 articles club...9
9. Forewings with Rs2+3 vein incomplete...*Myrmica*
   - Forewings with Rs2+3 vein complete...10
10. MetaTibiae with Spur absent or vestigial...*Stenamma*
    - MetaTibiae with Spur pectinate or simple...11
11. Metasternal process vestigial or absent...*Aphenogaster*
    - Metasternal process represented by prominent triangle or tooth...12
12. Psammophore absent; Propodeum armed with spines...*Hylomyrma*
    - Psammophore present; Propodeum armed with spines/teeth or unarmed...*Pogonomyrmex*
2.2 Dichotomous key to forewings of Typology II

“solenopsis type”  “formica type”

The Winged ♀♀ of 109 genera of the ants that have Forewing structure of Typology II taxonomically classified in eleven Subfamilies of the Family Formicidae distributed as in Table (5 and 6).

Forewing of Typology II

<table>
<thead>
<tr>
<th>subfamily</th>
<th>genera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agroecomyrmecinae</td>
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<tr>
<td>Amblyoponinae</td>
<td>6</td>
</tr>
<tr>
<td>Apomyrminaee</td>
<td>1</td>
</tr>
<tr>
<td>Dolichoderinae</td>
<td>8</td>
</tr>
<tr>
<td>Dorylinae</td>
<td>6</td>
</tr>
<tr>
<td>Ectatomminae</td>
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<tr>
<td>Formicinae</td>
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<td>Myrmicinae</td>
<td>66</td>
</tr>
<tr>
<td>Ponerinae</td>
<td>1</td>
</tr>
<tr>
<td>Proceratiinae</td>
<td>1</td>
</tr>
<tr>
<td>Pseudomyrmecinae</td>
<td>1</td>
</tr>
<tr>
<td><strong>11</strong></td>
<td><strong>109</strong></td>
</tr>
</tbody>
</table>

Table 5 – The Subfamilies of the family Formicidae and the respective numbers of genera which present Forewings of Typology II.
## Genera of the Winged ♀ ♂ Ants with Forewings of Typology II

<table>
<thead>
<tr>
<th>Genera</th>
<th>Species</th>
<th>Species</th>
<th>Species</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthomyrmex (part)</td>
<td>Daceton</td>
<td>Meranoplus</td>
<td>Proformica</td>
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</tr>
<tr>
<td>Acanthostichus (part)</td>
<td>Dicroaspid</td>
<td>Mesostruma</td>
<td>Rogeria</td>
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</tr>
<tr>
<td>Acropyga (part)</td>
<td>Dilobocondyla (part)</td>
<td>Metapone</td>
<td>Rostromyrmex</td>
<td></td>
</tr>
<tr>
<td>Adelomyrmex</td>
<td>Diplomorium</td>
<td>Monomorium (part)</td>
<td>Royidris (part)</td>
<td></td>
</tr>
<tr>
<td>Adetomyrma</td>
<td>Dolopomyrmex</td>
<td>Myrmecocystus (part)</td>
<td>Simopone</td>
<td></td>
</tr>
<tr>
<td>Amblyopone (part)</td>
<td>Eutetramorium</td>
<td>Myrmecorhynchus</td>
<td>Solenopsis (part)</td>
<td></td>
</tr>
<tr>
<td>Anonycomyrma (part)</td>
<td>Formica</td>
<td>Myrmica (part)</td>
<td>Sphinctomyrmex</td>
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</tr>
<tr>
<td>Aphaenogaster (part)</td>
<td>Formicoxenus</td>
<td>Myrmicaria</td>
<td>Stenamma (part)</td>
<td></td>
</tr>
<tr>
<td>Apomyrma</td>
<td>Fulakora (part)</td>
<td>Myrmoteras</td>
<td>Stigmacros (part)</td>
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</tr>
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<td>Atopomyrmex</td>
<td>Gesomyrmex</td>
<td>Notoncus (part)</td>
<td>Stegomyrmex</td>
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<tr>
<td>Axinidris</td>
<td>Gnamptogenys (part)</td>
<td>Notostigma (part)</td>
<td>Strongylognathus</td>
<td></td>
</tr>
<tr>
<td>Azteca</td>
<td>Harpagoxenus</td>
<td>Ochetomyrmex</td>
<td>Syllophopsis</td>
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<td>Bariamyrma</td>
<td>Huberia</td>
<td>Onychomyrmex</td>
<td>Tapinoma (part)</td>
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<tr>
<td>Basiceros (part)</td>
<td>Iberoformlca</td>
<td>Opistopsis (part)</td>
<td>Tatuidris</td>
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<tr>
<td>Bondroitia</td>
<td>Indomyrma</td>
<td>Orectognathus</td>
<td>Temnochthorax (part)</td>
<td></td>
</tr>
<tr>
<td>Bothriomyrmex</td>
<td>Iridomyrmex (part)</td>
<td>Oxyepoecus</td>
<td>Terataner (part)</td>
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</tr>
<tr>
<td>Calyptomyrmex</td>
<td>Lachnomyrmex</td>
<td>Oxyopomyrmex</td>
<td>Tetramorium (part)</td>
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<tr>
<td>Cardiocondyla (part)</td>
<td>Lasiophanes (part)</td>
<td>Papyri</td>
<td>Tetraponera (part)</td>
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<tr>
<td>Carebara</td>
<td>Lasius (part)</td>
<td>Parasyscia</td>
<td>Thaumatomyrmex</td>
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<tr>
<td>Cataglyphis (part)</td>
<td>Leptoctorax (part)</td>
<td>Paratopula</td>
<td>Tranopelta</td>
<td></td>
</tr>
<tr>
<td>Cephalotes</td>
<td>Liomyrmex</td>
<td>Patagonomyrmex</td>
<td>Trichomyrmex (part)</td>
<td></td>
</tr>
<tr>
<td>Cerapachys</td>
<td>Lioponera</td>
<td>Podomyrma (part)</td>
<td>Typhlomyrmex</td>
<td></td>
</tr>
<tr>
<td>Colobostruma</td>
<td>Lophomyrmex</td>
<td>Pogonomyrmex (part)</td>
<td>Veromessor</td>
<td></td>
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<tr>
<td>Crematogaster (part)</td>
<td>Lordomyrma</td>
<td>Polyergus</td>
<td>Vitsika</td>
<td></td>
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<tr>
<td>Chronoxenus</td>
<td>Malagidris</td>
<td>Prionopelta</td>
<td>Vollenhovia</td>
<td></td>
</tr>
<tr>
<td>Cyatta</td>
<td>Mayriella</td>
<td>Proceratium (part)</td>
<td>Xenomyrmex</td>
<td></td>
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<tr>
<td>Dacetinops</td>
<td>Megalomymex (part)</td>
<td>Procryptocerus</td>
<td>Xymmer</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Zaspínhitus</td>
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</tbody>
</table>

Table 6 - Winged ♀ ♂ of 109 genera of the family Formicidae which present Forewings of Typology II. In brackets the term "part" means that species of the same genus have different Forewings Typologies.
Forewing of Typology II

This key divided into two Sections:

**Alpha** (α) and **Beta** (β)

**Section** α p. 46
Hindwing Typology I

**Section** β p. 47
Hindwing Typology II and III

The difference between the two Typology I and II of the Hindwing, evidenced in the presence/absence of 2M vein, indicated in the above figure with an arrow.
Forewing of Typology II

Section $\alpha$

1. Antennae with 11 articles...2
   - Antennae with 12 articles...3
2. Forewing with SubMarginal 1 cell open; Palp formula 6:4 or 5:3...Simopone
   - Forewing with SubMarginal 1 cell closed; Palp formula 3:2 or 2:2...Parasyscia (part)
3. Sting absent or vestigial...4
   - Sting present...5
4. Indo-Australian and Australian regions...Anonycomyrm...A
   - Neotropical region, M1+2 vein in particular position...Atzeca
5. Clypeus antero-marginally denticulate...Amblyopone
   - Clypeus antero-marginally not denticulate...6
6. Forewing with Marginal cell closed...7
   - Forewing with Marginal cell open...8
7. Antennal socket totally visible...Cerapachys
   - Antennal socket covered, at least partially, from the Frontal Lobe...Gnamptogenys
8. Forewing with SubMarginal 1 cell open...Lioponera
   - Forewing with SubMarginal 1 cell closed...9
9. Mandibles edentate, Neotropical region...Acanthostichus
   - Mandibles dentate, Indo-Australian and Afrotropical region...Parasyscia
Forewing of Typology II

Section $\beta$

This Section is divided into two Parts: A and B

Part A p. 48
Petiole and PostPetiole

Part B p. 59
Petiole
Forewing of Typology II

Section $\beta$

Part A
Petiole and PostPetiole

This Part A divided in two subSections

**subSection 1** p. 49
Forewing with Marginal cell open

**subSection 2** p. 55
Forewing with Marginal cell closed
Forewing of Typology II

Section β

Part A
subSection 1

Forewing with Marginal cell open

This subsection 1 divided in two infraSections: delta (δ) and gamma (ϒ)

infraSection δ p. 50
Forewing formica type

infraSection ϒ p. 52
Forewing solenopsis type
Forewing of Typology II

Section $\beta$
Part A
subSection 1
Forewing with Marginal cell open

infraSection $\delta$
Forewing formica type

1. Antennae with 7 articles... *Myrmicaria*
   - Antennae with 9 articles... *Rostromyrmex*
   - Antennae with 11 or 12 articles... 2
2. Antennae with 11 articles... 3
   - Antennae with 12 articles... 11
3. Mandibles linear, Antennae filiform... *Daceton*
   - Mandibles triangular, Antennae clavate with last 3 articles club... 4
4. Head with Antennal Scrobe... 5
   - Head without Antennal Scrobe... 8
5. Propodeum armed with teeth or spines... 6
   - Propodeum unarmed; Legs with all Femurs very enlarged... *Metapone*
6. Antennae Scape stout, curved, strongly depressed... *Harpagoxenus*
   - Antennae Scape not as above... 7
7. Petiole sessile... *Dicroaspis*
   - Petiole pedunculate... *Tetramorium* (part)
8. Propodeum unarmed... *Monomorium* (part)
   - Propodeum armed with teeth or spines... 9
9. Eyes with short erect hairs between of the ommatidia... *Formicoxenus*
   - Eyes without hair between the ommatidia... 10
10. Petiole pedunculate... *Ochetomyrmex*
    - Petiole sessile... *Leptothorax*
    - Petiole sessile or pedunculate... *Temnothorax* (part)
11. Antennae clavate with last 2 articles club... *Adelomyrmex*
    - Antennae clavate with last 4 articles club... *Stenamma* (part)
    - Antennae clavate o versus clavate with last 3 articles club or enlarged... 12
12. Propodeum unarmed... 13
    - Propodeum armed... 14
13. ... *Monomorium* (part), *Megalomyrmex* (part)
14. Head with Antennal Scrobe... 15
    - Head without Antennal Scrobe... 16
15. Antennae with last article very long and large, as long as the sum of the other articles of the Funiculus... *Calyptomyrmex*
   - Antennae with last article in length not as above... *Tetramorium* (part)
16. Mandibles falcate... *Strongylognatus*
   - Mandibles triangular... 17
17. Antennae versus clavate with last 3 articles slightly enlarged... *Veromessor*
   - Antennae clavate with last 3 articles club... 18
18. Maxillary palp of 5 articles; Madagascar region... *Malagidris*
   - Maxillary palp of 4 or 3 articles... *Megalomyrmex* (part), *Rogeria* (part)
   - ... *Temnothorax* (part)
Forewing of Typology II

Section $\beta$

Part A

subSection 1

Forewing with Marginal cell open

infraSection $\gamma$

Forewing solenopsis type

1. PostPetiole dorsally articulated to the 1° segment of the Gaster... *Crematogaster*
   - PostPetiole articulated not as above... 2
2. Antennae with 5 articles... *Orectognathus*
   - Antennae with 6 articles... *Mesostruma*
   - Antennae with 10 articles... 3
   - Antennae with 11 articles... 5
   - Antennae with 12 articles... 21
3. Head with Antennal Scrobe present... 4
   - Head without Antennal Scrobe... *Solenopsis* (part)
4. MetaTibiae without Spur, Antennae with last 2 articles club... *Mayriella*
   - MetaTibiae with Spur, Antennae with last 3 articles club... *Tetramorium* (part)
5. Head with Antennal Scrobe... 6
   - Head without Antennal Scrobe... 8
6. Petiole, PostPetiole and anterior first Gaster segment, with spongiform tissue ventrally on Petiole, PostPetiole and Gaster... *Dacetinops*
   - Petiole, PostPetiole and Gaster without spongiform tissue... 7
7. Petiole sessile... *Procryptocerus*
   - Petiole pedunculate... *Tetramorium* (part)
8. Propodeum unarmed... 9
   - Propodeum usually armed... 16
9. Antennae clavate with last 4 articles club and Propodeal spiracle enormously enlarged... *Bondroitia*
   - Antennae clavate with last 2 articles club, in some case with ninth article slightly thicker than previous but not club... 10
   - Antennae clavate with 3 articles club... 12
10. Petiole sessile... *Xenomyrmex*
   - Petiole pedunculate... 11
11. Postpetiole higher than the Petiole in lateral vision, very broadly attached to Gaster and without ventral tooth... *Diplomorium*
- PostPetiole lower in height than the Petiole in lateral vision and usually with ventral tooth... *Solenopsis*

12. Propodeal spiracle notably enlarged... *Tranopelta*  
- Propodeal spiracle normal size...13

13. Petiole sessile... *Vollenhovia* (part)  
- Petiole pedunculate...14

14. Clypeus without carine... *Dolopomyrmex*  
- Clypeus with carine...15

15. Clypeus anteriorly bidentate, each tooth laterally with another small denticles... *Oxyepoecus* (part)  
- Clypeus not as above... *Monomorium* (part)

16. Petiole pedunculate or sessile... *Temnothorax* (part)  
- Petiole with anterior peduncle...17

17. Head with Psammophore... *Oxyopomyrmex*  
- Head without Psammophore...18

18. Palp formula 5:3... *Huberia*  
- Palp formula 2:2...19

19. Clypeus anteriorly bidentate, each tooth laterally with another small denticles... *Oxyepoecus*  
- Clypeus not as above...20

20. Petiole with antero ventral strong tooth... *Indomyrma*  
- Petiole without antero ventral tooth... *Lophomyrmex*

21. Head with Antennal Scrobe...22  
- Head without Antennal Scrobe...24

22. Scape massive, body and legs with erect hairs clavate of white color... *Basiceros*  
- Scape not massive, body and legs without erect hair clavate...23

23. Maxillary palp of 5 articles... *Vitsika*  
- Maxillary palp of 4 or 3 articles... *Tetramorium* (part)

24. Antennae clavate or versus clavate with last 4 articles club...25  
- Antennae clavate with last 3 articles club...30

25. Palp formula 6:4... *Myrmica*  
- Palp formula less than 6:4...26

26. MetaTibiae with Spur pectinate...27  
- MetaTibiae with Spur simple or absent...28

27. Palp formula 4:3... *Pogonomyrmex*  
- Palp formula 5:4... *Patagonomyrmex*

28. MetaTibiae with Spur vestigial or absent... *Stenamma*  
- MetaTibiae with Spur simple...29

29. Propodeum armed with spines or teeth... *Aphaenogaster*  
- Propodeum unarmed or with very short teeth... *Royidris* (part)

30. Head, Mesosoma and Gaster without standing hairs dorsally... *Cardiocondyla*  
- Head, Mesosoma and Gaster with standing hairs dorsally...31
31. Propodeum unarmed or with short tubercles/teeth...32
   - Propodeum armed with teeth or spines...34
32. Maxillary palp of 5 articles...Royidris
   - Maxillary palp with less of 5 articles...33
33. Petiole sessile...Vollenhovia (part)
   - Petiole pedunculate...Megalomyrmex (part), Monomorium (part), Syllophopsis
34. Maxillary palp of 5 or 4 articles, Madagascar region...Eutetramorium
   - Maxillary palp of 3 or 2 articles; Neotropical and Indo-Australian region...35
   - ...Temnothorax
35. Petiole pedunculate...Rogeria
   - Petiole sessile...Vollenhovia
Forewing of Typology II

Section $\beta$

Part A

subsection 2

Forewing with Marginal cell closed

This subsection 2 divided in two infraSection

infraSection $\delta$ p. 56
Forewing formica type

infraSection $\Upsilon$ p. 57
Forewing solenopsis type
Forewing of Typology II

Section $\beta$

Part A

subSection 2
Forewing with Marginal cell closed

infraSection $\delta$
Forewing formica type

1. Antennae with 6 articles...*Colobostruma*
   - Antennae with 11 articles...2
   - Antennae with 12 articles...7
2. Head with Antennal Scrobe...3
   - Head without Antennal Scrobe...4
3. Petiole sessile; Hindwing without Anal 2 vein...*Cephalotes*
   - Petiole pedunculate; Hindwing with Anal 2 vein...*Tetramorium* (part)
4. Petiole pedunculate...5
   - Petiole sessile...6
5. Propodeum unarmed...*Liomyrmex*
   - Propodeum armed with spines or teeth...*Temnothorax* (part)
6. PostPetiole, in dorsal view, with posterodorsal lateral lobes...*Cyatta*
   - PostPetiole not as above...*Temnothorax* (part)
7. Head with Antennal Scrobe...8
   - Head without Antennal Scrobe...10
8. Propodeum unarmed, Petiole cilindric shape...*Dilobocondyla*
   - Propodeum armed, Petiole not cilindric shape...9
9. Frontal lobe enormously expanded...*Stegomyrmex*
   - Frontal lobe not as above...*Tetramorium* (part)
10. Antennae clavate with last 4 articles club...*Stenamma* (part)
    - Antennae clavate with last 3 articles club...11
11. Propodeum usually unarmed, Legs with Femurs swollen...*Terataner*
    - Propodeum unarmed, Legs with Femurs not swollen...*Trichomyrmex*
    - Propodeum usually armed, Legs with Femurs not swollen...*Temnothorax*
Forewing of Typology II

Section β

Part A

subsection 2
Forewing with Marginal cell closed

infraSection γ
Forewing solenopsis type

1. PostPetiole dorsally articulated to the 1° segment of the Gaster... *Crematogaster*
   - PostPetiole not as above... 2
2. Antennae with 9 or 10 articles... 3
   - Antennae with 11 articles... 4
   - Antennae with 12 articles... 11
3. Propodeum unarmed or with very short teeth, Antennae clavate with last 2 articles club... *Carebara* (part)
   - Propodeum armed with spines or teeth, Antennae clavate with last 3 articles club... *Meranoplus*
4. Antennae clavate with last 2 articles club... 5
   - Antennae clavate with last 3 articles club... 6
5. Head without Antennal Scrobe... *Carebara* (part)
   - Head with Antennal Scrobe... *Lachnomyrmex*
6. Head with Antennal Scrobe... 7
   - Head without Antennal Scrobe... 9
7. Petiole pedunculate... *Tetramorium* (part)
   - Petiole sessile... 8
8. Eyes situated above or posterioly from the Antennal Scrobe... *Cephalotes*
   - Eyes situated below from the Antennal Scrobe... *Procyrtocerus*
9. Legs with Meso and MetaFemur considerably incrassated... *Podomyrma*
   - Legs with Meso and Meta Femur not incrassated... 10
10. Petiole sessile or short pedunculate... *Temnothorax* (part)
    - Petiole with long peduncle... *Lophomyrmex* (part)
11. Antennae with last 2 articles club... *Carebara*
    - Antennae with last 3 articles club... 12
    - Antennae with last 4 articles club or enlarged... 18
12. Head with Antennal Scrobe... 13
- Head without Antennal Scrobe...

13. Mandibles massive edentate or with subapiacal tooth... *Acanthomyrmex*
- Mandibles not massive dentate...

14. Sting with lamellate or dentiform appendage... *Tetramorium*
- Sting without lamellate appendage... *Lordomyrma* (part)

15. Petiole sessile... *Atopomyrmex*,
- Petiole pedunculate...

16. Petiole dorsally, in lateral view, stretched in a rounded tip or tooth form...
- Petiole dorsally, in lateral view, straight... *Paratopula*

17. Neotropical region... *Bariamyrmex*
- Australia, Indo-Australian and Oriental region... *Lordomyrma*
- *Temnothorax*

18. Propodeum unarmed, Antennae versus clavate... *Tetraponera*
- Propodeum armed with teeth or spines, Antennae clavate...

19. MetaTibiae with Spur vestigial or absent... *Stenamma* (part)
- MetaTibiae with Spur pectinate...

20. Palp formula 5:4... *Paragonomyrmex*
- Palp formula 4:3... *Pogonomyrmex*
1. Sting present...2
   - Sting absent or vestigial...13
2. MetaTibiae with two Spurs...3
   - MetaTibiae with one Spur...6
3. Forewing with Marginal cell closed... Adetomyrma
   - Forewing with Marginal cell open... Apomyrma
4. Clypeus antero-marginally dentate... Fulakora
   - Clypeus antero-marginally not dentate/denticulate... Xymmer
   - Clypeus antero-marginally denticulate...5
5. Petiole pedunculate anteriorly and posteriorly... Apomyrma
   - Petiole sessile, MetaTibae with Spurs reduced... Onychomyrmex
6. Mandibles falcate with 3 very long teeth spine shaped... Thaumatomyrmex
   - Mandibles triangular, linear or falcate dentate or edentate...7
7. Clypeus denticulate marginally... Prionopelta
   - Clypeus not denticulate marginally...8
8. Antennae with 7 articles... Tatuidris
   - Antennae with 11 or 12 articles...9
9. Petiole pedulculate... Typhlomyrmex
   - Petiole sessile...10
10. Antennal socket covert, at least in part, from Frontal lobe... Gnamptogenys
    - Antennal socket completely visible...11
11. Gaster with two visibles Tergite... Proceratium
    - Gaster with five visibles Tergite...12
12. Forewing with Submarginal cell closed and Marginal cell open... Zasphinctus
    - Forewing with Submarginal cell open and Marginal cell closed... Sphinctomyrmex
13. Acidopore present...14
    - Acidopore absent...25
14. Antennae with 7 to 11 articles...15
    - Antennae with 12 articles...17
15. Big Eyes... Gesomyrmex
    - Normal Eyes ...16
16. Antennal socket near from posterior edge of the Clypeus; Eyes placed in the lower half of the Head... Acropyga
- Antennal socket confluent from posterior edge of the Clypeus; Eyes placed in the back half of the Head... **Stigmatophas**

17. Eyes places in the back angles of the Head... **Opistopsis**
- Eyes places not as above... **18**

18. Maxilar palp with articles 3 and 4 very long... **19**
- Maxilar palp with article 3 and 4 not very long... **20**

19. Neartic and Central America... **Myrmecocystus**
- Afrotopical, Palearctic, Oriental and Indo-Australian regions... **Cataglyphis**

20. Mandibles long linear dentate... **Myrmoteras**
- Mandibles falcate denticulate... **Polyergus**
- Mandibles triangular dentate... **21**

21. Australia region; Subfamily Formicinae: Melophorini tribe... **Notoncus, Notostigma, Myrmecorhynchus**
- Neartic, Neotropical, Palearctic, Oriental and Indo-Australian region... **22**
- Subfamily Formicinae: Formicini tribe... **Proformica, Formica, Iberoformica**
- Subfamily Formicinae: Lasiini tribe... **Lasius**
- Subfamily Formicinae: Melophorini tribe... **Lasiophanes**

25. Petiole without distinct node... **26**
- Petiole with distinct node... **27**

26. Propodeum with teeth or tubercles... **Axinidris**
- Propodeum without teeth or tubercles... **Tapinoma**

27. Forewing with Marginal cell open... **28**
- Forewing with Marginal cell closed... **29**

28. Forewing formica type; Palp formula 5:3... **Papyrius**
- Forewing solenopsis type; Palp formula 2:3 or 2:2... **Chronoxenus**

29. Palp formula 6:4... **Iridomyrmex, Anonychomyrma**
- Palp formula 4:3 or 2:2... **Bothriomyrmex**
2.3 Dichotomous key to forewings of Typology III

The winged ♀️ of 96 genera (Table 8) have a Forewing structure of Typology III and taxonomically classified in five Subfamilies distributed as in Table 7.

<table>
<thead>
<tr>
<th>subfamily</th>
<th>genera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amblyoponinae</td>
<td>1</td>
</tr>
<tr>
<td>Dolichoderinae</td>
<td>4</td>
</tr>
<tr>
<td>Formicinae</td>
<td>37</td>
</tr>
<tr>
<td>Myrmecinae</td>
<td>52</td>
</tr>
<tr>
<td>Proceratiinae</td>
<td>2</td>
</tr>
<tr>
<td><strong>5</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>

Table 7 - The subfamilies of the family Formicidae and the respective numbers of genera which present Forewings of Typology III
### Genera of the Winged ♀♂ Ant with Forewings of Typology III

<table>
<thead>
<tr>
<th>Genus</th>
<th>Genus</th>
<th>Genus</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthomyrmex (part)</td>
<td>Dorymyrmex</td>
<td>Mirmecocystus (part)</td>
<td>Protalaridris</td>
</tr>
<tr>
<td>Acromyrmex</td>
<td>Echinopla</td>
<td>Myrmelachista</td>
<td>Pseudoatta</td>
</tr>
<tr>
<td>Acropyga (part)</td>
<td>Euprenolepis</td>
<td>Myrmycrypta</td>
<td>Pseudolasius</td>
</tr>
<tr>
<td>Allomerus</td>
<td>Eurhopalothryx (part)</td>
<td>Nesomyrmex</td>
<td>Rhopalomastix</td>
</tr>
<tr>
<td>Anoplolepis</td>
<td>Forelius</td>
<td>Notoncus (part)</td>
<td>Rhopalothrix</td>
</tr>
<tr>
<td>Aphomomyrmex</td>
<td>Formicoxenus (part)</td>
<td>Notostigma (part)</td>
<td>Romblonella</td>
</tr>
<tr>
<td>Apterostigma</td>
<td>Fulakora (part)</td>
<td>Novomessor</td>
<td>Rossomyrmex</td>
</tr>
<tr>
<td>Arnoldius</td>
<td>Gigantiops</td>
<td>Nylanderia</td>
<td>Royidris (part)</td>
</tr>
<tr>
<td>Atta</td>
<td>Kalathomyrmex</td>
<td>Octostruma</td>
<td>Sericomymex</td>
</tr>
<tr>
<td>Basiceros (part)</td>
<td>Lasiophanes (part)</td>
<td>Oecophylla</td>
<td>Solenopsis (part)</td>
</tr>
<tr>
<td>Brachymyrmex</td>
<td>Lasius (part)</td>
<td>Opistopsis (part)</td>
<td>Stenamma (part)</td>
</tr>
<tr>
<td>Calomyrmex</td>
<td>Lenomyrmex</td>
<td>Overbeckia</td>
<td>Stigmaceros (part)</td>
</tr>
<tr>
<td>Camponotus</td>
<td>Lepisiota</td>
<td>Paramycetophylax</td>
<td>Strumigenys (part)</td>
</tr>
<tr>
<td>Cardiocondyla (part)</td>
<td>Leptothorax (part)</td>
<td>Paraparatrechina</td>
<td>Tapinolepis</td>
</tr>
<tr>
<td>Cataglyphis (part)</td>
<td>Megalomymex (part)</td>
<td>Paratrechina</td>
<td>Tapinoma (part)</td>
</tr>
<tr>
<td>Cataulacus</td>
<td>Melissotarsus</td>
<td>Petalomyrmex</td>
<td>Temnothorax (part)</td>
</tr>
<tr>
<td>Cladomyrma</td>
<td>Melophorus</td>
<td>Plagiolepis</td>
<td>Terataner (part)</td>
</tr>
<tr>
<td>Colobopsis</td>
<td>Monomorium (part)</td>
<td>Podomyrma</td>
<td>Tetramorium (part)</td>
</tr>
<tr>
<td>Crematogaster (part)</td>
<td>Mycetagroicus</td>
<td>Polyrhachys</td>
<td>Trachymyrmex</td>
</tr>
<tr>
<td>Cyphomyrmex</td>
<td>Mycetarotes</td>
<td>Pristomyrmex</td>
<td>Tyrannomyrmex</td>
</tr>
<tr>
<td>Dacatria</td>
<td>Mycetophylax</td>
<td>Proattia</td>
<td>Wasmannia</td>
</tr>
<tr>
<td>Dinomyrmex</td>
<td>Mycetosoritis</td>
<td>Proceratium</td>
<td>Xerolitor</td>
</tr>
<tr>
<td>Dilobocondyla (part)</td>
<td>Mycecepurus</td>
<td>Proceratium</td>
<td>Xerolitor</td>
</tr>
<tr>
<td>Discothyrea</td>
<td>Myrmecina</td>
<td>Prolasius</td>
<td>Zatania</td>
</tr>
</tbody>
</table>

Table 8 – Winged ♀♂ of 96 genera of the Family Formicidae which present Forewings of Typology III. In brackets the term "part" means that species of the same genus have different Forewing Typologies.
Forewing of Typology III

This key divided into two Sections:

**Alpha** (α) and **Beta** (β)

**Section α** p. 64
Petiole

**Section β** p. 66
Petiole and Postpetiole
Forewing of Typology III

Section $\alpha$

Petiole

1. Sting present...2
   - Sting vestigial or absent...4
2. Clypeus antero-marginally dentate; Mandibles falcate/linear...Fulakora
   - Clypeus not antero-marginally dentate; Mandibles triangular or subtriangular...3
3. Antennae with 6 to 10 articles...Discothyrea
   - Antennae with 12 articles...Proceratium
4. Acidopore present...5
   - Acidopore absent...29
5. Antennae with 7 to 11 articles...6
   - Antennae with 12 articles...15
6. Antennae with less than 11 articles...7
   - Antennae with 11 articles...13
7. Forewing with Marginal cell open, Antennae with 9 articles...Brachymyrmex
   - Forewing with Marginal cell closed...8
8. Forewing solenopsis type...9
   - Forewing formica type...10
9. Antennae clavate...Myrmelachysta
   - Antennae filiform or versus clavate...Acropyga (part)
10. Mesosoma conspicuously flattened...Petalomyrmex
    - Mesosoma not as above...11
11. Maxillary palp with 6 articles...Cladomyrma
    - Maxillary palp with less than 6 articles...12
12. Acropyga (part), Aphomomyrmex
13. Antennae with last 4 articles club...Stigmacos
    - Antennae filiform or versus clavate...14
14. Maxillary palp of 5 or 4 articles...Acropyga
    - Maxillary palp of 6 articles; Plagiolepidini tribe...Plagiolepis, Anoplolepis, Tapinolepis, Lepisiota
15. Enormous Eyes occupying the whole side of the Head...Gigantiops
    - Eyes not as above...16
16. Last article of the Tarsus elongated and club shaped apically...Oecophylla
    - Not as above...17
17. Petiole with a fringe of distinct bristles...Rossomyrmex
    - Not as above...18
18. Maxillary palp with 1° article flattened, 3° and 4° articles very long...Cataglyphis
    - Maxillary palp with 1° articles not flattened, 3° and 4° articles not very long...19
19. Antennal socked near or confluent from posterior edge of the Clypeus...20
- Antennal socked distant from posterior edge of the Clypeus...25
20. Subfamily Formicinae: Lasiini tribe...21
- Subfamily Formicinae: Melophorini tribe...24
21. Maxillary palp of 3 or 4 articles...Euprenolepis, Pseudolasius, Lasius (part)
- Maxillary palp of 5 or 6 articles...22
22. Maxillary palp with articles very long, the 4° article in length ≥ than the 5°+6° articles...
Myrmecocystus
- Maxillary palp not as above...23
23. Eyes placed slightly posteriorly to the middlelength of the Head...Lasius, Zatania, Prenolepis
- Eyes placed slightly anteriorly to the middlelength of the Head...Nylanderia, Paraparatrechina, Paratrechina
24. Neotropical region...Lasiophanes
- Australia region...Melophorus, Notoncus, Prolasius.
25. Subfamily Formicinae: Melophorini tribe...Notostigma
- Subfamily Formicinae: Camponotini tribe...26
26. Big Eyes at the back corners of the Head...Opistopsis
- Eyes not as above...27
27. Propodeum and Petiole armed with spines or teeth...Polyrachis
- Propodeum and Petiole unarmed...28
28. Calomyrmex, Camponotus, Colobopsis, Dinomyrmex, Echinopla, Overbeckia
29. Palp formula 4:3 or 2:2...Arnoldius
- Palp formula 6:4...30
30. Maxillary palp with 3” article long as the sum of 4”+5”+6” articles...Doromyrmex
- Maxillary palp not as above...31
31. Forewing with Marginal cell open...Forelius
- Forewing with Marginal cell closed...Tapinoma
Forewing of Typology III

Section β

Petiole and Postpetiole

1. PostPetiole articulate dorsally with the first segment of the Gaster... *Crematogaster*
   - PostPetiole not articulate dorsally with the first segment of the Gaster... 2
2. Antennae with 6 to 10 articles... 3
   - Antennae with 11 articles... 10
   - Antennae with 12 articles... 44
3. Antennae with 8 articles... *Octostruma*
   - Antennae with 7 articles... 4
   - Antennae with 6 articles... 5
   - Antennae with 9 or 10 articles... 6
4. Mandibles triangular... *Eurhopalotrix*
   - Mandibles linear/falcate... *Rhopalothrix*
5. Forewing with Marginal cell open; Mandibles linear or subtriangular
   - Forewing with Marginal cell closed; Mandibles triangular short... *Melissotarsus*
6. Antennae with last three articles club... 7
   - Antennae with last two articles club... 8
7. Antennal scrobe present; Propodeum armed with teeth... *Tetramorium* (part)
   - Antennal scrobe absent; Propodeum unarmed... *Allomerus* (part)
8. Mandibles linear dentate; Antennae with 9 articles... *Protolaridris*
   - Mandibles triangular dentate; Antennae with 10 articles... 9
9. Forewing with Marginal cell closed... *Rhopalomastix* (part)
   - Forewing with Marginal cell open... *Solenopsis* (part)
10. Forewing of solenopsis type... 11
    - Forewing of formica type... 29
11. Forewing with Marginal cell closed... 12
    - Forewing with Marginal cell open... 21
12. Antennal Scrobe absent... 13
    - Antennal Scrobe present... 18
13. Forewing with Pterostigma absent or reduced... 14
    - Forewing with Pterostigma present... 16
14. Forewing with Rs1 absent; Frontal Lobe very developed... *Apterostigma*
    - Forewing with Rs1 present; Frontal lobe normal size... 15
15. Antennae clavate with last 3 article club... *Myrmymocrypta*
    - Antennae filiform or slightly versus clavate... *Acromyrmex* (part)
16. Antennae with last 2 articles club... *Rhopalomastix*
    - Antennae with last 3 articles club... 17
17. Meso and MetaFemur considerably incrassated... *Podomyrma*
- Meso and MetaFemur not as above... *Nesomyrmex* (part), *Temnothorax* (part)
18. Forewing with Pterostigma present... 19
- Forewing with Pterostigma absent or reduced... 20
19. Head cordiform (heart-shaped); Frontal lobe very developed... *Sericomyrmex*
- Head and Frontal lobe not as above... *Tetramorium* (part)
20. Head with spines dorsally... *Trachymyrmex* (part)
- Head without spines dorsally... *Mycetophylax* (part) *Mycetosoritis* part), *Xerolitor*
21. Antennal Scrobe absent... 22
- Antennal Scrobe present... 27
22. Antennae with last 2 articles club... 23
- Antennae with last 3 articles club... 24
23. Mandible triangular elongate... *Lenomyrmex*
- Mandibles triangular short... *Solenopsis*
24. Forewing with Pterostigma absent or reduced... *Mycetagroicus*
- Forewing with Pterostigma present... 25
25. Propodeum armed with teeth or spines... *Temnothorax* (part)
- Propodeum unarmed or with very short teeth/tubercles... 26
26. Typical sculptures of the Head and body heavily faveate... *Tyrannomyrmex*
- Not as above... *Monomorium* (part)
27. Head cordiform (heart-shaped)... *Mycetophylax* (part)
- Head not cordiform... 28
28. Frontal lobe absent or reduced with Antennal socket exposed... *Pristomyrmex*
- Frontal Lobe present... *Tetramorium* (part)
29. Antennal scrobe absent... 30
- Antennal scrobe present... 38
30. Forewing with Pterostigma absent or reduced... 31
- Forewing with Pterostigma present... 32
31. Pronotum without spines dorsally... *Atta*
- Pronotum with two spines dorsally... *Pseudoatta, Acromyrmex*
32. Petiole armed with two spines or teeth... *Mycetarotes*
- Petiole not armed with two spines...33
33. Forewing with Marginal cell closed... *Nesomyrmex* (part)
- Forewing with Marginal cell open... 34
34. Eyes with short erect hairs between the ommatidia... *Formicoxenus*
- Eyes not as above...35
35. Propodeum unarmed... *Monomorium* (part) *Allomerus*
- Propodeum armed with teeth or spines... 36
36. Mandibles triangular with terminal tooth very long... *Kalathomyrmex*
- Mandibles triangular with terminal tooth not very long... 37
37. Petiole of the same height than PostPetiole... *Paramycetophylax*
- Petiole higher than the PostPetiole... *Leptothorax, Temnothorax* (part)
38. Forewing with Marginal cell open...
39. Forewing with Marginal cell closed...
40. Petiole sessile; Eyes dorsally from the Antennal Scrobe... *Cataulacus* (part)
    - Petiole pedunculate; Eyes ventrally from the Antennal Scrobe... *Wasmannia*
41. Forewing with Pterostigma present...
    - Forewing with Pterostigma absent or reduced...
42. Eyes ventrally from the Antennal Scrobe... *Mycocepurus*
    - Eyes dorsally from the Antennal Scrobe... *Cataulacus*
43. Head with spines dorsally... *Trachymyrmex*
    - Head without spines dorsally... *Cyphomyrmex, Mycetophylax, Mycetosoritis*
44. Antennal scrobe present...
    - Antennal scrobe absent...
45. Forewing solenopsis type...
    - Forewing formica type...
46. Forewing with Marginal cell open; Body and legs with scale spatulate/squamiform of with color... *Basiceros*
    - Forewing with Marginal cell closed; Body and legs without scale...
47. Mandibles massive; Petiole with usually dorsal tooth... *Acanthomyrmex*
    - Mandibles and Petiole not as above... *Tetramorium* (part)
48. Propodeum unarmed... *Dilobocondyla*
    - Propodeum armed with teeth or spines...
49. Petiole with two teeth postero-dorsally... *Proatta*
    - Petiole without teeth dorsol-posteriorly...
50. Petiole pedunculate... *Tetramorium*
    - Petiole sessile... *Romblonella*
51. Forewing with Marginal cell closed...
    - Forewing with Marginal cell open...
52. Antennae with 4 last articles club or enlarged... *Stenamma* (part)
    - Antennae with last 3 articles club...
53. Petiole sessile... *Myrmecina, Temnothorax* (part)
    - Petiole pedunculate...
54. Legs with femur swollen... *Terataner*
    - Legs without femur swollen...
55. Propodeum unarmed... *Trichomyrmex*
    - Propodeum armed... *Dacatria* (part), *Nesomyrmex, Temnothorax* (part)
56. Antennae with 4 last articles club/enlarged... *Stenamma, Royidris* (part)
    - Antennae with with last 3 articles club/enlarged or filiform...
57. Forewing solenopsis type...
    - Forewing formica type...
58. Propodeum unarmed or with very short teeth/tubercles...
Propodeum armed with teeth or spines...60

59. *Megalomyrmex* (part), *Monomorium* (part), *Royidris*

60. *Cardiocondyla, Dacatria, Temnothorax* (part)

61. Antennae filiform...*Novomessor*

- Antennae clavate or versus clavate...*Megalomyrmex, Monomorium, Temnothorax.*
2.4 Dichotomous key to forewings of Typology IV

The Winged ♀♀♀ ants of 8 genera (Table 10) have a Forewing structure of Typology IV and are taxonomically classified in three Subfamilies of the Family Formicidae (Table 9).

**Forewing of Typology IV**

<table>
<thead>
<tr>
<th>subfamily</th>
<th>genera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amblyoponinae</td>
<td>1</td>
</tr>
<tr>
<td>Myrmicinae</td>
<td>6</td>
</tr>
<tr>
<td>Proceratiinae</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 9 - Subfamilies of the family Formicidae and the respective numbers of genera which present Forewings of Typology IV
Genera of the ♀♀ Winged Ants with Forewings of Typology IV

- Acanthognathus
- Cardiocondyla (part)
- Crematogaster (part)
- Eurhopalothrix
- Fulakora (part)
- Probolomyrmex
- Rhopalothrix (part)
- Strumigenys (part)

Table 10 - Winged ♀♀ of 8 genera of the Family Formicidae which present Forewings of Typology IV. In brackets the term "part" means that species of the same genus have different Forewing Typologies.

Forewing of Typology IV

1. Petiole...2
   - Petiole and PostPetiole...3
2. Clypeus antero-marginally dentate; Mandibles linear/falcate...Fulakora
   - Clypeus antero-marginally not dentate; Mandibles subtriangular...Probolomyrmex
3. PosPetiole articoled dorsally ...Crematogaster
   - PosPetiole not as above...4
4. Antennae with 6 articles...Strumigenys
   - Antennae with 7 articles...5
   - Antennae with 11 articles; Mandibles linear...Acanthognatus
   - Antennae with 12 articles...Cardiocondyla
5. Mandibles triangular...Eurhopalothrix
   - Mandibles linear/falcate...Rhopalothryx
3. Morphological description, mating flight and references to Winged ♀♂ Ant Genera

In this chapter, the morphological characteristics used to write the dichotomous key are presented, known data on Mating flight and bibliographic references for Winged ♀♂ of all 244 genera which were been studied and divided into 17 subfamilies.

3.1 SubFamily Agroecomyrmecinae

This subfamily represented by two genera: *Ankylomyrma* present in Afrotropical region and *Tatuidris* present in Neotropical region. Only in the genus *Tatuidris* is known the ♀.

♀ Genus *Tatuidris* Brown & Kempf, 1968

Morphological characters used in this dichotomous key
- Antennae with 7 articles clavate, with the last two considerably larger articles; Antennae Scape enlarged apically; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular with two blunt apical teeth and setae on the ventral side; MetaTibiae with single pectinate Spur; Propodeum armed, Sting present.

Bio-geographical distribution
- Neotropical

Behavioral Ecology of the mating flight
- Strategy: unknown
- Mating flight: unknown

References for Taxonomic identification

3.2 Subfamily Amblyoponinae Forel, 1893

This subfamily represented for nine genera and the ♀♀ known in all genera.

♀ Genus *Adetomyrma* Ward, 1994

Morphological characters used in this dichotomous key
- Antennae with 12 articles versus clavate; Antennae Scape not overstep the Occiput; Forewings of Typology II with Submarginal cell open for absence of rs-m cross-vein, Marginal cell open; Hindwings of Typology II, 1rs+ m cross-vein absent; Clypeus marginally dentaticulate; Mandibles subfalcate with two apical teeth; Palp formula 3:3; MetaTibiae with two Spurs; Pretarsal Claws simple; Sting present.

Bio-geographical distribution
- Madagascar

Behavioral Ecology of the mating flight
- Strategy: unknown
- Mating flight: see Cantone, 2017

References for Taxonomic identification


♀ Genus Amblyopone Erichson, 1842

Morphological characters used in this dichotomous key

♀ Genus Fulakora Kusnezov, 1955

Morphological characters used in this dichotomous key

Behavioral Ecology of the mating flight

References for Taxonomic identification and Behavioral Ecology of the nuptial flight

References for Taxonomic identification

-Morphological characters used in this dichotomous key

Behavioral Ecology of the mating flight

References for Taxonomic identification

-Morphological characters used in this dichotomous key

Behavioral Ecology of the mating flight

References for Taxonomic identification

♀ Genus *Myopopone* Roger, 1861

**Morphological characters used in this dichotomous key**

Antennae with 12 articles clavate, Antennae Scape not overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Mandibles linear/falcate dentate; Palp formula 4:3; Clypeus antero-marginally dentatulate and with antero-lateral tooth; Petiole entirely articulated with the first segment of the Gaster; MetaTibiae with two Spurs; Sting present.

**Bio-geographical distribution**
Indo-Oriental and Australian

**Behavioral Ecology of the mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
-Donisthorpe H. (1942) *Myopopone wallastoni* sp.n, with notes on other forms in the genus and description of the males of two species (Hym., Formicidae). The Entomologist’s Monthly Magazine, vol.LXXVII.
♀ Genus *Mystrium* Roger, 1862

**Morphological characters used in this dichotomous key**

Antennae with 12 articles clavate, Antennae Scape not overstep the Occiput; Forewings Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Mandibles falcate/linear dentate, blunt at apex and longer than Head; Clypeus marginally denticulate or dentate; Petiole entirely articulated with the first segment of the Gaster; MetaTibiae with two Spurs; Sting present.

**Bio-geographical distribution**

Afrotropical, Madagascar, Indo-Australian and Australian

**Behavioral Ecology of the mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Onychomyrmex* Emery, 1895

**Morphological characters used in this dichotomous key**

Antennae with 12 articles versus clavate or clavate with last 4 articles club, Antennae Scape not overstep the Occiput; Forewings of Typology II, solenopsis type, Marginal cell closed; Hindwings of Typology II; Mandibles linear/falcate dentate; Palp formula 2:2?; Clypeus antero-marginally denticulate; MetaTibiae with reduced Spurs; Pretarsal Claws simple very large strongly curvate and pulvilli; Sting present; Eyes very small.

**Bio-geographical distribution**

Australian

**Behavioral Ecology of the mating flight**

Strategy: unknown

Mating flight: Cantone, 2017

**References for Taxonomic identification**


♀ Genus Prionopelta Mayr, 1866

Morphological characters used in this dichotomous key
Antennae clavate with 8 articles (P. amieti), 9 articles (P. laurce*, P. concentata), 10 articles (P. humicola), 11 articles (P. punctulata) and 12 articles, Antennae Scape not overstep the Occiput; Forewings of Typology II, solenopsis type, Marginal cell closed; Hindwings of Typology III; Mandibles linear or subtriangular dentate apically; Palp formula 2:2?; Clypeus denticulate marginally; Petiole entirely articulated with the first segment of the Gaster; MetaTibiae with one Spur pectinate; Ptretarsal Claws simple; Sting present. (*worker)

Bio-geographical distribution
Neotropical, Afrotropical, Madagascar Indo-Australian and Australian.

Behavioral Ecology of the mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Stigmatomma Roger, 1859

Morphological characters used in this dichotomous key
Antennae clavate with 9-10-11 and 12 articles, Antennae Scape not overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Mandibles linear/falcate dentate; Palp formula 4:3; 4:2; 2:2?; Clypeus antero-marginally dentate; Petiole entirely articulated with the first segment of the Gaster; MetaTibiae with two Spurs (one Spur in S. luyiae); Sting present.

Bio-geographical distribution
Neartic, Paleartic, Indo-Australian, Oriental, Afrotropical and Madagascar

Behavioral Ecology of the mating flight
Strategy: female calling
Mating flight: see Cantone, 2017

References for Taxonomic identification


♀ Genus *Xymer* Santschi, 1914

Morphological characters used in this dichotomous key

Antennae clavate with 12 articles, Antennae Scape not overstep the Occiput; Wings unknown, I speculate that the wings are like in males: Forewings of Typology II, solenopsis type, Marginal cell closed; Hindwings of Typology II (Cantone, 2017); Mandibles linear/falcate dentate; Clypeus antero-marginally not denticulate; Petiole entirely articulated with the first segment of the Gaster; MetaTibiae with two Spurs; Pretarsal Claws simple, Sting present.
Bio-geographical distribution
Afrotropical, Madagascar and Indo-Australian

Behavioral Ecology of the mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

3.3 Subfamily Aneuretinae Emery, 1913

This subfamily represented for one genus.

♀ Genus Aneuretus Emery, 1893

Morphological characters used in the dichotomous key
Antennae with 12 articles, versus clavate; Antennae Scape long reaching the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 3:4; Propodeum angulate; Petiole with long anterior peduncle and low rounded node; MetaTibiae with one Spur; Pretarsal Claws simple; Sting present.

Bio-geographical distribution
Sri Lanka

Behavioral Ecology of the mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

3.4 Subfamily Apomyrminae Forel, 1893

This Subfamily represented for one genus.

♀ Genus Apomyrma Brown, Gotwald e Lévieux, 1970

Morphological characters used in this dichotomous key
Antennae with 12 articles clavate with last 4 articles club; Antennae Scape short and incrassate; Forewings of Typology II, solenopsis type, Marginal cell closed; Hindwings of Typology III; Mandibles linear/falcate with bidentate apex; Clypeus antero-marginally
dentaticulate; Femura incrassate; MetaTibiae with two Spurs; Pretarsal Claws simple; Petiole anterorly and posteriorly pedunculate; Sting present.

**Bio-geographical distribution**
Afrotropical

**Behavioral Ecology of the mating flight**
Strategy: unknown

**References for Taxonomic identification**

3.5 Subfamily Dolichoderinae Forel, 1878

This Subfamily represented for 28 genera extant and the winged ♀♀ are known in 21 genera.

Known only the Ergatogyne form in the genera: *Aptinoma* and *Leptomyrmex*.

In the genera *Ecphorella*, *Gracilidris*, *Loweriella*, *Nebothriomyrmex* and *Ravavy* the ♀♀ are unknown.

*L. burwelli* known a queen dealate;

♀ Genus *Anillidris* Santschi, 1936

**Morphological characters used in the dichotomous key**

Antennae with 12 articles filiform, Antennae Scape long, not overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate marginally with 8 teeth; Maxillary Palp of 3 articles and Labial Palp of 4 articles; MetaTibiae with one Spur; Pretarsal Claws simple; Sting absent or vestigial.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

Figure – **A**: Antennae; **B**: Hindwing of *A. bruchi* ♀, São Paulo, Brazil.
♀ Genus **Anonychomyrma** Donisthorpe, 1946

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape short or long, overstep or not the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology I (in some cases with M3 vein incomplete) and Typology II, solenopsis or formica type (only in *A. tigris*), Marginal cell closed; Hindwings of Typology I without Jugal lobe and Typology II; Mandibles triangular dentate marginally; Palp formula 6:4; MetaTibiae with one Spur; Sting absent or vestigial.

**Bio-geographical distribution**
Indo-Australian, Australia

**Behavioral Ecology of the mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus **Arnoldius** Dubovikoff, 2005

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape flat, not overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology III, solenopsis type, Marginal cell closed; Hindwings of Typology III; Mandibles triangular dentate; Palp formula 4:3; 2:2.

**Bio-geographical distribution**
Australian

**Behavioral Ecology of the mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
-AntWeb (2018)Photos Typus of *A. flavus*
-Crawley W.C. (1922) New ants from Australia. Annals and magazine of Natural Hystory, ser. 9, vol. X.

♀ Genus **Axinidris** Weber, 1941

**Morphological characters used in the dichotomous key**

Antennae filiform or slightly versus clavate with 12 articles, Antennae Scape can reach the occiput, not overstep the Occiput; Forewings of Typology II with Marginal cell closed; Hindwings of Typology III; Clypeus with distinct median notch on free margin; Mandibles
triangular dentate marginally; Palp formula 6:4; Propodeum armed with two spine which can bee reduced and rounded in the form of tubercles; Petiole very reduced; MetaTibiae with one Spur.

**Bio-geographical distribution**
Afrotropical

**Behavioral Ecology of the mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Azteca* Forel, 1878

**Morphological characters used in the dichotomous key**
Antennae filiform or slightly versus clavate with 12 articles, Antennae Scape not overstep the Occiput; Forewings of Typology II with Marginal cell closed, formica type; Hindwings of Typology I without Jugal lobe and with characteristic position of the vein M1+2; Mandibles triangular dentate; Palp formula 6:4, 5:3, 4:3 or 4:2; MetaTibiae with one Spur.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
- Shattuck S. O. (1992) Generic Revision of the ant subfamily Dolichoderinae (Hymenoptera:

![Antennas](image1)

**Figure** – A: Forewing; B: Hindwing; C: Petiole of *Azteca* sp. 530 ♀

♀ Genus *Bothriomyrmex* Emery, 1869

**Morphological characters used in the dichotomous key**
Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology II with extremely reduced M3 vein, solenopsis type, with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 4:3 or 2:2; MetaTibiae with one Spur barbulate.

**Bio-geographical distribution**
Paleartic and Neotropical (Central America exotic?)

**Behavioral Ecology of the mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
♀ Genus *Chronoxenus* Santschi, 1919

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput; Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology II with extremely reduced M3 vein, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate marginally; Palp formula 2:3 or 2:2; MetaTibiae with one Spur barbulate.

**Bio-geographical distribution**

Indo-Oriental

**Behavioral Ecology of the mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Doleromyrma* Forel, 1907

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; MetaTibiae with one Spur.

**Bio-geographical distribution**

Australian

**Behavioral Ecology of the mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

- Forel A. (1907) Formicides du Musée National Hongrois. Annales Musei Nationalis Hungarici V.

♀ Genus *Dolichoderus* Lund, 1831

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Hypostoma antero-lateral in the form of an expanded flange
directed; Palp formula 6:4; MetaTibiae with one Spur; Pretarsal Claws simple.

**Bio-geographical distribution**
Neotropical, Neartic, Paleartic, Indo-Australian, Oriental, Australian

**Behavioral Ecology of the Mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
- Clark J. (1930) The australlian ants of the genus *Dolichoderus* (Formicidae). Australin Zoologist, vol. 6
- Donisthorpe H. (1917) *Dolichoderus* (*Hypoclinea*) *crawley* n.sp., a species of ant new to Science; with o few notes on the genus. The Entomologist’s Record, vol. 29.

**Figure – A:** Forewing of *Dolichoderus* sp. 119 ♀, São Paulo, Brazil.
♀ Genus *Dorymyrmex* Mayr, 1866

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput; Antennal socket confluent from posterion edge of the Clypeus; Forewings of Typology III, solenopsis type, Marginal cell closed or open (*D. planidens* with two submarginal cell); Hindwings of Typology II; Mandibles triangular dentate; Psammophore present in most species; Palp formula 6:4, Maxillary Palp with 3° article longer as the sum of 4°+5°+6° articles; MetaTibiae with one Spur.

**Bio-geographical distribution**

Neartic and Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

- Brethes J. (1914) Sur les formes sexueles de deux Dolichoderines. Anales del Museo Nacional de Historia Natural de Buenos Aires, Tomo XXVI, pag. 231 a 234.

Figure – A: Forewing; B: Hindiwing; C: Palps; D: Funiculus of *Dorymyrmex* sp. 44 ♀, São Paulo, Brazil.
♀ Genus *Forelius* Emery, 1888

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput; Antennal socket confluent from the posterior edge of the Clypeus; Forewings of Typology III with Marginal cell open; Hindwings of Typology II or III; Mandibles triangular dentate; Palp formula 6:4; MetaTibiae with one Spur.

**Bio-geographical distribution**

Nearctic and Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Froggattella* Forel, 1902

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape not overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Petiole without ventral lobe; First segment of the Gaster narrowed and marginate anteriorly above a distinct basal cavity which overlies the Petiole; MetaTibiae with one Spur.

**Bio-geographical distribution**

Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Iridomyrmex* Mayr, 1862

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape overstep or not the Occiput; Forewings of Typology I and II (*I. suchieri* formica or solenopsis type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; MetaTibiae with one Spur.

**Bio-geographical distribution**

Oriental, Indo-Australian and Australian.

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Linepithema* Mayr, 1866

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput; Forewings of Typology I, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4.

**Bio-geographical distribution**

Neotropical (Cosmopolitan exotic)

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


Figure – A: Antennae; B: Forewing; C: Hindwing of *Linepithema neotropicum* ♂, São Paulo, Brazil.

♀ Genus *Liometopum* Mayr, 1861

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape reaching or overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palpal formula 6:4; MetaTibiae with one Spur; Pretarsal Claws simple.

**Bio-geographical distribution**

Neartic, Palearctic, Oriental and Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Ochetellus* Shattuck, 1992

**Morphological characters used in the dichotomous key**
Antennae with 12 articles, Antennae Scape reaching or overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4.

**Bio-geographical distribution**
Indo-Australian, Australian, Madagascar and Korea, Japan

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Papyrius* Shattuck, 1992

**Morphological characters used in the dichotomous key**
Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput; Forewings of Typology II formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 5:3; MetaTibiae with one Spur.

**Bio-geographical distribution**
Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Philidris* Shattuck, 1992

**Morphological characters used in the dichotomous key**
Antennae with 12 articles, Antennae Scape can reach and it does overstep, just a little, the Occiput or not; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; MetaTibiae with one Spur.

**Bio-geographical distribution**
Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
♀ Genus *Tapinoma* Foerster, 1850

**Morphological characters used in the dichotomous key**
Antennae with 11-12 articles; Antennae Scape overstep the Occiput or not; insertion of the Antennae confluent from posterior edge of the Clypeus; Forewings of Typology II or III, formica or solenopsis type, Marginal cell closed; Hindwings of Typology II or III; Mandibles triangular dentate; Palp formula 6:4; Petiole reduced, without distinct node; MetaTibiae with one Spur.

**Bio-geographical distribution**
Cosmopolitan

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus *Technomyrmex* Mayr, 1892

**Morphological characters used in the dichotomous key**
Antennae with 12 articles, Antennae Scape overstep the Occiput, insertion of the Antennae confluent from posterior edge of the Clypeus; Forewings of Typology I, can present the Discoidal cell open; Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Petiole reduced, without distinct node; MetaTibiae with one Spur.

**Bio-geographical distribution**
Neotropical, Afrotropical, Oriental, Indo-Australian and Australian
Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus *Turneria* Forel, 1895

Morphological characters used in the dichotomous key
Antennae with 12 articles, Antennae Scape not overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Petiole strongly inclined anteriorly without ventral lobe; MetaTibiae with one Spur.

Bio-geographical distribution
Australia

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
3.6 Subfamily Dolyninae Leach, 1815

This subfamily represented for 27 genera extant. Are known 9 genera with winged ♀♂. The ♀♀ is unknown or with wings not described in the genera: Cheliomyrmex, Eburopone, Lividopone, Neocerapachys and Vicinopone (in Brown, 1975: 79 dealeate).

Are only known Dichthadiigyne ♀♀, i.e. Ergatogyne form wingless, in the genera: Aenictogiton, Aenictus, Dorylus, Ecton, Eusphinctus, Labidus, Leptanilloides, Neivamyrnex, Nomamyrmex, Ooceraea, Syscia, Tanipone and Yunodorylus.

♀ Genus Acanthostichus Mayr, 1887

Morphological characters used in the dichotomous key

Antennae with 12 articles versus clavate, Antennal socket completely visible, Antennae Scape short and massive, long as the sum of the four articles of the Funiculus; Forewings of Typology I or Typology II (A. davisi), Marginal cell open; Hindwings of Typology I without Jugal lobe; Mandibles triangular edentate; Propodeum unarmed; MetaTibiae with one pectinate Spur; Sting present.

Bio-geographical distribution

Neotropical

Behavioral Ecology of the Mating flight

Strategy: unknown

Mating flight: see Cantone, 2017

References for Taxonomic identification


♀ Genus Cerapachys F. Smith, 1857

Morphological characters used in the dichotomous key

Antennae with 12 articles clavate, Antennal socket visible, Antennae Scape as long as half the Funiculus not overstep the Occiput; Forewings of Typology II with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Mandibles triangular dentate; Palp formula 3:2; MetaTibiae with one pectinate Spur; Pretarsal Claws simple or with submedian tooth; Sting present.
Bio-geographical distribution
Indo-Australian and Oriental

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Chrysapace Crawley, 1924

Morphological characters used in the dichotomous key
Antennae with 12 articles versus clavate; Antennal socket completely visible, Antennae Scape stout, not overstep the Occiput; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Eyes placed very posteriorly on the Head; Mandibles triangular edentate; Palp formula 5:3; MetaTibiae with two Spurs; Pretarsal Claws with submedian tooth; Sting present.

Bio-geographical distribution
Madagascar and Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Cylindromyrmex Mayr, 1870

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles with spine-like setae, Antennal socket covered, at least partially, from the Frontal lobe, Antennae Scape stout not overstep the Occiput; Forewings of Typology I with Marginal cell closed, Rs 2+3 vein can be incomplete; Hindwings of Typology I without Jugal lobe; Mandibles triangular dentate; Palp formula 3:2 or 2:2;
MetaTibiae with two Spurs; Pretarsal Claws with submedian tooth; Sting present.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ *Genus Lioponera* Mayr, 1879

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 12 articles, Antennal socket completely visible, Antennae Scape not overstep the Occiput; Wings unknow I speculate that they are like in ♂♂ (Cantone, 2017): Forewings of Typology II with subMarginal 1 cell open, Marginal cell open; Hindwings of Typology I without Jugal lobe; Mandibles triangular dentate; MetaTibiae with one pectinate Spur; Sting present.

**Bio-geographical distribution**

Afrotropical, Indo-Australian, Oriental and Australian.

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ **Genus Parasycia** Emery, 1882

**Morphological characters used in the dichotomous key**

Antennae clavate with 11-12 articles, Antennal socket completely visible, Antennae Scape stout not overstep the Occiput; Forewings of Typology I (AntWeb, 2018) or Typology II, Marginal cell open; Hindwings of Typology I without Jugal lobe; Mandibles triangular dentate; Palp formula 3:2 or 2:2; Propodeum unarmed; MetaTibiae with one pectinate Spur; Sting present.

**Bio-geographical distribution**

Afrotropical and Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


♀ **Genus Simopone** Forel, 1891

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, Antennal socket completely visible, Antennae Scape stout not overstep the Occiput; Forewings of Typology II with subMarginal 1 cell open and Marginal cell open; Hindwings of Typology I without Jugal lobe; Mandibles triangular edentate; Palp formula 6:4 or 5:3; MetaTibiae with one pectinate Spur; Pretarsal Claws with submedian tooth; Sting present.

**Bio-geographical distribution**

Afrotropical and Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


♀ **Genus Sphinctomyrmex** Mayr, 1866

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, Antennal socket completely visible, Antennae Scape stout not overstep the Occiput; Wings unknow, I speculate that they are like to those of the ♂♂ (Cantone, 2017): Forewings of Typology II with subMarginal 1 cell open, Marginal cell closed; Hindwings of Typology III; Mandibles triangular dentate; Palp formula 3:3; MetaTibiae with one pectinate Spur; Sting present.
Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Zasphinctus Wheeler W. M., 1918

Morphological characters used in the dichotomous key
Antennae clavate with 11-12 articles, last 3 articles clavate, Antennae Scape stout not overstep the Occiput; Wings unknow, I speculate that they are like to those of the ♂♂ (Cantone, 2017): Forewings of Typology II with Marginal cell open; Hindwings of Typology II; Mandibles triangular edentate or dentate; Palp formula 3:3; MetaTibiae with one pectinate Spur; Pretarsal Claws simple; Sting present.

Bio-geographical distribution
Afrotropical, Indo-Australian and Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
3.7 Subfamily Ectatomminae Emery, 1895

This subfamily is represented for 4 genera and the winged ♀♀ are known in all.

♀ Genus Ectatomma F. Smith, 1858

Morphological characters used in the dichotomous key

Antennae filiform with 12 articles, Antennal socket covered, at least partially, from the Frontal lobe, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length ≤ than the 2°; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe present (E. lugens is describe without Jugal lobe in Almeida, 1987); Propodeal spiracle oval shaped elongate, Mandibles triangular dentate; Inferior pronotal angles unarmed or forming an obtuse angle or in the rare case where the angle is present and more nearly toothlike; posterior coxe always unarmed (Brown 1958:185); MetaTibiae with single pectinate Spur; Pretarsal Claws bifid or with submedian tooth; Sting present.

Bio-geographical distribution

Neotropical

Behavioral Ecology of the Mating flight

Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Gnamptogenys Roger, 1863

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 12 articles, Antennal socket covered, at last partially, from the Frontal lobe, Antennae Scape overstep the Occiput or not; Frontal lobe widely separated throughout their length; Forewings of Typology I, in some cases Rs 2+3 incomplete, or Typology II, Marginal cell closed; Hindwings of Typology I without Jugal lobe or Typology II; Mandibles triangular, subtriangular, linear or falcate edentate or dentate; Propodeal spiracle rounded; Propodeum armed with spines to small teeth or unarmed; Dorsal face of the posterior Coxe with a distinct tooth, spine or tubercle; MetaTibiae with single Spur; Pretarsal Claws bifid or with submedian tooth; Petiole sessile; Sting present.

**Bio-geographical distribution**
Neotropical, Oriental, Indo-Australian and Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus Rhytidoponera Mayr, 1862

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennal socket covered, at last partially, from the Frontal lobe, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length ≤ than the 2°; Frontal lobe widely separated throughout their length; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe absent (Brown 1958) or present (Boudinot 2015); Mandibles triangular dentate; Palp formula 3:2; Inferior pronotal margins just in front of each anterior coxa with distinct, usually acute tooth (Brown
1958:185); Propodeal spiracle rounded; Propodeum unarmed; MetaTibiae with one or two? Spurs; Pretarsal Claws bifid or with long submedian tooth; Sting present.

**Bio-geographical distribution**

Australian and Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ **Genus Typhlomyrmex** Mayr, 1862

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles (*T. meire* Antennae with 11 articles), last 3 articles club, 1° article of the Funiculus in lengh > than the 2°, Antennal socket covered, at laest partially, from the Frontal lobe, Antennae Scape not overstep the Occiput; Forewings of Typology II, Marginal cell open; Hindwings of Typology II without Anal 2 and R1 vein; Propodeal spiracle oval shaped elongate; Mandibles triangular or subtriangular dentate; MetaTibiae with one or without Spur; Pretarsal Claws bifid or with submedial tooth; Petiole pedunculate; Sting present.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017
References for Taxonomic identification


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Figure – A: Forewing; B: Hindwing; C: Antennae; D: Habitus; E: Petiole of *Typhlomyrmex* sp. 461 ♀, São Paulo, Brazil.
3.8 Subfamily Formicinae Latreille, 1809

This subfamily is represented for 51 genera and the Winged ♀♂ are known in 47 genera. The Winged ♀♂ are unknown in the genera: *Alloformica*, Bajcaridis (known ergatoid), *Santschiella* and *Teratomyrmex*.

Wings unknow: Agroulomyrmex, Bregmatomyrma, *Pseudonotoncus*.

♀ Genus *Acropyga* Roger, 1862

**Morphological characters used in the dichotomous key**

Antennae filiform or versus clavate with 7 to 11 articles; Antennae Scape overstep the Occiput or not, 1° article of the Funiculus in length > than the 2°; Eyes placed in the lower half of the Head; Forewings of Typology II and Typology III, solenopsis or formica type, Marginal cell closed; Hindwings of Typology II; Mandibles dentate; MetaTibiae with single Spur; Sting absent; Acidopore present.

**Bio-geographical distribution**

Neotropical, Afrotropical and Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: male aggregation

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

- Donisthorpe H. (1936) *Acropyga (Rhizomyrma) robae* sp. nov. (Hym. Formicidae), a new S. American Ant, with remarks on the genus, etc. The Entomologist Vol. 69

**Figure – A:** Antennae of *Acropyga* sp. 497 ♀, São Paulo, Brazil.
♀ Genus *Anoplolepis* Santschi, 1914

**Morphological characters used in the dichotomous key**

Antennae filiform with 11 articles, Antennae Scape long overstep the Occiput, 1° article of the Funiculus in length > than the 2°; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II, absent the Anal2 vein; Mandibles triangular dentate; Palp formula 6:4; MetaTibiae with one Spur; Pretarsal Claws simple; Sting absent; Acidopore present.

**Bio-geographical distribution**

Afrotropical (Neotropical, and Indo-Australian exotic)

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Aphomomyrmex* Emery, 1899

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 10 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II, Anal2 vein absent; Mandibles triangular dentate; Palp formula 5:3; Pretarsal Claws simple; Sting absent; Acidopore present with fringe of hair.

**Bio-geographical distribution**

Afrotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Brachymyrmex* Mayr, 1868

**Morphological characters used in the dichotomous key**

Antennae filiform with 9 articles, Antennae Scape overstep the Occiput or not; 1° article of the Funiculus in length > that the 2° article, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology III in some cases Rs1 vein absent, fomica type, Marginal cell open; Hindwings of Typology II, in some cases Anal2 vein and radial sector+media cross-vein absent; Mandibles dentate; Palp formula 6:4; MetaTibie with one Spur; Acidopore present.

**Bio-geographical distribution**

Neotropical and Neartic

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


**Figure** — **A**: Hindwing; **B**: Forewing; **C**: Antennae of *Brachymyrmex* sp. 41 ♀, São Paulo, Brazil.
♀ Genus *Calomyrmex* Emery, 1895

**Morphological characters used in the dichotomous key**

Antennae filiform or slightly versus clavate with 12 articles, Antennae Scape overstep the Occiput with erect setae, 1° articles of the Funiculus in length > than the 2°, Antennal socket distant from the posterior edge of the Clypeus; Forewings of Typology III, fomica type; Marginal cell closed; Hindwings of Typology II; Metathoracic spiracle lateral; Mandibles triangular dentate; Palp formula 6:4; Acidopore present.

**Bio-geographical distribution**

Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Camponotus* Mayr, 1861

**Morphological characters used in the dichotomous key**

Antennae filiform or slightly versus clavate with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant from the posterior edge of the Clypeus; Forewings Typology III, fomica type, Marginal cell closed; Hindwings Typology II; Metathoracic spiracle lateral (rarely dorsal); Mandibles triangular edentate; Palp formula 6:4; Acidopore present.

**Bio-geographical distribution**

Cosmopolitan

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

-Crawley W.C. (1922) New ants from Australia. Annal and magazine of Natural History, Ser. 9, Vol. X.
-Fernandez F. (2002) Revision de las Hormigas *Camponotus* subgenera *Dendromyrmex*


Figure – A: Forewing; B: Hindwing; C: Maxillary palp; D: Antennae Funiculus of Camponotus sp. 42 ♀, São Paulo, Brazil.

♀ Genus Cataglyphis Foerster, 1850

Morphological characters used in the dichotomous key

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length > than the 2°, Antennal socket near from the posterior edge of the Clypeus; Maxillar palp with 6 articles: the 1° article flattened, the 3° and 4° very long, the 4° as the sum of the 5°+ 6° articles; Labial palp with 4 articles; Eyes placed in the back half of the Head; Forewings of Typology II with Discoidal cell small or Typology III, fomica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; MetaTibiae with one Spur, Propodeal spiracle elongate, narrow slit; Pretarsal Claws simple; Acidopore present.

Bio-geographical distribution
Afrotropical, Paleartic, Oriental and Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

References for Taxonomic identification
-Haro A. e Collingwood C.A. (2000) *Cataglyphis douwesi* sp. nov. Del grupo albicans de color
negro de Cadiz, en la costa subaltantica de la peninsula Iberica (Hymenoptera, Formicidae).
Oris 15: 57-67.
-Radchenko A. G. (1997) *Cataglyphis zakharovi* sp. n. –Second socially parasitic species in
Iberica. III. El grupo de C. velox Santschi, 1929 y descipcion de *Cataglyphis humena* sp. n.
-Tohmé Henriette et Georges (1985) Contribution a l’etude systematique et bioecologique
de *Cataglyphis frigida* (André) (Hymenoptera, Formicidae, Formicinae). Revue fr. Ent. 7(2):
83-88.

♀ Genus *Cladomyrma* W.M. Wheeler, 1920

Morphological characters used in the dichotomous key
- Antennae versus clavate with 8 articles, Antennae Scape not overstep the Occiput;
- Antennal socket near from posterior edge of the Clypeus; Forewings of Typology III, formica
type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp
formula 6:4; Acidopore present.

Bio-geographical distribution
Indo-Australian

Behavioral Ecology of the Mating flight
- Strategy: unknown
- Mating flight: unknown

References for Taxonomic identification
-Agosti D. (1991) Revision of the oriental ant genus *Cladomyrma*, with an outline of the
higher classification of the Formicinae (Hymenoptera: Formicidae). Systematic Entomology,
16: 293-310.
Genus Colobopsis Mayr, 1861

Morphological characters used in the dichotomous key
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant from the posterior edge of the Clypeus, Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Metathoracic spiracle lateral; Mandibles triangular dentate; Palp formula 6:4; Acidopore present.

Bio-geographical distribution
Paleartic, Neotropical, Afrotropical and Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

Genus Dinomyrmex Ashmead, 1905

Morphological characters used in the dichotomous key
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant from the posterior edge of the Clypeus, the 1\textsuperscript{st} article of the Funiculus in length subequal than the 2\textsuperscript{nd} article; Metathoracic spiracle lateral; Forewings of Typology III, formica type, Marginal cell closed; Hindwing of Typology II; Mandibles dentate with teeth in the basal margins; Palp formula 6:4; Acidopore present.

Bio-geographical distribution
Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

References for Taxonomic identification
♀ Genus **Echinopla** Smith F., 1857

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant from the posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwing of Typology II; Metathoracic spiracle lateral; Mandibles triangular dentate; Palp formula 5:4; Acidopore present.

**Bio-geographical distribution**
Indo-Australian, Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus **Euprenolepis** Emery, 1906

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape overstep the Occiput, Scape with erect setae, Antennal socket near from posterior edge of the Clypeus; Forewing of Typology III, formica type, Marginal cell closed; Hindwing of Typology II; Mandibles triangular dentate; Palp formula 3:4 (4:4 in *E. negrosensis*).

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus **Formica** Linnaeus, 1758

**Morphological characters used in the dichotomous key**

Antennae filiform of 12 articles, Antennae Scape overstep the Occiput, Antennal socket confluent from the posterior edge of the Clypeus; Forewings Typology II, formica type, Marginal cell closed; Hindwing Typology II; Mandibles triangular dentate; Palp formula 6:4 or 5:4 in some species *exsecta*-group, with maxillar palp with 4° article slightly > than the 5° article.

**Bio-geographical distribution**
Neartic, Central America, Indo-Australian, Oriental, Palearctic and Mediterranean.

**Behavioral Ecology of the Mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017; **Italy**: Polcenigo (PN) *Formica* sp. June; **USA**: Gibraltar
Island (Ohio), *F. sanguine*, July (Talbot and Kennedy 1940); S. George Reserve (Michigan), *F. vinculans*, *F. gynocrates*, *F. subintegra*, *F. rubicunda*, *F. pergandei*, *F. subnuda*, July and August (Talbot, 1985)

**References for Taxonomic identification**


**Figure** – A: Forewing; B: Hindwing; C: Maxillary palp; D: Antennae of *Formica* sp.1 ♀ *exsecta*-group, Polcenigo (PN), Italy.
♀ Genus Gesomyrmex Mayr, 1868

Morphological characters used in the dichotomous key
Antennae slightly versus clavate with 10 articles, Antennae Scape very short not overstep the Occiput, Forewings of Typology II, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; big Eyes.

Bio-geographical distribution
Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Gigantiops Roger, 1863

Morphological characters used in the dichotomous key
Antennae filiform with 12 articles, Antennal Scape overstep the Occiput, Antennal socket near the edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4 with articles very long, Enormous Eyes.

Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Iberoformica Tinaut, 1990

Morphological characters used in the dichotomous key
Antennae filiform with 12 articles, Antennal socket confluent from the posterior edge of the Clypeus; Antennae Scape overstep the Occiput; Forewings of Typology II, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Maxillary Palp of 5 articles?; Acidopore present.

Bio-geographical distribution
Paleartic (Iberian Peninsula and France)

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus *Lasiophanes* Emery, 1895

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology II and Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula: 6:4.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Lasius* Fabricius, 1804

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape overstep the Occiput, Antennal socket near from posterior edge of the Clypeus; Forewings of Typology II, not very rare anomalies (Emery 1887), and Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4, 3:4.

**Bio-geographical distribution**


**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus Lepisiota Santschi, 1926

Morphological characters used in the dichotomous key
Antennae versus clavate or filiform with 11 articles, Antennae Scape overstep the Occuput, insertion of the Antennae near from posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwing of Typology II; Mandibles dentate; Palp formula 6:4; Propodeum with teeth or tubercles.

Bio-geographical distribution
Afrotropical and Malagasy, Paleartic, Indo-Australian, Oriental.

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
♀ Genus *Melophorus* Lubbock, 1883

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape overstep the Occiput or not, Antennal socket near or confluent from the posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Clypeus with very long, curved hairs; Mandibles dentate; Palp formula 6:4, rarely 3:4, 3:3, 3:2.

**Bio-geographical distribution**

Australia

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic Identification**


♀ Genus *Myrmecocystus* Wesmael, 1838

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, insertion of the Antennae near from posterior edge of the Clypeus; Forewings of Typology II or III, formica type, Marginal cell closed; Hindwings of Typology II; Clypeus with very long, curved hairs; Mandibles dentate; Palp formula 6:4, Maxillary Palp with 3° and 4° articles long, 4° article in length ≥ than the 5°+6° articles; Eyes placed in the back half of the Head; MetaTibiae with one Spur; Pretarsl Claws simple; Acidopore present.

**Bio-geographical distribution**

Nearctic and Central America

**Behavioral Ecology of the Mating flight**

Strategy: male aggregation

Mating flight: **USA**: Southern California: *M. ewarti*: February and March, *M. semirufus*: November, *M. minicus* and *M. depilis*: August and September, *M. flaviceps*: October,
November and December, *M. kennedy*: late summer; Idaho, Butte Co.: *M. pyramicus*: July; Texas, Van Horn: *M. navajo*: July; Arizona, New Mexico, Colorado: *M. mexicanus*: summer months; Pachuca, Hidalgo: *M. melanoticus*: July; (Snelling, 1976).

**References for Taxonomic identification**

♀ Genus *Myrmecorhyncus* André, 1896

**Morphological characters used in the dichotomous key**
- Antennae versus clavate or clavate with 12 articles, last 3 articles enlarged/club, Antennae Scape not overstep the Occiput (*M. emeryi*), Antennal socket near from posterior edge of the Clypeus; Forewings of Typology II, formica type; Marginal cell closed, Discoidal cell small; Hindwings of Typology II; Mandibles subtriangular dentate; Palp formula 6:4 with article short; MetaTibiae with one Spur; Acidopore present.

**Bio-geographical distribution**
- Australia

**Behavioral Ecology of the Mating flight**
- Strategy: unknown
- Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Myrmelachista* Roger, 1863

**Morphological characters used in the dichotomous key**
- Antennae clavate with 9-10 articles with last 3 articles club, Antennae Scape not overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology III, solenopsis type, Marginal cell closed; Hindwings of Typology II; Mandibles subtriangular dentate; Palp formula 6-5:4 Acidopore present.

**Bio-geographical distribution**
- Neotropical

**Behavioral Ecology of the Mating flight**
- Strategy: unknown
- Mating flight: see Cantone, 2017

**References for Taxonomic identification**

**Figure – A: Forewing; B: Hindwing; C: Antennae of Myrmelachista sp. 213♀, São Paulo, Brazil**

♀ Genus *Myrmoteras* Forel, 1893

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant, relatively, from posterior edge of the Clypeus; Forewings of Typology II, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles long linear dentate; Palp formula 6:4 (most species) to 3:3; Eyes enormous; Acidopore present.

**Bio-geographical distribution**

Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

- Emery C. (1925) Hymenoptera, Fam. Formicidae, SubFam. Formicinae. Genera Insectorium,
Fasc. 183.

♀ Genus *Notoncus* Emery, 1865

**Morphological characters used in the dichotomous key**
Antennae versus clavate with 12 articles, last 3 articles enlarged; Antennae Scape overstep the Occiput with erect setae, Antennal socket near from posterior edge of the Clypeus; Forewings of Typology II and III?, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; MetaTibae with one Spur; Pretarsal Claws simple; Acidopore present.

**Bio-geographical distribution**
Australia

**Behavioral Ecology of the Mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
-Brown W.L. (1955) A revision of the Australian ant genus *Notoncus* Emery, with notes on the other genera of Melophorini.

♀ Genus *Notostigma* Emery, 1920

**Morphological characters used in the dichotomous key**
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant from posterior edge of the Clypeus; Clypeus with lateral lobes posteriorly; Forewings of Typology II and III?, formica type, Metathoracic spiracle dorsal; Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Acidopore present.

**Bio-geographical distribution**
Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
♀ Genus *Nylanderia* Emery, 1906

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket near from the posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II with Anal 2 vein absent; Mandibles dentate; Antennae Scape and Tibiae with erect setae; Palp formula 6:4 (5:3 in *N. nodo*); Propodeum with one pair erect setae; MetaTibiae with one Spur; Acidopore present.

**Bio-geographical distribution**
Cosmopolitan, except Palearctic

**Behavioral Ecology of the Mating flight**
Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

Figure – **A**: Forewing; **B**: Hindwing; **C**: Antennae of *Nylanderya* sp. 8 ♀, São Paulo, Brazil.

♀ Genus *Oecophylla* Smith, 1860

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennal socket distant from the posterior edge of the Clypeus, Antennae Scape overstep the Occiput; Forewings of Typology III, formica type,
Marginal cell closed; Hindwings of Typology II; Metathoracic spiracle dorsal; Mandibles triangular dentate; Palp formula 5:4; Pretarsal Claw with submedian thoot and large Arolium, last article of the Tarsus elongated and club-shaped apically; Metatibiae with one Spur; Acidopore present.

**Bio-geographical distribution**
Afrotropical, Indo-Australian and Australian

**Behavioral Ecology of the Mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017; **Australia**: 12°22′13″S, 130°51′53″E: *O. smaragdina*: January and February (Nielsen et al. 2015).

**References for Taxonomic identification**

♀ Genus *Opisthopsis* Emery, 1893

**Morphological characters used in the dichotomous key**
Antennae versus clavate with 12 articles, Antennae Scape overstep the Occiput, Antennal socket near from posterior edge of the Clypeus; Forewings of Typology II and Typology III (ex. *O. respiciens moestus*), formica type, Marginal cell closed, Discoidal cell triangular very small; Hindwings of Typology II; Metathoracic spiracle lateral; Mandibles triangular dentate; Palp formula 6:4; Big Eyes at the back corners of the Head; Metatibiae with one Spur; Acidopore present.

**Bio-geographical distribution**
Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
♀ Genus **Overbeckia** Viehmeyer, 1916

**Morphological characters used in the dichotomous key**
Antennae versus clavate with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant relatively from posterior edge of the Clypeus, Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Metathoracic spiracle lateral; Mandibles triangular dentate; Palp formula 6:4; MetaTibiae with one Spur; Acidopore present.

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus **Paraparatrechina** Donisthorpe, 1947

**Morphological characters used in the dichotomous key**
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket near from posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 6:4 or (maxillar of 5 articles in P. bufonus and P. weissi); Pronotum with two pair erect setae; Mesonotum one pair erect setae; Propodeum one pair erect setae; MetaTibiae with one spur; Acidopore present.

**Bio-geographical distribution**
Afrotropical and Madagascar, Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
- La Polla J.S., Fisher B.L. (2014) Two new Paraparatrechina (Hymenoptera, Formicidae) species from the Seychelles, with notes on the hypogaecic weissi species-group. ZooKey 414: 139-155
♀ Genus *Paratrechina* Motschoulsky, 1863

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, insertion of the Antennae near from posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Propodeum without erect setae; MetaTibiae with one Spur; Acidopore present.

**Bio-geographical distribution**

Cosmopolitan

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Petalomyrmex* Snelling, 1979

**Morphological characters used in the dichotomous key**

Antennae with 10 articles, Antennae Scape not overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus, Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 3:3; Mesosoma conspicuously flattened; Acidopore present.

**Bio-geographical distribution**

Afrotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Plagiolepis* Mayr, 1861

**Morphological characters used in the dichotomous key**

Antennae with 11 articles, Antennae Scape overstep the Occiput; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II, Anal 2 vein absent; Mandibles triangular dentate; Palp formula 6:4; Acidopore present.
**Bio-geographical distribution**
Afrotropical, Palearctic, Oriental, Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Polyergus* Latreille, 1804

**Morphological characters used in the dichotomous key**
Antennae filiform with 12 articles, Antennae Scape not reaching the Occiput, insertion of the Antennae confluent from posterior edge of the Clypeus; Forewings of Typology II, formica and solenopsis type, Marginal cell closed; Hindwings of Typology II; Mandibles falcate denticulate; Palp formula: 4:2 or 4:3.

**Bio-geographical distribution**
Neartic, Paleartic and Indo-Oriental

**Behavioral Ecology of the Mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus Polyrhachis F. Smith, 1857

Morphological characters used in the dichotomous key
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket distant from posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Metathoracic spiracle lateral; Propodeum and Petiole usually armed with spines or teeth, in some species also the Pronotum; Mandibles subtriangular dentate; Palp formula 6:4; Acidopore present.

Bio-geographical distribution
Afrotropical, Middle Orient, Oriental, Indo-Australian and Australia

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

References for Taxonomic identification
♀ Genus *Prenolepis* Mayr, 1861

**Morphological characters used in the dichotomous key**
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket near from posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles dentate; Palp formula 6:4; Acidopore present.

**Bio-geographical distribution**
Neartic and Central America, Paleartic, Oriental and Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic Identification**

♀ Genus *Proformica* Ruzky, 1902

**Morphological characters used in the dichotomous key**
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology II, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4, Palp maxillary with 4° article in length > than the 5° article.

**Bio-geographical distribution**
Paleartic and Oriental

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
♀ Genus *Prolasius* Forel, 1892

**Morphological characters used in the dichotomous key**
- Antennae versus clavate with 12 articles, Antennae Scape overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Acidopore present.

**Bio-geographical distribution**
- Australia

**Behavioral Ecology of the Mating flight**
- Strategy: unknown
- Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Pseudolasius* Emery, 1887

**Morphological characters used in the dichotomous key**
- Antennae filiform with 12 articles (one species has 11 articles), Antennae Scape overstep the Occiput or not, with erect setae, Antennal socket near from the posterior edge of the Clypeus, Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 3:3 or 3:2; Acidopore present.

**Bio-geographical distribution**
- Afrotropical, Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**
- Strategy: unknown
- Mating flight: unknown

**References for Taxonomic identification**
♀ Genus *Rossomyrmex* Arnoldi, 1928

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape not overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus, 1° article of the Funiculus very long; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4 with 3° maxillary article in length > than the 4° and 4° article in length > than the 5°; Petiole with a fringe of distinct bristles; Acidopore present.

**Bio-geographical distribution**

Paleartic

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Stigmacros* Forel, 1905

**Morphological characters used in the dichotomous key**

Antennae versus clavate or clavate with 11 articles, last 4 articles club, Antennae Scape overstep the Occiput, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology II with small Discoidal cell (McAreavey, 1957), and Typology III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Eyes placed in the back half of the Head; Acidopore present.

**Bio-geographical distribution**

Australia

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Tapinolepis* Emery, 1925

**Morphological characters used in the dichotomous key**

Antennae slightly versus clavate with 11 articles, Antennae Scape overstep the Occiput, Antennal socket near or confluent from posterior edge of the Clypeus, 2°, 3° and 4° articles of the Funiculus subequal in length; Forewings of Typology III, formica type, Marginal cell
closed; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Acidopore present.

**Bio-geographical distribution**
Afro-Mediterranean, Afrotropical and Madagascar

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Zatania* La Polla, Kallal e Brady, 2012

**Morphological characters used in the dichotomous key**
Antennae filiform with 12 articles, Antennae Scape very long overstep the Occiput, Antennal socket near from posterior edge of the Clypeus; Forewings of Typology III, formica type, Marginal cell closed; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 6:4; Acidopore present.

**Bio-geographical distribution**
Central America

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
3.9 Subfamily Heteroponerinae Bolton, 2003

This subfamily represented for three genera. In the genus *Aulocopone* the Winged ♀♀ are known but unknown the wings.

♀ Genus *Acanthoponera* Mayr, 1862

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Dorsum of the Head with conspicuous median longitudinal costa; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe absent; Mandibles triangular dentate; Palp formula 6:4; Propodeum armed with teeth; Petiole dorsal sharpened; MetaTibiae with one Spur; Pretarsal Claws bifid; Sting present.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


![Figure – A: Antennae; B: Petiole, Gaster; C: Wings; D: Claws of *Acanthoponera* sp. 394 ♀ and 491 ♀, São Paulo, Brasil.](image-url)
♀ Genus *Heteroponera* Mayr, 1887

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, Antennal Scrobe present or absent; Forewings of Typology I, Marginal cell closed; Hindwings of Typology I without Jugal lobe and Typology II; Mandibles dentate; Palp formula 4:3, 3:3, 3:2; Propodeum armed with spines to small teeth; MetaTibiae with single Spur; Pretarsal Claws simple or with median small tooth.

**Bio-geographical distribution**

Australia and Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


### 3.10 Subfamily Leptanillinae

Emery, 1910

This subfamily is represented for 8 genera and the Winged ♀♀ are known in the genera *Anomalomyrma, Opamyrma, Protanilla* but unknown wings.

In the genera *Noonilla, Phaulomyrma, Scyphodon* and *Yavnella* the ♀♀ are unknown.

In the genus *Leptanilla* are known only Ergatogyne/Dichthadiigyne (Baroni Urbani, 1977; Bolton, 1990, Masuko, 1990).

### 3.11 Subfamily Martialisinae

Rabeling and Verhaagh, 2008

This subfamily is represented for the genus *Martialis* and the Winged ♀♀ is unknown.
3.12 Subfamily Myrmeciinae Emery, 1877

This subfamily is represented for two genera and the Winged ♀ ♂ are known.

♀ Genus *Myrmecia* Fabricius, 1804

**Morphological characters used in the dichotomous key**

- Antennae filiform with 12 articles, Antennae Scape in length overstep the Occiput or not, 1 article of the Funiculus in length < than the 2 article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe present; Mandibles linear dentate; Palp formula 6:4; Petiole sessile or with short peduncle; Gaster with a strong constriction between the 1° and 2° segment, in some cases the 1° segment very little than the 2°, resembling a PosPetiole; MetaTibiae with two Spurs (simple and pectinate); Pretarsal Claws with strong median tooth or bifid, Sting present.

**Bio-geographical distribution**

Australia

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♂ Genus *Nothomyrmecia* Clark, 1934

**Morphological characters used in the dichotomous key**

- Antennae filiform with 12 articles, Antennae Scape overstep he Occiput; 1 article of the Funiculus in length < than the 2 article. Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe present; Mandibles linear dentate; Petiole with long peduncle anteriorly; Gaster with a constriction between the 1° and 2° segment with the 1°
segment little than the 2°; MetaTibiae with two Spurs (simple and pectinate); Pretarsal Claws with strong median tooth or bifid.

**Bio-geographical distribution**
Australia

**Behavioral Ecology of the nuptial flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

### 3.13 Subfamily Myrmicinae

Lepeletier de Saint-Fargeau, 1835

This subfamily represented for 143 genera extant and the Winged ♀♂ are known in 106 genera.

The ♀♂ are unknown in the genera: *Adlerzia, Ancyridris, Anillomyrma, Aretidris, Austromorium, Chimaeridris, Cypheidris, Diaphoromyrma, Erromyrma, Formosimyrma, Gaoligongidris, Gauromyrma, Ishakidris, Kartidris, Kempfidris, Peronomyrmex Phalacromyrme, Pilotrochus, Poecilomyrma, Propodilobus, Recurvidris, Secostruma, Tetheamyrma*.

The winged ♀♂ are known, but unknown to me the wings in the genera: *Baracidris, Cryptomyrmex, Epopostruma, Lasiomyrma, Microdaceton, Perissomyrmex, Rotastruma, Talaridris, Vombisidris*.

The ♀♀ known only in form Ergatogyne in the genera: *Blepharidatta, Epelysidris, Ocymyrmx, Stereomyrmex, Tropidomyrmex*.

♀ Genus **Acanthognathus** Mayr, 1887

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology IV with Marginal cell open; Hindwings of Typology III; Mandibles longer linear dentate; Palp formula 5:3; Propodeum armed with spines or teeth; Petiole with long peduncle; Sting present; MetaTibiae without Spur; Pretarsal Claws simple.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
- Baroni Urbani C. and Andrade M. L. de (1994) First description of fossil Dacetini ants with a critical analysis of the current classification of tribe (amber collection Stuttgart:

♀ Genus Acanthomyrmex Emery, 1893

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II (A. ferox, A. thailandensis) and Typology III (A. glabfemoralis), solenopsis type, Marginal cell closed; Hindwings of Typology II; Mandibles massive edentate or with subapical tooth; Palp formula 4:3; Propodeum usually armed with spines or teeth; Petiole pedunculate with dorsal tooth; MetaTibiae with one Spur.

Bio-geographical distribution
Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification
♀ Genus *Acromyrmex* Mayr, 1865

**Morphological characters used in the dichotomous key**

Antennae with 11 articles filiform or versus clavate with last four articles slightly enlarged; Antennae Scape overstep the Occiput, Antennal Scrobe absent, 1° article of the Funiculus in length > than the 2°; Pronotum with two spines dorsally; Forewings of Typology III, formica type (rared solenopsis type), Marginal cell closed, Pterostigma absent or reduced, Anal 2 vein absent; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Propodeum armed with spines; Petiole pedunculate; Tarsus 1 of Prolegs dilated, MetaTibiae without Spur.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017; *Uruguay*: 33.9042° S, 55.59418° W, *A. charruanus*: February (Rabeling et al., 2015)

**References for Taxonomic identification**


Figure – A: Forewing; B: Hindwing; C: Antennae of *Acromyrmex* sp. 430♀, São Paulo, Brazil
♀ Genus *Adelomyrmex* Emery, 1897

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 2 articles club, Antennae Scape not overstep the Occiput, 1° article article of the Funiculus very long that the following, last article large and ovoid shape, Antennal Scribe absent; Forewings of Typology II, formica type, SubMarginal 1 cell open, Marginal cell open, Hindwings of Typology III; Mandibles triangular dentate with 5-7 teeth (4 teeth in *A. biroi*); Palp formula 2:2 or less; Anterior Clypeal border usually with a bidentate projection medially and with tooth laterally; Propodeum armed with spines or Teeth; MetaTibiae without Spur.

**Bio-geographical distribution**
Central America and Amazonas, Galapagos Island, Oceania, Papua New Guinea, Solomon Island, Seychelles

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Allomerus* Mayr, 1878

**Morphological characters used in the dichotomous key**
Antennae clavate with 9-11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scribe absent; Forewings of Typology III, formica type, Marginal cell open; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 3:2; Propodeum unarmed; MetaTibiae with one Spur; Sting present.

**Bio-geographical distribution**
Neotropical (Amazonas)

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
- Fernandez F. (2007) *Yhe Myrmicinae ant genus Allomerus* Mayr (Hymenoptera:
Morphological characters used in the dichotomous key
Antennae versus clavate or clavate with 12 articles, last 4 articles club, Antennae Scape overstep or not the Occiput, Antennal Scrobe absent; Forewings of Typology I and II, solenopsis type, Marginal cell open, venation variations are known (Emery 1915); Hindwings of Typology II; Mandibles elongate triangular dentate; Palp formula 4:3 or 5:3; Propodeum armed with spines; Petiole with long anterior peduncle; MetaTibiae with one simple Spur.

Bio-geographical distribution
Paleartic, Mediterranean, Oriental, Neartic, Indo-Australian, Neotropical, Australian and Madagascar

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Apterostigma Mayr, 1865

Morphological characters used in the dichotomous key

Antennae versus clavate or clavate with 11 articles, last 3 articles club, Antennae Scape overshoot the Occiput, Antennal socket distant from posterior edge of the Clypeus, Antennal Scrobe absent; Frontal lobe very developed; Forewings of Typology III often Rs1 vein absent with Basal and subMarginal cell not divided, solenopsis type, Marginal cell closed and Pterostigma absent or reduced; Hindwings of Typology II or III with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 3:2 (worker); Scutellum bidentate; MetaTibiae without Spur; Tarsus 1 of the prolegs dilated; Propodeum unarmed to angulate; Petiole pedunculate; Sting present.
Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

Figure – A: Hindwing; B: Antennae; C: Forewing of Apterostigma sp. 417 ♀, São Paulo, Brazil.

♀ Genus Atopomyrmex André, 1889

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape short not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II with Marginal cell closed, solenopsis type; Hindwings of Typology II?; Mandibles dentate; Palp formula 4:3 (worker); Petiole and Propodeum armed with tubercles or teeth (except A. calpocalycola with Petiole unarmed); Propodeal spiracle large and circular; Femurs enlarged; MetaTibiae without Spur; Petiole sessile; Sting present.

Bio-geographical distribution
Afrotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus *Atta* Fabricius, 1804

Morphological characters used in the dichotomous key
Antennae versus clavate with 11 articles, last 4 articles enlarged; Antennae Scape overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, formica type, Marginal cell closed and appendiculate, Pterostigma absent or reduced, Anal 2 vein absent; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 4:2; Pronotum without spines; Tarsus 1 of the Prolegs enlarged; MetaTibae without Spur; Propodeum armed with two small spines.

Bio-geographical distribution
Neotropical and Neartic

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

References for Taxonomic identification
♀ Genus *Bariamyrma* Lattke, 1990

**Morphological characters used in the dichotomous key**
- Antennae clavate with 12 articles, last 3 articles club,
- Antennae Scape not overstep the Occiput,
- Antennal Scrobe absent;
- Forewings of Typology II, solenopsis type, Marginal cell closed;
- Hindwings of Typology II;
- Mandibles triangular dentate (9 teeth);
- Palp formula 3:2;
- MetaTibiae without Spur;
- Propodeum armed with teeth;
- Petiole pedunculate without ventral tooth;
- Sting present and ending in a prominent lobular flange.

**Bio-geographical distribution**
- Neotropical

**Behavioral Ecology of the Mating flight**
- Strategy: unknown
- Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Basiceros* Shultz W.A., 1906

**Morphological characters used in the dichotomous key**
- Antennae clavate with 12 articles, last 3 articles club,
- Antennal Scrobe present,
- Antennae Scape massive not overstep the Occiput;
- Forewing of Typology III and Typology II rarely, solenopsis type, Marginal open, Anal 2 vein absent;
- Hindwing of Typology II with Anal 2 vein absent;
- Mandibles triangular elongate dentate;
- MetaTibiae without Spur;
- Propodeum armed with short teeth;
- Sting present;
- Body and Legs with reclinate Scale spatulate or squamiform and erect hair clavate of white color.

**Bio-geographical distribution**
- Neotropical

**Behavioral Ecology of the Mating flight**
- Strategy: unknown
- Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus Bondroitia Forel, 1911

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 4 articles club, Antennal Scrobe absent, Antennae Scape not overstep the Occiput; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 2:2; Propodeum unarmed; Propodeal spiracle enormously enlarged and circular; MetaTibiae without Spur; Sting present.

Bio-geographical distribution
Afrotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Calyptomyrmex Emery, 1887

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 3 articles club, last article very long, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, formica type, Discoidal cell small, Marginal cell open; Hindwings of Typology II; Mandible triangular dentate; Palp formula 2:2; Propodeum armed with teeth; MetaTibiae without Spur; Petiole anteriorly pedunculate and without tooth or process ventrally; Sting present.

Bio-geographical distribution
Afrotropical, Indo-Australian and Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Cardiocondyla Emery, 1869

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, III and IV, solenopsis type, Marginal cell open; Hindwings of Typology II or III; Mandibles triangular dentate (5 teeth); Palp formula 5:3; MetaTibiae without Spur; Propodeum armed with teeth or spines; Sting present; Head, Mesosoma and Gaster lacking standing hairs dorsally.

Bio-geographical distribution
Cosmopolitan

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017;
Mating flight: unknown

References for Taxonomic identification
♀ Genus *Carebara* Westwood, 1840

**Morphological characters used in the dichotomous key**

- Antennae versus clavate or clavate with 9-10-11 articles or 12 articles in *C. polita*, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent;
- Forewings of Typology II, solenopsis type, Marginal cell closed; Hindwings of Typology II;
- Mandibles dentate; Palp formula 3:3, 3:2; Propodeum unarmed or with very short teeth.

**Biogeographical distribution**

Neotropical, Paleartic (Mediterranean), Afrotropical, Orietal, Indo-Australian, Australian

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017; **Sudan**: Yei, Equatoria: *C. bartrumi*: August, 6:00 AM (Weber, 1943)

**References for Taxonomic identification**


♀ Genus Cataulacus Smith F., 1853

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennal Scrobe present with eyes placed dorsally; Forewings of Typology III, formica type, Marginal cell open (in Bolton 1974 C. egenus Santschi Marginal cell closed); Hindwings of Typology II; Mandibles triangular dentate; Palp formula 5:3; Propodeum armed (unarmed in C. inermis); MetaTibiae Spur absent; Petiole sessile; Sting present.

Bio-geographical distribution
Afrotropical, Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Cephalotes Latreile, 1802

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present with eyes placed postero-dorsally (most species) or placed postero-ventrally (C. atratus, C. alfaroii, C. senaticemps) from the Antennal Scrobe; Forewings of Typology II, formica or solenopsis type, Marginal cell closed and appedinculate; Hindwings of Typology II; Mandibles triangular dentate; MetaTibiae usually without Spur; Propodeum armed with teeth or spines or unarmed; Petiole sessile.

Bio-geographical distribution
Neotropical and Nearctic

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
References for Taxonomic identification


Figure – A: Forewing of *Cephalotes* sp. ♀, São Paulo, Brazil.

♀ Genus *Colobostruma* Wheeler W. M., 1927

Morphological characters used in the dichotomous key

Antennae clavate with 6 articles, last article very long e large, Antennae Scape not overstep the Occiput; Forewings of Typology II, formica type, Marginal cell closed, Hindwings of Typology II; Mandibles dentate; Palp formula 5:3 or less; Propodeum armed with spines; Post Petiole with lateral flange.

Behavioral ecology of the mating flight

Strategy: unknown

Mating flight: unknown

References for Taxonomic identification


♀ Genus *Crematogaster* Lund, 1831

Morphological characters used in the dichotomous key

Antennae clavate or filiform with 9, 10 or 11 articles, Antennae Scape not overstep Occiput; Forewings of Typology II or III, solenopsis type, and Typology IV in *C. subnuda subnuda*, Marginal cell closed or open; Hindwings of Typology II or III; Mandibles triangular dentate; Propodeum unarmed or armed with short denticles/tubercles or with spines;
Post-Petiole articulate dorsally with the first segment of the Gaster.

**Bio-geographical distribution**

Cosmopolitan

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

- Crawley W.C. (1922) New ants from Australia. Annals and Magazine of Natural History, Sr. 9, vol. X.
Figure – A: Forewing; B: Hindwing; C: Petiole and Postpetiole; D: Antennae of *Crematogaster* sp. 73 ♀, São Paulo, Brazil.

♀ Genus *Cyatta* Sosa-Calvo, Schultz, Brandão et al., 2013

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate (4 teeth); Palp formula 4:2; Propodeum armed with two teeth; Petiole sessile; PostPetiole, in dorsal view, with posterodorsal lateral lobes.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Cyphomyrmex* Mayr, 1862

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology III, formica type, Marginal cell closed, Pterostigma absent or reduced; Hindwings of Typology III; Mandibles dentate; Frontal lobe developed; Scutellum bidentate posteriorly; Propodeum armed with spines or unarmed tuberculate.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Dacatria* Rigato, 1994

**Morphological characters used in the dichotomous key**

Description based on the Photos in AntWeb (2018) of *D. temporalis*.

Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent, Antennal socket distant from posterior edge of the Clypeus; Forewings of Typology III, solenopsis type, Marginal cell closed or open (forewing broken in photo); Hindwings of Typology II; Mandibles dentate; Palp formula 3:2 (worker); Propodeum armed with spines; MetaTibiae without Spur; Petiole pedunculate.

**Bio-geographical distribution**

Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Dacetinops* Brown and Wilson, 1957

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, last two articles elongate,
Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular elongate dentate; Palp formula 2:2; Propodeum armed with two spines or unarmed; MetaTibiae without Spur; Spongiform tissue/appendages ventrally on Petiole, PostPetiole and first segment of the Gaster; Petiole sessile; Sting present.

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Daceton* Perty, 1833

**Morphological characters used in the dichotomous key**
    Antennae filiform with 11 articles; Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II; Head cordiform (heart shaped); Mandibles linear with two teeth distally; Palp formula 5:3; Propodeum armed with two spines; Petiole pedunculate.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Dicroaspis* Emery, 1908

**Morphological characters used in the dichotomous key**
    Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 2:2; Propodeum armed with two spines; Petiole sessile.

**Bio-geographical distribution**
Afrotropical
Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus *Dilobocondyla* Santschi, 1910

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present with eyes placed ventrally from Antennal scrobe; Forewings of Typology II or Typology III in *D. chapmani*, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles dentate; Palp formula 4:3; Propodeum unarmed; Femur and Tibiae incrassated; MetaTibiae without Spur; Petiole cilindric shape.

Bio-geographical distribution
Indo-Australian and Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus *Diplomorium* Mayr, 1901

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 2 articles club (3 club with 9° article slingly enlarged in Bolton, 1987), last article very long, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles dentate; Palp formula 2:2; Propodeum unarmed; PostPetiole bigger than the Petiole, in lateral view, very broadly articulated to Gaster and without ventral tooth.

Bio-geographical distribution
Afrotropical
Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus *Dolopomyrmex* Cover & Deyrup, 2007

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell open and Discoidal cell small; Hindwings of Typology II; Mandibles triangular elongate dentate; Clypeus lacking carinae; Palp formula 3:2; Propodeum unarmed.

Bio-geographical distribution
Neartic (South Arizona)

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus *Eurhopalothrix* Brown & Kempf, 1960

Morphological characters used in the dichotomous key
Antennae clavate with 7 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology III and IV, in some cases Anal 2 vein absent, Marginal cell open, solenopsis type; Hindwings of Typology III; Mandible triangular dentate; Palp formula 1:1; Propodeum armed with two spines; MetaTibiae without Spur; Petiole pedunculate; Body and Legs with reclinate Scale spatulate or squamiform and erect hair clavate of white color.

Bio-geographical distribution
Neotropical and Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus *Eutetramorium* Emery, 1899

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 5:3, 4:3 or 4:2; Propodeum armed with teeth or spines; MetaTibiae without Spur or with one Spur.

**Bio-geographical distribution**

Madagascar

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Formicoxenus* Mayr, 1855

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III, formica type, Marginal cell open; Hindwings of Typology III; Eyes with short erect hairs between the ommatidia; Mandibles triangular dentate; Palp formula 5-4:3; Propodeum armed with two teeth; MetaTibiae with one Spur or absent.

**Bio-geographical distribution**

Paleartic and Nearctic

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Goniomma* Emery, 1895

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 4 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology I with Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 4:3; Eyes drawn out antero-ventrally in a large lobe which almost close to the mandibular insertions; Propodeum armed with two teeth; Petiole pedunculate.

**Bio-geographical distribution**

Mediterranean

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: South Spain: *G. baeticum* and *G. hispanicum*: 06/01/1982, 16:00-17:00, *G. baeticum*: 11/11/1983, 15:00 (Reyes et al. 1987)

**References for Taxonomic identification**


♀ Genus *Harpagoxenus* Forel, 1893

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape stout, curved and strongly depressed not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Petiole sessile; Propodeum armed with two spines.

**Bio-geographical distribution**

Nearctic, Paleartic and Oriental
Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Huberia Forel, 1890

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewing of Typology II, solenopsis type, Marginal cell open; Hindwing of Typology II; Mandibles triangular dentate; Palp formula 5:3; Propodeum armed.

Bio-geographical distribution
New Zeland

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Hylomyrma Brown, 1986

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 4 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewing of Typology I with Marginal cell open or closed; Hindwing of Typology II; Mandibles dentate; Palp formula 4:3; Propodeum armed with spines.

Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
-Kempf W. W. (1960) Miscellaneous Studies on Neotropical Ants (Hymenoptera,

♀ Genus *Indomyrma* Brown, 1986

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewing of Typology II with Marginal cell open, solenopsis type; Hindwing of Typology II; Mandibles triangular dentate; Palp formula 2:2; Propodeum armed with two spines; Petiole with antero-ventral strong tooth; Sting present.

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Kalathomyrmex* Klingenberg & Brandão, 2009

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape overstep the Occiput, Antennal Scrobe present; Forewing of Typology III, formica type, Marginal cell open; Hindwing of Typology II; Mandibles triangular dentate with terminal tooth very long; Propodeum armed with two short teeth; Petiole sessile.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Lachnomyrmex* Wheeler, 1910

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewing of Typology II, solenopsis type, Marginal
cell closed; Hindwing of Typology II; Mandibles dentate; Palp formula 2:2; Propodeum armed with teeth or spines; MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Lenomyrmex* Fernández and Palacio, 1999

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 2 articles club Antenna Scape not overstep the Occiput, Antennal Scrobe absent; Forewing of Typology III, solenopsis type, Marginal cell open; Hindwing of Typology II; Mandibles triangural elongate denticulate; Palp formula 2:2; Propodeum armed with two spines or unarmed angulate; Petiole pedunculate; MetaTibiae without Spur; Pretarsal Claws simple elongated; Sting present.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Leptothorax* Mayr, 1855

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 3 articles club Antenna Scape not overstep the Occiput, Antennal Scrobe absent; Mandible triangular dentate; Palp formula 5:3; Forewing of Typology II and III, formica type, Marginal cell open; Hindwing of Typology III; Propodeum armed with two teeth; Petiole sessile, MetaTibiae without Spur.

**Bio-geographical distribution**
Nearctic, Paleartic, Indo-Oriental

**Behavioral Ecology of the Mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
Morphological characters used in the dichotomous key

♀ Genus Liomyrmex Mayr, 1865

♀ Genus Lophomyrmex Emery, 1892

References for Taxonomic identification


Bio-geographical distribution

Indo-Australian

Behavioral Ecology of the Mating flight

Strategy: unknown
Mating flight: unknown

Morphological characters used in the dichotomous key

♀ Genus Liomyrmex Mayr, 1865

♀ Genus Lophomyrmex Emery, 1892
open (Rigato 1994) or closed (Emery 1922); Hindwings of Typology II; Mandibles triangular dentate; Palp formula 2:2; Propodeum armed with spines; Petiole without antero-ventrally tooth and pedunculate; MetaTibiae with Spur.

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Lordomyrma* Emery, 1897

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present (most species); Forewings of Typology II, solenopsis type, Marginal cell closed and appendiculate; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 4:3 (*L. azumai*, *L. infundibuli*); Propodeum armed; Petiole dorsally stretched in a rounded tip or tooth form, pedunculate; MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**
Australia, Indo-Australian and Oriental

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape long reaching or overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate with 8-13 teeth; Palp formula 5:3; Propodeum armed with two spines; Petiole with long peduncle;
Metatibia with one Spur; Sting present.

**Bio-geographical distribution**
Madagascar

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Manica* Jurine, 1807

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 4 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobal absent; Forewings of Typology I with Rs2+3 vein incomplete and Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate with more than 12 teeth; Palp formula 6:4; Propodeum unarmed; Petiole pedunculate; MetaTibiae with one pectinate Spur; Sting present.

**Bio-geographical distribution**
Neartic, Palearctic and Oriental

**Behavioral Ecology of the Mating flight**
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
♀ Genus *Mayriella* Forel, 1902

**Morphological characters used in the dichotomous key**

Antennae clavate with 10 articles, last 2 articles club; Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, solenopsis type; Marginal cell open; Hindwings of Typology III; Mandibles triangular dentate; Propodeum armed with two spines; MetaTibiae without Spur; Sting vestigial.

**Bio-geographical distribution**

Australia, Indo-Australian and Oriental

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Megalomyrmex* Forel, 1885

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 12 articles, last 3 articles club; Antennae Scape reaching or overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III with Marginal cell open, formica or solenopsis type; Hindwings of Typology II; MetaTibiae with one Spur; Mandibles triangular dentate; Palp formula 4:3, 3:3, 3:2; Propodeum unarmed or angulate with two short tubercles/teeth; Petiole pedunculate; Sting present.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


-Ettershank G. (1966) A generic revision of the world Myrmicinae related to *Solenopsis* and


♀ Genus Melissotarsus Emery, 1877

Morphological characters used in the dichotomous key

Antennae clavate with 6 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, solenopsis type, Marginal closed, Pterostigma reduced; Hindwing of Typology II; Mandibles triangular dentate; Propodeum unarmed or angulate; Post Petiole short; first article of the Tarsus greatly enlarged, 1° article of the Meso and MetaTarsus with apical circlets of small teeth; Sting very reduced.

Bio-geographical distribution
Afrotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Meranoplus Smith F., 1853

Morphological characters used in the dichotomous key

Antennae clavate with 9 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, solenopsis type, Marginal cell closed and apendiculate; Hindwings of Typology II; Mandibles triangular dentate; Propodeum armed with teeth or spines; MetaTibiae with one Spur.

Bio-geographical distribution
Afrotropical, Madagascar, Indo-Australian and Australia.

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

References for Taxonomic identification
-Boudinot B.E. and Fisher B.L. (2013) A taxonomic revision of the Meranoplus F. Smith of Madagascar (Hymenoptera: Formicidae: Myrmicinae) with keys to species and dignosis of
♀ Genus *Mesostruma* Brown, 1948

**Morphological characters used in the dichotomous key**
- Antennae clavate with 6 articles, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular elongate dentate; Propodeum armed with two spines; MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**
- Australian
- Behavioral Ecology of the Mating flight
  - Strategy: unknown
  - Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Messor* Forel, 1890

**Morphological characters used in the dichotomous key**
- Antennae with 12 articles filiform or versus clavate with last 4 articles enlarged, Antennae Scape not overstep the Occiput (most species), Antennal Scrobe absent; Forewings of Typology I and Marginal cell open rarely closed; Hindwings of Typology II; Mandible triangular dentate (7-8 teeth rarely more); Palp formula 4:3 or 5:3; Propodeum unarmed; Petiole pedunculate; MetaTibiae with simple Spur.

**Bio-geographical distribution**
- Palaeartic, Afrotropical and Indo-Oriental

**Behavioral Ecology of the Mating flight**
- Strategy: see Cantone, 2017
- Mating flight: see Cantone, 2017

**References for Taxonomic identification**
- Cagniant H. and Espadaler X. (1997) Le genre *Messor* au Maroc (Hymenoptera:

♀ Genus Metapone Forel, 1911

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape very short, Antennal Scrobe present; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II, Mandibles dentate; Palp formula 1:3; Propodeum unarmed; Petiole sessile; Femurs very enlarged; MetaTibiae with one Spur pectinate; first article of the Tarsus enlarged; MetaTibiae e basiTarsus with traction spines.

Bio-geographical distribution
Afrotropical, Madagascar, Australian and Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: Australia: 13°39’ S; 142° 40’ E: M. tricolor, February and March; 17°37’ S; 145°46’ E: M. hoelldobleri: January; 27°20’ S; 153°48’ E, 850m: M. tilyardi: October and February; 28.142° S; 153.133° E, 248m: M. tilyardi: January (Taylor and Alpert, 2016)

References for Taxonomic identification
♀ Genus *Monomorium* Mayr, 1855

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 11-12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III, solenopsis or formica type, Marginal cell open; Hindwings of Typology II, Mandibles triangular dentate; Propodeum usually unarmmed.

**Bio-geographical distribution**

Cosmopolitan

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Mycetagroicus* Brandão & Mayhé-Nunes, 2001

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, Anal 2 vein absent; solenopsis type, Marginal cell open, Pterostigma absent or reduced; Hindwings of Typology II with
Anal 2 vein absent; Mandibles triangular dentate; Palp formula 4:2; Propodeum armed with two teeth.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Mycetarotes* Emery, 1913

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 11 articles, last 3 articles enlarged, Antennae Scape overstep the Occiput or not, Antennal Scrobe absent; Forewings of Typology III, Anal 2 vein absent, formica type, Marginal cell closed or open; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Propodeum armed with two spines or reduced in tubercles; Petiole armed with two spines.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus *Mycetophylax* Emery, 1913

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles; last 3 articles club; Scape not overstep the Occiput, Antennal Scrobe present; Head without spines dorsally; Forewings of Typology III, solenopsis or formica type, Marginal cell closed or open?, Pterostigma absent or reduced; Hindwings of Typology II; Mandibles triangular dentate; Propodeum armed with two teeth; MetaTibiae without Spur.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Mycetosoritis* Wheeler W.N., 1907

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles; last 3 articles club; Antennae Scape not overstep the Occiput, Antennal Scrobe present; Head without spines dorsally; Forewings of Typology III, formica or solenopsis type, Marginal cell closed and appendiculate, Pterostigma absent or reduced; Hindwings of Typology II with Anal 2 vein absent; Propodeum armed with two teeth; Mandibles dentate.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Mycocepurus* Forel, 1893

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Eyes ventrally from the Antennal Scrobe; Forewings of Typology III, formica type, Marginal cell closed, Hindwings of Typology II; Mandibles dentate; Propodeum armed with teeth or spines; Petiole with two spines; ProTarsus with articles 2 to 4 dilated.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus *Myrmecina* Curtis, 1829

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, solenopsis type, Marginal cell closed and apendicolata; Hindwings of Typology II, Mandibles triangular dentate, Palp formula 4:3 or 3:2; Propodeum armed with two spines; Petiole sessile; MetaTibiae without Spur.

**Bio-geographical distribution**
Neartic, Paleartic, Oriental, Indo-Australian and Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Myrmica* Latreille, 1804

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 4 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology I with Rs2+3 vein incomplete and Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 6:4; Propodeum armed with spines; MetaTibiae with pectinate Spur; Sting present.

**Bio-geographical distribution**

Nearctic to Mexico, Paleartic, Oriental, Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


14: 61-149.

♀ Genus *Myrmicaria* Saunders W.W., 1842

Morphological characters used in the dichotomous key

Antennae with 7 articles versus clavate, Antennae Scape overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 3:3; Propodeum armed with spines; Petiole with very long peduncle; MetaTibiae with Spur.

Bio-geographical distribution
Afrotropical, Indo-Australian

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus *Myrmicocrypta* Smith F., 1860

Morphological characters used in the dichotomous key

Antennae versus clavate with 11 articles, last 3 articles club, Antennae Scape overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, solenopsis type, Marginal cell closed, Pterostigma absent or reduced; Hindwings of Typology III; Mandibles triangular dentate; Scutellum bidentate; Propodeum armed with two spines; Petiole with long peduncle; MetaTibiae without Spur.

Bio-geographical distribution

Neotropical

Behavioral Ecology of the Mating flight

Strategy: unknown

Mating flight: see Cantone, 2017

References for Taxonomic identification


♀ Genus *Nesomyrmex* W.N. Wheeler, 1910

Morphological characters used in the dichotomous key

Antennae versus clavate or clavate with 12 or 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, solenopsis or formica type, Marginal cell closed and short; Hindwings of Typology II; Mandibles dentate; Palp formula 5:3; Propodeum armed with two spines/teeth or unarmed; MetaTibiae without Spur; Sting present.

Bio-geographical distribution

Neotropical and Afrotropical

Behavioral Ecology of the Mating flight

Strategy: unknown

Mating flight: see Cantone, 2017

References for Taxonomic identification


Figure – A: Forewing of *Nesomyrmex* sp. ♀, São Paulo, Brazil

♀ Genus *Novomessor* Emery, 1915

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape slightly overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Propodeum armed with two spines.

**Bio-geographical distribution**

Neartic to Mexico

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References**


-Wheeler W. M. (1910) Ants, their structure, development and behavior. Columbia University Biological Series IX. pp 273, 284, fig. 155.


♀ Genus *Ochetomyrmex* Mayr, 1868

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape in length not overstep the Occiput, Antennal Scrobe absent; Forewings Typology II, formica type, Marginal cell open; Hindwings of Typology II; Mandible triangular dentate; Palp formula 4:3; Propodeum armed with short teeth; MetaTibiae without Spur; Sting present.
Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Octostruma Forel, 1912

Morphological characters used in the dichotomous key
Antennae clavate with 8 articles, last 2 articles club, Antennae Scape flattened not overstep the Occiput, Antennal Scrobe present; Forewings of Typology III with Marginal cell open, solenopsis type; Hindwings of Typology II; Mandible triangular dentate; Palp formula 2:2; Propodeum armed with two spines; Tibiae short and enlarged; MetaTibiae without Spur; Sting present; Body and Legs with reclinate Scale spatulate or squamiform and erect hair clavate of white color.

Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Orectognathus F. Smith, 1853

Morphological characters used in the dichotomous key
Antennae clavate with 5 articles, last 2 articles club, Antennae Scape not overstep the Occiput, 2° articles of the Funiculus extremely long; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles linear dentate; Palp formula 5:3?; Propodeum armed with spines; Petiole with an elongate anterior peduncle; MetaTibiae without Spur.
Bio-geographical distribution
Indo-Australian, Australia

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Oxyepoecus Santschi, 1926

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 2:2; Clypeus anteriorly bidentate, each tooth laterally with another small denticle; Propodeal armed with teeth; Petiole strongly pedunculated; MetaTibiae without Spur.

Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Oxyopomyrmex André, 1881

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Psammophore present
(series of long curved setae arranged ventrally in the Head and Mandibles); Eyes prolonged anteriorly towards the articulation of the mandibles; Propodeum armed with spines; MetaTibiae with Spur.

**Bio-geographical distribution**
Mediterranean

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus **Paramycetophylax** Kusnezov, 1956

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape flattened not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology III, formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Propodeum armed with short teeth; Petiole sessile; petiole of the same height than PostPetiole.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus **Paratopula** W.M. Wheeler, 1919

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell closed and appendiculate, SubMarginal 1 cell can be opened; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Palp formula 5:3; Propodeum armed with two spines; Petiole with long peduncle; MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
♀ Genus *Patagonomyrmex* Johnson & Moreau, 2016

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 4 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell closed or open; Hindwings of Typology II; Mandibles dentate; Palp formula 5:4; Propodeum armed with spines or teeth; Petiole pedunculate; MetaTibiae with pectinate Spur; Sting present.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Pheidole* Westwood, 1839

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles (10 articles *Ph. perpusilla*), last 3 articles club, Antennae Scape overstep or not the Occiput, Antennal Scrobe present or absent; Forewings of Typology I with Marginal cell open or rarely closed; Hindwings of Typology II, in some species Anal 2 vein absent and Typology III, Mandibles triangular dentate; Propodeum armed with teeth or spines.

**Bio-geographical distribution**
Cosmopolitan

**Behavioral Ecology of the Mating flight**
Strategy:
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
174: 61-149.


Figure – A: Forewing; B: Hindwing; C: Petiole and Postpetiole of *Pheidole* sp. 240 ♀, São Paulo, Brazil.

♀ Genus *Podomyrma* F. Smith, 1859

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 11 articles, last 3 article club/enlarged, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III, solenopsis type, Marginal cell closed; Hindwings of Typology II, Mandibles dentate; Palp formula 4:3; Propodeum armed with short teeth or unarmed; Petiole armed with short teeth/spine or unarmed; Meso and MetaFemur considerably incrassated; MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**

Australia, Indo-Australian, New Guinea and nearby Island

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Pogonomyrmex* Mayr, 1868

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 4 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology I with Marginal cell closed or Typology II, solenopsis type with Marginal cell open or closed; Hindwings of Typology II in some species Anal 2 vein absent; Mandibles dentate; Palp formula 4:3; Psammophore present in most species; Propodeum armed with spines or teeth or unarmed; MetaTibiae with one Spur pectinate rarely simple; Sting present.

**Bio-geographical distribution**

Neartic and Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Pristomyrmex* Mayr, 1866

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology III, solenopsis type, Marginal cell open; Hindwings of Typology II; Clypeus anteriorly, in most species, denticulate or crenulate shapes; Mandibles subtriangular dentate; Palp formula 1:2, 1:3, 2:2, 2:3, 4:3 or 5:3; Frontal lobe reduced or absent with Antennal socket exposed; Propodeum armed with two spines or teeth; Sting present.

**Bio-geographical distribution**

Afrotropical, Oriental, Indo-Australian and Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Proatta* Forel, 1912

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 3 articles club, Antennae Scape reaching the Occiput, Antennal Scrobe present; Forewings of Typology III, Anal 2 vein absent, formica type, Marginal cell closed, Pterostigma narrow; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Propodeum armed with three spines; Petiole with long peduncle and two teeth postero-dorsally.

**Bio-geographical distribution**

Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Procryptocerus* Emery, 1887

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Eyes placed ventrally from the Antennal Scrobe; Forewings of Typology II, solenopsis type or M4 vein with insertion in m-cu vein, Marginal
cell open or closed; Hindwings of Typology II; Mandibles triangular dentate; Propodeum armed with spines or teeth; Petiole sessile.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


![Figure A](image)

**Figure** – A: Petiole of *Procryptocerus* sp. 466 ♀, São Paulo, Brazil.

♀ Genus *Protalaridris* Brown, 1980

**Morphological characters used in the dichotomous key**

Antennae clavate with 9 articles, last two articles club, Antennae Scape not overstep the Occiput, flattened and massive, Antennal Scrobe absent or very shallow; Forewings of Typology III, solenopsis type, Marginal cell open, Hindwings of Typology II; Mandibles linear dentate with strong apical tooth; Propodeum armed with spines; Petiole pedulculate; Scape, Legs, Head and Body with scale spatulate or squamiform and erect hair clavate of white color.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus **Pseudoatta** Gallardo, 1916

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 11 articles, Antennae Scape overstep the Occiput, Antennal Scrobe absent, 1° article of the Funiculus in length > than the 2°; Forewings of Typology III, Anal 2 vein absent, formica type, Marginal cell closed, Pterostigma absent or reduced; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Pronotum with two spines dorsally; Propodeum armed with spines.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus **Rhopalomastix** Forel, 1900

**Morphological characters used in the dichotomous key**

Antennae short and clavate with 10-11 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal scrobe absent; Forewings of Typology III, solenopsis type, Marginal cell closed and appendiculate; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 0-1:1-2; Propodeum unarmed; Sting present.

**Bio-geographical distribution**

Indo-Australian and Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

Genus *Rhopalothrix* Mayr, 1870

**Morphological characters used in the dichotomous key**
Antennae clavate with 7 articles, Antennae Scape massive not overstep the Occiput, Antennal Scrobe present; Forewings of Typology III, solenopsis type, and Typology IV, Marginal cell open; Hindwings of Typology III; Mandibles falcate/linear dentate; Propodeum armed with teeth; Petiole pedunculate; Body and Legs with reclinate Scale spatulate or squamiform and erect hair clavate of white color.

**Bio-geographical distribution**
Neotropical, New Guinea and Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

Genus *Rogeria* Emery, 1894

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis or formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 2:1, 2:2, 3:2, 3:3; Propodeum armed with teeth or spines; Petiole pedunculate; MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**
Indo-Australian, New Guinea, Polinesia and Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

Genus *Romblonella* W.N. Wheeler, 1935

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, last 3 articles club, Antennal Scrobe present; Forewings of Typology III with Marginal cell closed, formica type; Hindwings of Typology II;
Mandibles triangular dentate; Palp formula 5:3; Propodeum armed with spines; Petiole sessile.

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Rostromyrmex* Rosciszewski, 1994

**Morphological characters used in the dichotomous key**
Antennae clavate with 9 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, formica type, Marginal cell open, Pterostigma absent or reduced; Hindwings of Typology III; Mandibles triangular dentate; Palp formula 2:2; Propodeum armed with spines; Petiole pedunculate MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**
Malaysia and Singapore.

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Royidris* Bolton and Fisher, 2014

**Morphological characters used in the dichotomous key**
Antennae versus clavate or clavate with 12 articles, last 3-4 articles enlarged/club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate (5 teeth); Palp formula 5:3; Metatibiae with one simple Spur; Propodeum armed with short teeth or angulate; Petiole pedunculate.

**Bio-geographical distribution**
Madagascar

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Sericomyrmex* Mayr, 1865

Morphological characters used in the dichotomous key

Antennae clavate with 11 articles, last 3 articles club; Antennae Scape not overstep the Occiput, Antennal Scrobe present; Head cordiform (heart-scape) with Frontal lobe very developed; Forewings of Typology III, Anal 2 vein absent; solenopsis type, Marginal cell closed, Pterostigma present; Hindwings of Typology II with Anal 2 vein absent; Mandibles dentate; Palp formula 4:2; Propodeum whit small blunt teeth or angulate; Petiole sessile or with short peduncle.

Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus *Solenopsis* Westwood, 1840

Morphological characters used in the dichotomous key

Antennae clavate with 10 or 11 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Mandibles triangular dentate; Palp formula 2:2 or 1:2; Forewings of Typology II and III, solenopsis type, Marginal cell open; Hindwings of Typology II; Propodeum unarmed; Petiole pedunculate.

Bio-geographical distribution
Cosmopolitan

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
Mating flight: see Cantone 2017

References for Taxonomic identification

Figure – A: Forewing; B: Hindwing; C: Petiole; D: Antennae of Solenopsis sp. 28 ♀, São Paulo, Brazil.
♀ Genus *Stegomyrmex* Emery, 1912

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Frontal lobe enormously expanded laterally and anteriorly; Forewings of Typology I and II, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular with 7 or more teeth or denticles; Palp formula 2:2; MetaTibiae without Spur; Propodeum armed with teeth; Petiole with long peduncle.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Stenamma* Westwood, 1839

**Morphological characters used in the dichotomous key**

Antennae versus clavate or clavate with 12 articles, last 4 articles enlarged/club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology I, II and III, solenopsis or formica type, Marginal cell open or closed and appendiculata, solenopsis or formica type; Hindwings of Typology II; Mandibles triangular dentate; Propodeum usually armed with short teeth or spines, angulate rarely; Petiole pedunculate.

**Bio-geographical distribution**

Neartic, Neotropical, Palearctic, Indo-Oriental

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus Strongylognathus Mayr, 1853

Morphological characters used in the dichotomous key
Antennae clavate of 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II; Mandibles falcate edentate; Palp formula 4:3; Propodeum armed with short teeth; Petiole sessile or with short anterior peduncle; MetaTibiae with one Spur.

Bio-geographical distribution
Paleartic and Sicily, Indo-Oriental

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
♀ Genus *Strumigenys* F. Smith, 1860

**Morphological characters used in the dichotomous key**

Antennae clavate with 6 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings Typology III and IV, solenopsis type, Marginal cell open; Hindwings of Typology III; Mandibles linear or sutriangular elongate dentate; Propodeum armed with spines or teeth; Petiole with long peduncle; MetaTibiae without Spur; Head cordiform (heart-shaped).

**Bio-geographical distribution**


**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Syllophopsis* Santschi, 1915

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell open.
open; Hindwings of Typology II, Mandibles dentate; Palp formula 2:2; Propodeum with short tubercles or angulate; Petiole pedunculate; Sting present.

**Bio-geographical distribution**
Afrotropical, Indo-Australian, Australia

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Temnothorax* Mayr, 1861

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 or 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, III, formica or solenopsis type, Marginal cell open or closed; Hindwings Typology II or III; Mandibles dentate; Propodeum armed with spines or teeth; Petiole pedunculate or rarely sessile.

**Bio-geographical distribution**
Neartic, Central America, Paleartic, Oriental, Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
Genus *Terataner* Emery, 1912

**Morphological characters used in the dichotomous key**

Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III, formica type, Marginal cell closed and appendicolate; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 5:3, 4:3; Propodeum unarm or with very short teeth; Petiole pedunculate; Femurs swollen; MetaTibiae with one Spur.

**Bio-geographical distribution**

Afrotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus Tetramorium Mayr, 1855

Morphological characters used in the dichotomous key
Antennae clavate with 11 or 12 articles rared 10 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Eyes ventrally from the Antennal Scrobe; Forewings of Typology II and III, solenopsis or formica type, Marginal cell open or closed; Hindwings of Typology II; Mandible triangular dentate; Palp formula 4-3:3-2; Propodeum usually armed with spines/teeth or angulate; Petiole usually pedunculate rarely sessile; MetaTibiae with one Spur; Sting present with an apical lamelliform triangular/dentiform appendage.

Bio-geographical distribution
Cosmopolitan

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017. Brazil: 23°35′17.46″S, 46°38′58.02″W, 800 meters sea level, Tetramorium sp. 415a: October to December.

References for Taxonomic identification
- Emery C. (1925) Notes critiques de Mirmecologie. Bulletin de La Societé Entomologique de Belgique, Tme LXV.

![A: Forewing; B: Hindwing of Tetramorium sp. 415b ♀, São Paulo, Brazil.](image)

♀ Genus *Trachymyrmex* Forel, 1893

**Morphological characters used in the dichotomous key**
Antennae clavate with 11 articles, last 3 articles club, Antennal Scape overstep the Occiput, Antennal Scrobe present; Forewings of Typology III, Anal 2 vein absent, solenopsis or formica type, Marginal cell closed, Pterostigma absent or reduced; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Propodeum armed with spines; Head with spines dorsally.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: Cantone, 2017

**References for Taxonomic identification**
♀ Genus *Tranopelta* Mayr, 1866

Morphological characters used in the dichotomous key

Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Propodeum unarmed; propodeal spiracle notably enlarged

Bio-geographical distribution

Neotropical

Behavioral Ecology of the Mating flight

Strategy: unknown

Mating flight: see Cantone, 2017

References for Taxonomic identification


Figure – A: Antennae; B: Mesosoma and Petiole-PostPetiole of *Tranopelta gilva* ♀, Serra da Canastra, Brazil.
♀ Genus *Trichomyrmex* Mayr, 1865

Morphological characters used in the dichotomous key

Antennae versus clavate or clavate with 12 articles, last 3 articles enlarged/club Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II and III, formica type, Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate; Propodeum unarmed; Petiole pedunculate.

Bio-geographical distribution

Afrotropical, India, Arabia Saudita, Mediterranean, Madagascar, Neotropical

Behavioral Ecology of the Mating flight

Strategy: unknown
Mating flight: unknown

References for Taxonomic identification


♀ Genus *Tyrannomyrmex* Fernandez, 2003

Morphological characters used in the dichotomous key

Antennae clavate with 11 articles, last 3 articles club with last one very long, Antennae Scape not overstep the Occiput Antennal Scrobe absent; Forewings of Typology III, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles dentate; Propodeum with very short teeth/tubercles; Sting present; Typical scultures of the Head and body heavily faveate.

Bio-geographical distribution

Indo-Australian

Behavioral Ecology of the Mating flight

Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Veromessor Forel, 1917

Morphological characters used in the dichotomous key
Antennae versus clavate with 12 articles, last 3 articles enlarged, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, formica type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Propodeum armed with teeth/spines; Petiole pedunculate.

Bio-geographical distribution
Neartic

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Vitsika Bolton & Fisher, 2014

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwings of Typology II; Mandibles triangular dentate; Palp formula 5:3; Propodeum armed with a pair of spines; MetaTibiae with one or without Spur; Sting present.

Bio-geographical distribution
Madagascar

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Vollenhovia Mayr, 1865

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles rarerly 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, and Typology IV, Marginal cell open; Hindwings of Typology III; Mandibles triangular
dentate; Palp formula usually 2:2; Pronotum unarmed or armed with teeth; Petiole sessile; MetaTibiae without Spur; Sting present.

**Bio-geographical distribution**
Oriental, Indo-Australian, Australian, Seychelles, Neartic

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: *Samoa, Naval Station: V. samoensis*, July (Wilson and Taylor, 1967)

**References for Taxonomic identification**

♀ Genus *Wasmannia* Forel, 1893

**Morphological characters used in the dichotomous key**

Antennae clavate with 11 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Eyes ventrally from Antennal Scrobe; Forewings of Typology III, formica type, Marginal cell open; Hindwings of Typology II, Mandibles triangular dentate; Palp formula 3:2; Propodeum armed with spines or teeth; Petiole pedunculate.

**Bio-geographical distribution**
Neotropical, (exotic Afrotropical and Australia)
Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification
-AntWeb (2018) Photos Typus:

Figure – A: Forewing; B: Hindwing; C: Antennae of Wasmannia sp. 236 ♀, São Paulo, Brazil.

♀ Genus Xenomyrmex Forel, 1885

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 2 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe absent; Forewings of Typology II, solenopsis type, Marginal cell open; Hindwing of Typology III whitout cells; Mandibles triangular dentate; Palp formula 4:2; Propodeum unarmed; Petiole sessile.

Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification

♀ Genus Xerolitor Sosa-Calvo et al. 2018

Morphological characters used in the dichotomous key
Antennae clavate with 11 articles, last 3 articles club, Antennae Scape not overstep the Occiput, Antennal Scrobe present; Forewings of Typology III, Anal 2 vein absent, solenopsis type, Marginal cell closed and apendiculate; Hindwing of Typology II with Anal 2 vein absent; Mandibles triangular dentate; Petiole sessile; Propodeum armed with teeth.

Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

3.14 Subfamily Paraponerinae Emery, 1901
This subfamily represented for one genus and the winged ♀♀ are known.

♀ Genus Paraponera F. Smith, 1858

Morphological characters used in the dichotomous key
Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length < than the 2°, Antennal Scrobe present; Eyes placed ventrally from Antennal Scrobe; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Hypopygium with an upwardly-directed comb of fine teeth on each side (Brown 1958:185); Mandibles triangular dentate; Palp formula 5:3; Pronotum armed with two dorsal teeth; Petiole peduncolate anteriorly; MetaTibiae with two Spurs; Metalegs with 2°-3°-4° articles of the Tarsus with Spine/Spur; Pretarsal Claws bifid; Sting present.
Bio-geographical distribution
Neotropical

Behavioral Ecology of the Mating flight
Strategy: see Cantone, 2017
Mating flight: see Cantone, 2017; Brazil: 00°07’36,6”S, 67°02’00,6”W, *P. clavata*: November (Cantone collection).

References

3.15 Subfamily Ponerinae Lepeletier de Saint-Fargeau, 1835

This subfamily represented for 47 genera and the Winged ♀♀ known in 36 genera.
The ♀♀ are unknown in the genera: Boloponera, Feroponera, Fisheropone, Iroponera. Presence of only ♀♀ Ergatogyne known in the genera: Simopelta, Dolioponera. Presence of only Gamergate (mated, egg-laying worker that reproduces like the queen caste with functional spermathecal) known in the genera: Diacamma, Dinoponera, Hagensia, Ophthalmopone, Streblognathus.

♀ Genus *Anochetus* Mayr, 1861

Morphological characters used in the dichotomous key
Antennae filiform with 12 articles, Antennae Scape overstep the occiput or not, 1° article of the Funiculus > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles linear dentate; Palp formula 4:4; Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Pretarsal Claws simple; Sting present.

Bio-geographical distribution
Neotropical, Afrotropical, Indo-Australian, Australia, Spain.

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification
African Museum, Vol. XVI.

Figure – A: Antennae of Anochetus sp. 143 ♀, São Paulo, Brazil.

♀ Genus Asphinctopone Santschi, 1914

Morphological characters used in the dichotomous key
Antennae clavate with 12 articles, last 3 articles club, Antennae Scape not overstep the Occiput, 1° article of the Funiculus > than the 2° article; unknown wings, I assume they are like most of the other genera of the subfamily: Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe?; Clypeus with antero-lateral tooth; Mandibles triangular dentate; Palp formula 3:3; MetaTibiae with one Spurs; Pretarsal Claws simple; Sting present.

Bio-geographical distribution
Afrotropical.

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
♀ Genus **Austroppona** Schmidth and Shattuck, 2014

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus ≥ than the 2° article; unknown wings, I assume they are like most of the other genera of the subfamily: Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe?; Mandibles triangular dentate; Palp formula 4:3 or 4:2; Propodeal spiracle round; MetaTibiae with two Spurs; Pretarsal Claws simple; Sting present.

**Bio-geographical distribution**

Indo-Australian and Australian, New Zealand

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus **Belonopelta** Mayr, 1870

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus > than the 2° article; unknown wings, I assume they are like most of the other genera of the subfamily: Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe?; Clypeus on the front edge armed with one median tooth; Mandibles elongate linear or falcate dentate; Palp formula 3:3 in B. deletrix, 0:1 in B. attenuata (Baroni Urbani, 1975); MetaTibiae with two Spurs, medial spur reduced; Pretarsal Claws simple; Sting present.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

Suisse, Band 48, Hefte 3-4.

♀ Genus Bothroponera Mayr, 1862

Morphological characters used in the dichotomous key

Antennae versus clavate or clavate with 12 articles, Antennae Scape not overstep the Occiput, 1 article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Palp formula 4:4 (wasmannii-group); MetaTibiae with two Spurs; Pretarsal Claws simple or with submedian tooth; Sting present.

Bio-geographical distribution

Afrotropical and Indo-Australian

Behavioral Ecology of the Mating flight

Strategy: unknown

Mating flight: South Africa, Southern Cape, Knysna, Mkuzi, B. kruegeri: March and October (Peeters and Crewe, 1986)

References for Taxonomic identification

♀ Genus *Brachyponera* Emery, 1900

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape overstep the Occiput (not overstep in *B. sennaarensis*), 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Palp formula 3:3; MetaTibiae with two Spurs; Pretarsal Claws simple; Prora on the anterior margin of first gaster sternite inconspicuous; Sting present.

**Bio-geographical distribution**

Nearctic (introduced), Afrotropical, Indo-Australian, Australian and Oriental

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Buniapone* Schmidt & Shattuck, 2014

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length ≥ to 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; blunt median clypean projection; Mandibles elongate subtriangular dentate; MetaTibiae with two Spurs; Pretarsal Claws simple; Sting present.

**Bio-geographical distribution**

Indo-Australian

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Centromyrmex* Mayr, 1866

### Morphological characters used in the dichotomous key

Antennae versus clavate of 12 articles, Antennae Scape not overstep the Occiput (*C. raptator* Scape overstep the Occiput), 1° article of the Funicleus > than the 2° article; Forewings Typology I with Marginal cell closed; Hindwings Typology I with Jugal lobe (omitted in Kempf, 1966); Mandibles triangular dentate; Palp formula 4:3; Propodeal spiral with orifice elliptical; MetaTibiae with one or two Spurs; Meso and MetaTarsus with spiniform sclerotised setae; Pretarsal Claws simple; Sting present.

### Bio-geographical distribution

Neotropical, Afrotropical, Indo-Australian and Oriental

### Behavioral Ecology of the Mating flight

Strategy: unknown

Mating flight: see Cantone, 2017

### References for Taxonomic identification

♀ Genus *Cryptopone* Emery, 1893

**Morphological characters used in the dichotomous key**
Antennae clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than half the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Propodeal spiracle round; Mandibles triangular dentate; Palp formula 2:2 or less; MetaTibiae with one or two Spur; Tarsus armed with stout traction setae dorsally; Pretarsal Claws simple or with sub median tooth; Sting present.

**Bio-geographical distribution**
Cosmopolitan

**References for Taxonomic identification**
- Donisthorpe H. (1942) Ants from the Colombo Museum Expedition to Southern India, September-October 1938. Annals and Magazine of Natural history, Ser. 11, Vol. IX.

♀ Genus *Ectomomyrmex* Mayr, 1867

**Morphological characters used in the dichotomous key**
Antennae versus clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Pretarsal Claws simples; Sting present.

**Bio-geographical distribution**
Indo-Australian, Australian and Oriental

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Emeryopone* Forel, 1912

**Morphological characters used in the dichotomous key**

Antennae versus clavate or clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article; unknown wings, I assume they are like most of the other genera of the subfamily: Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe?; Clypeus on the frot edge armed with one median tooth; Mandibles elongate subtriangular dentate; Palp formula 2:1 or 1:1; Propodeal spiracle with orifice round; MetaTibiae with two Spurs, medial Spur can be reduced; Pretarsal Claws simples; Sting present.

**Bio-geographical distribution**

Indo-Australian and Oriental

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Euponera* Forel, 1891

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed (in *E. sikorae* cross-veis 1 r-rs present); Hindwings of Typology I with Jugal lobe or without; Mandibles triangular dentate; Palp formula 2:2; Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Pretarsal Claws simple; Sting present.

**Bio-geographical distribution**
Afrotropical, Madagascar, Indo-Australian and Oriental

**Behavioral Ecology of the Mating flight**
Strategy: unknown

**References for Taxonomic identification**

♀ Genus *Harpegnathos* Jerdon, 1851

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length ≤ than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe present; Mandibles linear dentate, straight apically; Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Pretarsal Claws bifid; Sting present.

**Bio-geographical distribution**
Indo-Australian

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**
♀ Genus *Hypoponera* Santschi, 1938

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape overstep or not the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe and Typology II; Mandibles triangular dentate; Palp formula 0-1:1-2; Propodeal spiracle with orifice round or slightly elliptical; Petiole with subpetiolar process without fovea (depression); MetaTibiae with one Spur; Pretarsal Claws simple; Eyes with minute setae projecting from between the ommatidia (ocular setae).

**Bio-geographical distribution**

Cosmopolitan

**Behavioral Ecology of the Mating flight**

Strategy: see Cantone, 2017

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

- Santschi F. (1921) Nouvelle fourmis Paleartiques, Boletin de la Real Sociedad Espanola de Historia natural, abril.
Figure – A: Forewing; B: Hindwing; C: Antennae; D: Petiole of Hypoponera sp. 80 ♀, São Paulo, Brazil.

♀ Genus Leptogenys Roger, 1861

**Morphological characters used in the dichotomous key**

Antennae with 12 articles, Antennae Scape overstep the Occiput, 1 article of the Funiculus in length < or ≥ than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Mandibles linear/subtriangular dentate apically; Palp formula 4:4 or 4:3; Propodeal spiracle with orifice elliptical or round; MetaTibiae with two Spurs; Pretarsal Claws pectinate (rarely simple); Sting present. Winged ♀ ♀ are known in L. langi and L. nigricans.

**Bio-geographical distribution**

Neotropical, Afrotropical, Indo-Australian, Australia, Oriental

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀  Genus *Loboponera* Bolton and Brown, 2002

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape stout overstep or not the Occiput, 1° article of the Funiculus in length > than the 2° article; Frontal lobe strongly developed; unknown wings, I assume they are like most of the other genera of the subfamily: Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe?; Mandibles triangular dentate; Palp formula 2:2; Propodeal spiracle with orifice round; MetaTibiae with one Spur and with mid-dorsal longitudinal groove; Pretarsal Claws simple; Sting present.

**Bio-geographical distribution**
Afrotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀  Genus *Mayaponera* Schmid & Shattuck, 2014

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length subequal than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe? (present probably); Mandibles triangular dentate; Palp formula 4:4; Propodeum well bellow the Mesonotum; Propodeal spiracle with orifice round; MetaTibiae with two Spurs; Sting present.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**
-Schmidt C. A. and Shattuck S. O. (2014) The higher classification of the subfamily

♀ Genus *Megaponera* Mayr, 1862

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape flattened reaching or overstep the Occiput, 1° article of the Funiculus in length < than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; preocular carine present; Broad insertion of the Clypeus between the Frontal lobe; Propodeal spiracle with orifice elliptical; Meta-Tibiae with two Spurs; Pretarsal Claws with sub median tooth; Sting present.

**Bio-geographical distribution**

Afrotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**


♀ Genus *Mesoponera* Emery, 1900

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape reaching or overstep the Occiput, 1° article of the Funiculus in length subequal than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Palp maxillary of 4 articles; Propodeal spiracle with orifice round; Meta-Tibiae with two Spurs, Sting present.

**Bio-geographical distribution**

Afrotropical, Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Myopias* Roger, 1861

**Morphological characters used in the dichotomous key**

Antennae versus clavate or clavate with 12 articles, Antennae Scape reaching or overstep the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Clypeus with blunt median projection; Mandibles linear or subtriangular elongate, dentate; Propodeal spiracle with orifice round; Pálp formula 3:3, 2:3; MetaTibiae with two Spurs; Sting present.

**Bio-geographical distribution**

Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Neoponera* Emery, 1901

**Morphological characters used in the dichotomous key**

Antennae filiform or slightly versus clavate with 12 articles, Antennae Scape overstep the Occiput (rarely not overstep ex. *N. fisheri*), 1° article of the Funiculus in length < than the 2° article (rarely subequal); Preocular carine present; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Propodeal spiracle with orifice elliptical or round; Metapleural gland orifice with a posterior U-shaped cuticular lip; Meta-Tibiae with two Spurs; Pretarsal Claws simple or with sub-median tooth; Hypopygium without area of stout setae; Sting present.

**Bio-geographical distribution**

Neotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**


![Figure](image)

**Figure – A**: Forewing; **B**: Hindwing; **C**: Antennae of *Neoponera* sp. 162 ♀, São Paulo, Brazil.

♀ Genus *Odontomachus* Latreille, 1804

**Morphological characters used in the dichotomous key**

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput or not, 1º article of the Funiculus in length < than the 2º article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles linear dentate, curved apically; Palp formula 4:4 or 4:3 in *haematodus* group; Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Pretarsal Claws simple or with sub-median tooth; Sting present.

**Bio-geographical distribution**

Neotropical, Neartic, Afrotropical, Indo-Australian, Australian and Oriental
**Behavioral Ecology of the Mating flight**
Mating flight: see Cantone, 2017

**References for Taxonomic identification**


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**Figure**

- **A**: Forewing; **B**: Hindwing; **C**: Antennae; **D**: Head; **E**: MetaTibiae spurs of *Odontomachus* sp. 380 ♀, São Paulo, Brazil.
♀ Genus *Odontoponera* Mayr, 1862

Morphological characters used in the dichotomous key

Antennae filiform with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length subequal than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; anterior edge of the Clypeus denticulate; Mandibles triangular dentate; Palp formula 4:4; Pronotum with two symmetric antero-dorsal teeth; Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Pretarsal Claws simple, Sting present.

Bio-geographical distribution

Indo-Australian

Behavioral Ecology of the Mating flight

Strategy: unknown

Mating flight: unknown

References for Taxonomic identification


♀ Genus *Pachycondyla* F. Smith, 1858

Morphological characters used in the dichotomous key

Antennae filiform slightly versus clavate with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length subequal than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Pretarsal Claws simple or with sub-median tooth; Sting present; Hypopygium with court and stout setae along each side of the Sting.

Bio-geographical distribution

Neotropical

Behavioral Ecology of the Mating flight

Strategy: see Cantone, 2017


References for Taxonomic identification


Figure – A: Forewing; B: Hindwing; C: Antennae; D: Petiole and Gaster; F: Mandibles of *Pachycondyla striata* ♀, São Paulo, Brazil.

♀ Genus *Paltothyreus* Mayr, 1862

**Morphological characters used in the dichotomous key**

Antennae filiform or slightly versus clavate with 12 articles, Antennae Scape overstep the Occiput, 1° article of the Funiculus in length < than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Clypeus with a median raised portion, the latter is deeply excavated in the middle; Mandibles triangular dentate; MetaTibiae with two Spurs; Propodeal spiracle with orifice elliptical; Pretarsal Claws bifid; Hypopygium with court and stout setae along each side of the Sting; Sting present;

**Bio-geographical distribution**

Afrotropical

**Behavioral Ecology of the Mating flight**

Strategy: female calling

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus *Paraponera* Schmidt and Shattuck, 2014

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Mandibles triangular dentate; Palp formula 2:2; MetaTibiae with two Spurs; Propodeal spiracle with orifice elliptical; Sting present.

**Bio-geographical distribution**

Afrotropical, Indo-Australian and Australian.

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Phrynoponera* Wheeler, 1920

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, Antennae Scape reaching or overstep slightly the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Palp formula 4:4; Propodeum bispinose; Propodeal spiracle with orifice elliptical; Petiole armed with spine or thick tooth; MetaTibiae with two Spurs; Pretarsal Claws simple; Sting present.

**Bio-geographical distribution**

Afrotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

References for Taxonomic identification

♀ Genus *Platythyrea* Roger, 1863

Morphological characters used in the dichotomous key

Antennae filiform or slightly versus clavate with 12 articles (11 articles in *P. clypeata*), Antennae Scape overstep or not the Occiput; 1° article of the Funiculus in length ≤ than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe present; Mandibles triangular dentate or edentate marginally; Palp formula 6:4, 4:4, 4:3, 3:3 and 3:2; Clypeus with broad insertion between the Frontal lobe; Preocular canine absent; MetaTibiae with two Spurs; Pretarsal Claws with submedian tooth or bifid; Propodeal spiracle with orifice round or rarely elliptical; Petiole articoled at midheight of anterior face of first gastral segment; Sting present.

Bio-geographical distribution
Neotropical, Afrotropical, Indo-Australian and Australia.

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
♀ Genus *Plectroctena* F. Smith, 1858

**Morphological characters used in the dichotomous key**

Antennae versus clavate or clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length ≤ than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles linear edentate or with median large tooth; Palp formula 3:4, 2:3, 2:2; Propodeal spiracle with orifice round; MetaTibiae with one Spur; Pretarsal Claws simple; Sting present.

**Bio-geographical distribution**

Afrotropical

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


♀ Genus *Ponera* Latreille, 1804

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 12 articles, Antennae Scape not overstep or rarely reaching the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe or Typology II; Mandibles triangular dentate; Palp formula 2:2; Propodeal spiracle with orifice round; Petiole with subpetiolar process with fovea (depression); MetaTibiae with one Spur, Sting present.

**Bio-geographical distribution**

Nearctic, Palearctic, Oriental, Indo-Australian and Australia and Central America, South Africa, Madagascar

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: USA: *P. pennsylvanica*: August to October (Taylor, 1967)

**References for Taxonomic identification**

Morphological characters used in the dichotomous key
Antennae versus clavate with 12 articles; Antennae Scape not overstep or reaching the Occiput, 1° article of the Funiculus in length ≤ than the 2° article; unknown wings, I assume they are like most of the other genera of the subfamily: Forewings of Typology I with Marginal cell closed; Hindwings of Typology I, Jugal lobe?; Mandibles linear denticulate or edentate; Palp formula 4:4; Propodeal spiracle with orifice round; MetaTibiae with one Spur; MetaTarsus with strongly sclerotized spiniform setae; Pretarsal Claws simple; Sting present.

Bio-geographical distribution
Afrotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

♀ Genus Psalidomyrmex André, 1890

Morphological characters used in the dichotomous key
Antennae versus clavate with 12 articles; Antennae Scape not overstep or reaching the Occiput; 1° article of the Funiculus in length ≤ than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe present; Mandibles triangular elongate to falcate, dentate; Palp formula 3:4; Propodeal spiracle with orifice round; MetaTibiae with one Spur; Pretarsal Claws simples.

Bio-geographical distribution
Afrotropical

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
Genus *Pseudoneoponera* Donisthorpe, 1943

Morphological characters used in the dichotomous key

Antennae with 12 articles, Antennae Scape not overstep or reaching the Occiput; 1° article of the Funiculus in length ≥ than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Propodeal spiracle with orifice elliptical; Petiole often dentate dorsally; MetaTibiae with two Spurs; Pretarsal Claws simple or with submedian tooth.

Bio-geographical distribution

Indo-Australian and Australia

Behavioral Ecology of the Mating flight

Strategy: unknown
Mating flight: unknown

References for Taxonomic identification


Genus *Pseudoponera* Emery, 1900

Morphological characters used in the dichotomous key

Antennae versus clavate with 12 articles, Antennae Scape overstep or not the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I without Jugal lobe; Mandibles triangular dentate; Palp formula 3:3 (*P. stigma*); Propodeal spiracle with orifice elliptical; MetaTibiae with two Spurs; Tarsus with strongly sclerotized spiniform setae; Pretarsal Claws simple; Sting present.

Bio-geographical distribution

Neotropical, Indo-Australian and Australia

Behavioral Ecology of the Mating flight

Strategy: unknown
Mating flight: unknown

References for Taxonomic identification

Morphological characters used in the dichotomous key
   Antennae with 12 articles, Antennae Scape not overstep or reaching the Occiput; 1° article of the Funiculus in length subequal than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology I with Jugal lobe; Mandibles triangular dentate; Propodeal spiracle with orifice round; MetaTibiae with two Spurs.

Bio-geographical distribution
   Neotropical

Behavioral Ecology of the Mating flight
   Strategy: unknown
   Mating flight: Panama: 9°19' N, 79°50'15'', 50-80 meters sea level, R. arhuata: all year (Kaspari et al. 2001).

References for Taxonomic identification

Morphological characters used in the dichotomous key
   Antennae versus clavate with 12 articles, Antennae Scape not overstep (in the some specie reaching and slingly overstep), 1° article of the Funiculus in length > than the 2° article; unknown wings, I assume which are the same as those of the male (Cantone, 2017): Forewings of Typology II with Marginal cell closed; Hindwings of Typology II; Mandibles falcate with three very long teeth; Palp fomula 3:2 (T. paludis); Clypeus with broad insertion between the Frontal lobe; Clypeus with strong lateral teeth; Propodeal spiracle with orifice round; Petiole sessile; MetaTibiae with one Spur; Pretarsal Claws simple; Sting present.

Bio-geographical distribution
   Neotropical

Behavioral Ecology of the Mating flight
   Strategy: unknown
   Mating flight: see Cantone, 2017
References for Taxonomic identification

3.16 Subfamily Proceratiinae Emery, 1895

This subfamily represented for 3 genera and the Winged ♀♀ are all known.

♀ Genus *Discothyrea* Roger, 1863

Morphological characters used in the dichotomous key

Antennae clavate with 6, 7, 8, 9 and 10 articles, Antennae Scape massive not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article, last one article huge and in length equal to the sum of the other items together, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology III, solenopsis type, Marginal cell closed; Hindwings of Typology III; Mandibles triangular edentate; Palp formula 1:3, 4:3, 4:4; Propodeal spiracle with orifice round; Petiole entirely articulated with the first segment of the Gaster; MetaTibiae with one Spur; Pretarsal Claws simple; Sting present; Habitus in length 1,2-2,5 mm.

Bio-geographical distribution
Neotropical, Afrotropical, Indo-Australian and Australia

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: see Cantone, 2017

References for Taxonomic identification
-Emery C. (1901) Notes sul lês sub families dês Dorylines et Ponerines (Famille dês Formicides). Extrait des Annales de la Societè Entomologique de Belgique, Tome XLV.

♀ Genus *Probolomyrmex* Mayr, 1901

**Morphological characters used in the dichotomous key**

Antennae clavate or versus clavate with 12 articles, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article, Antennal socket confluent from posterior edge of the Clypeus; Forewings of Typology IV with Marginal cell open; Hindwings of Typology III; Mandibles small subtriangular dentate; Palp formula 4:2; Propodeal spiracle with orifice round; MetaTibiae with one Spur; Pretarsal Claws simple; Sting present; Habitus 2, 4 to 4,2 mm.

**Bio-geographical distribution**

Neotropical, Afrotropical, Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: see Cantone, 2017

**References for Taxonomic identification**

♀ Genus Proceratium Roger, 1863

Morphological characters used in the dichotomous key

Antennae versus clavate with 12 articles, Antenna Scape not overstep or slightly reacher the Occiput, 1 article of the Funiculus in length > than the 2° article, Antennal socket visible completely and confluent from posterior edge of the Clypeus; Forewings of Typology I, II and III with Marginal cell open or closed; Hindwings of Typology II; Mandibles triangular subtriangular; Palp formula 2:2, 3:2, 3:3, 4:3; Propodeal spiracle with orifice round; Petiole sessile; Gaster with two visible Tergite; MetaTibiae with one Spur; Pretarsal Claw simple; Sting present.

Bio-geographical distribution
Cosmopolitan

Behavioral Ecology of the Mating flight
Strategy: unknown
Mating flight: unknown

References for Taxonomic identification
3.17 Subfamily Pseudomyrmecinae Smith M. R., 1952

This subfamily represented for 3 genera and the Winged ♀ ♂ are all known.

♀ Genus *Myrcidris* Ward, 1990

**Morphological characters used in the dichotomous key**
Antennae versus clavate with 11 articles, Antennae Scape short not overstep the Occiput; 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles subtriangular dentate; Palp formula 5:3; MetaTibiae with two Spurs; Propodeal spiracle with orifice elliptical; Sting present.

**Bio-geographical distribution**
Neotropical

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: unknown

**References for Taxonomic identification**

♀ Genus *Pseudomyrmex* Lund, 1831

**Morphological characters used in the dichotomous key**
Antennae versus clavate with 12 articles, last 4 articles enlarged, Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I with Marginal cell closed; Hindwings of Typology II; Mandibles triangular dentate with 5-10 teeth; Palp formula 6:4, 6:3, 5:4, 5:3, 4:3; Propodeal spiracle with orifice round or elliptical; MetaTibiae with two Spurs; Pretarsal Claws simple or with submedian tooth; Sting Present.

**Bio-geographical distribution**
Neotropical and Neartic

**Behavioral Ecology of the Mating flight**
Strategy: unknown
Mating flight: see Cantone, 2017

**References for Taxonomic identification**

Figure – A: Forewing; B: Hindwing; C: Petiole and PostPetiole; D: Antennae; E: MetaTibiae Spurs of *Pseudomyrmex* sp. 176 ♂, São Paulo, Brazil.

♀ Genus *Tetraponera* F. Smith, 1852

**Morphological characters used in the dichotomous key**

Antennae versus clavate with 12 articles, last 4 articles enlarged; Antennae Scape not overstep the Occiput, 1° article of the Funiculus in length > than the 2° article; Forewings of Typology I and Typology II, solenopsis type, Marginal cell closed; Hindwings of Typology II; Mandibles dentate with 3-6 teeth; Palp formula 6:4 (4-3:3 in *T. tesmanni*); MetaTibiae with two Spurs; Pretarsal Claws bifid or with submedian tooth; Propodeum unarmed; Propodeal spiracle with orifice round or elliptical; Sting present.

**Bio-geographical distribution**

Paleartic, Oriental, Afrotropical, Indo-Australian and Australia

**Behavioral Ecology of the Mating flight**

Strategy: unknown

Mating flight: unknown

**References for Taxonomic identification**


of the South African Museum, Vol. XIV, Part II.
4. The Wings of Ants: morphological and systematic relationships

4.1 Introduction

From the study carried out on the morphology of ant wings, I have analyzed that, out of a total 334 extant genera (AntCat, 2018), the winged caste, male and female, known in 297 genera, of which Winged ♂♂ in 261 genera and the Winged ♀♀ in 258 genera (Table 11). In the 37 genera are unknown winged caste.

<table>
<thead>
<tr>
<th>Subfamily</th>
<th>n° Genera</th>
<th>n° Genera with know Winged Caste</th>
<th>Winged ♀♀</th>
<th>Winged ♂♂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agroecomyrmecinae</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Amblyoponinae</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Aneuretinae</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Apomyrmininae</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dolichoderinae</td>
<td>28</td>
<td>24</td>
<td>22</td>
<td>24</td>
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<td>Dorylininae</td>
<td>27</td>
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<td>26</td>
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<tr>
<td>Ectatommininae</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Formicininae</td>
<td>51</td>
<td>48</td>
<td>47 (2 dealate)</td>
<td>43</td>
</tr>
<tr>
<td>Heteroponerinae</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Leptanillinae</td>
<td>8</td>
<td>8</td>
<td>3 (3 dealate)</td>
<td>5</td>
</tr>
<tr>
<td>Martialinae</td>
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<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Myrmeciinae</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Myrmecinae</td>
<td>143</td>
<td>121</td>
<td>113 (9 dealate)</td>
<td>102 (1 undescribed)</td>
</tr>
<tr>
<td>Paraponerinae</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ponerinae</td>
<td>47</td>
<td>41</td>
<td>36 (6 dealate)</td>
<td>33</td>
</tr>
<tr>
<td>Proceratiinae</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Pseudomirmecinae</td>
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<td>3</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>334</td>
<td>297</td>
<td>258</td>
<td>261</td>
</tr>
</tbody>
</table>

Table 11 – Analysis of genera with Winged Caste for Subfamily
4.2 Distribution of the Forewings Typologies in the ♂♂ and ♀♀ of the family Formicidae

As I showed in Table 1, I divide the Forewing of the ants in four Typologies, based on presence / absence of the Submalginals and Discoidal Cells. Below I show how are distributed, in the two sexes or only in the ♂♂ of those genera that have only Ergatogyne or Gamergate ♀♀, these four Typologies in the different Subfamilies

A. Distribution of the Forewing of Typology I in the ♂♂ and ♀♀ ants

![Forewing images]

In the ♂♂ of ants, I met 72 genera with Forewings di Typology I in 12 Subfamilies; Figure 19 and 20 (Table 15 in Cantone, 2017; see Errata Corrige 2018).

In the ♀♀ of ants, I met 79 genera with Forewing di Typology I in 12 Subfamilies; Figure 19 and 21, Table 4 and 5.
Figure 19 – Distribution of the Forewing of Typology I in the Subfamilies and respective numbers genera among ♀♀ and ♂♂.

Figure 20 – Distribution of the Forewing di Typology I in the ♂♂ for Subfamily with respective numbers of genera.
Figure 21 – Distribution of the Forewing of Typology I in the ♀♀ for Subfamily with respective numbers of genera.

B. Distribution of the Forewing of Typology II in the ♂♂ and ♀♀

In the ♂♂ of ants, I met 117 genera with Forewings of Typology II in 11 Subfamilies; Figure 22 and 23 (Table 18 in Cantone, 2017; see Errata Corrige 2018).

In the ♀♀ of ants, I met 109 genera with Forewing of Typology II, in 11 Subfamilies; Figure 22 and 24, Table 5 and 6.
Figure 22 – Distribution of the Forewing of Typology II in the Subfamilies and respective numbers of genera among ♀♀ and ♂♂.

Figure 23 – Distribution of the Forewing of Typology II in the ♂♂ for Subfamily with respective numbers of genera.
In the ♂♂ of ants, I met 102 genera with Forewings of Typology III, in 7 Subfamilies; Figure 25 and 26 (Table 20 in Cantone, 2017; see Errata Corrige 2018).

In the ♀♀ of ants, I met 96 genera with Forewing of Typology III, in 5 Subfamilies; Figure 25 and 27, Table 7 and 8.
Figure 25 – Distribution of the Forewing of Typology III in the Subfamilies and respective numbers of genera among ♀♀ and ♂♂.

Figure 26 – Distribution of the Forewing of Typology III in the ♂♂ for Subfamily with respective numbers of genera.
Figure 27 – Distribution of the Forewing of Typology III in the ♀♀ for Subfamily with respective numbers of genera.

D. Distribution of the Forewing of Typology IV in the ♂♂ and ♀♀

In the ♂♂ of ants, I met 23 genera with Forewings of Typology IV, in 6 Subfamilies; Figura 28 and 29 (Table 22 in Cantone, 2017; see Errata Corrige 2018).

In the ♀♀ of ants, I met 8 generi with Forewing of Typology IV, in 3 Subfamilies; Figura 28 and 30, Table 9 and 10.
Figure 28 – Distribution of the Forewing of Typology IV in the Subfamilies and respective numbers of genera among ♀♀ and ♂♂.

Figure 29 – Distribution of the Forewing of Typology IV in the ♂♂ for Subfamily with respective numbers of genera.
Figure 30 – Distribution of the Forewing of Typology IV in the ♀♀ for Subfamily with respective numbers of genera.
4.3 Distribution of the Hindwings Typologies in ♂♂ and ♀♀ of the family Formicidae

As I have shown in Table 2, I have divided the Hindwing in three Typologies based on presence/absence of the M2 vein and presence/absence of the Subbasal Cell. I did not notice any significant differences among winged ♀♀ and ♂♂, therefore, below I show how these three Typologies are distributed in the different Subfamilies, in the two sexes or only in the ♂♂ of those genera that have only Ergatogyne or Gamergate ♀♀.

A. Distribution of the Hindwing of Typology I*

1. Hindwing of Typology I with Jugal lobe

* In eight genera of the Subfamily Ponerinae I do not know the hindwing therefore, I assume are of Typology I and I analyze it both in genera with or without Jugal lobe.
2. Hindwing of Typology I without Jugal lobe

- *Acanthoponera*
- *Azteca*
- *Neivamyrmex*
- *Leptogenys*
B. Distribution of the Hindwing of **Typology II**

- **Acromyrmex**
- **Nylanderya**
- **Pheidole**
- **Formica**
- **Typhlomyrmex**
- **Solenopsis**
- **Linepithema**
- **Pseudomyrmex**

**Myrmicinae** 95

**Formicinae** 45

**Dolichoderinae;** 19

**Ectatomminae** 2

**Amblyoponinae** 3

**Aneuretinae** 1

**Dorylinae** 3

**Ponerinae** 3

**Pseudomyrmecinae** 3

**Proceratiinae** 1

**Agroecomyrmecinae** 1

**Heteroponerinae** 1
C. Distribution of the Hindwing of Typology III

Myrmicrypta

Cyphomyrmex

Leptanilla

DISTRIBUTION

Myrmicinae 19

Amblyoponinae 2

Apomyrminae 1

Dolichoderinae 6

Dorylinae 5

Leptanillinae 5

Martialinae 1
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