

# Key to subfamilies of ants in Hawaii

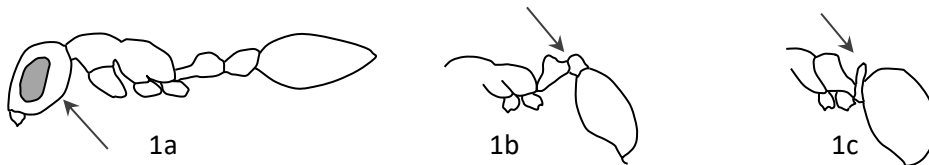
(2021)

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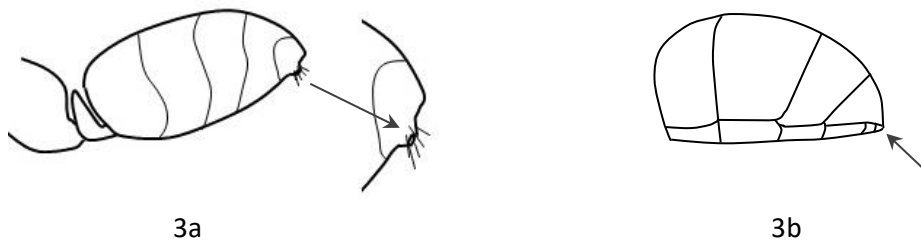
- 1 2-segmented petiole, very large bulging eyes (1a) ..... Pseudomyrmecinae  
(*Pseudomyrmex gracilis*)  
2-segmented petiole (1b), eyes normal, reduced or absent ..... 6 Myrmicinae  
1-segmented petiole or none apparent (1c)..... 2



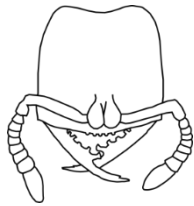
- 2 Profile of gaster without constriction (2a)..... 3  
Distinct weak constriction between 1st and 2nd gastral tergites,  
sting present (2b)..... 4



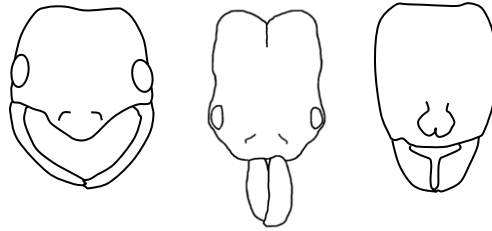
- 3 Tip of gaster with a circular opening, often fringed with hairs (3a)..... 37 Formicinae  
Tip of gaster with a slit-like opening or no obvious opening, never  
fringed with hairs (3b) ..... 44 Dolichoderinae



- 4 Eyes absent; antennal scape short; mandibles long and slender with obvious blunt teeth; clypeus also with obvious blunt teeth (4a) ..... Amblyoninae  
*(Stigmatomma zwaluwenburgi)*
- Not exactly fitting the above description (4b) ..... 5



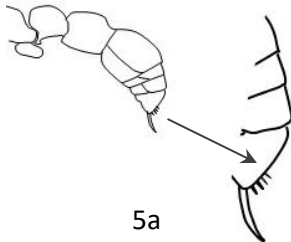
4a



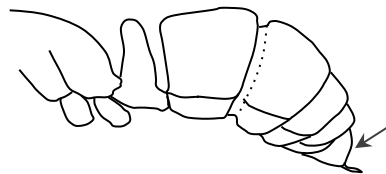
4b

- 5 Last segment of gaster with a row of small spines along outer and trailing edge (5a); gastral constriction strong giving the illusion of a 2 segmented petiole; eyes absent ..... Dorylinae  
*(Ooceraea biroii)*

Last segment of gaster smooth in profile (5b) ..... 51 Ponerinae



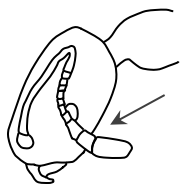
5a



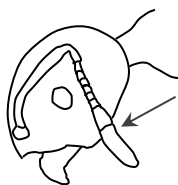
5b

# Myrmicinae

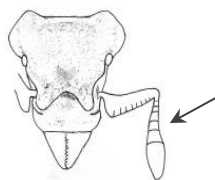
- 6 Antennal club 3-segmented (6a) ..... 7
- Antennal club 2-segmented (6b) ..... 10
- No distinct antennal club and/or with 6 antennal segments or less (6c) ..... 11 (*Strumigenys* spp.)



6a

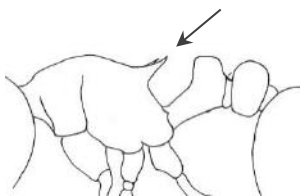


6b

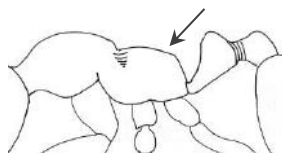


6c

- 7 Propodeum with a distinct pair of spines (7a) ..... 8
- Propodeum smooth and without a spine (7b) ..... 16 (*Monomorium* and allied spp.)

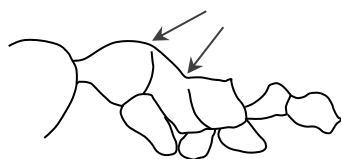


7a

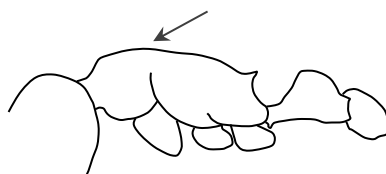


7b

- 8 Mesonotum with a deep and wide clef between the pronotum and propodeum;  
pronotum rounded and clearly higher than propodeum (8a) ..... 23 (*Pheidole* spp.)
- Pronotum and propodeum on the same horizontal plane (8b) ..... 9

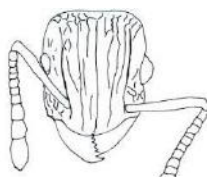


8a

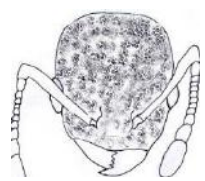


8b

- 9 Antennal scrobes present; front of the head between antenna sculpturing striate;  
 body sculpturing variable (9a) ..... 25 (*Tetramorium* spp.)  
 Antennal scrobes absent, head and body sculpturing  
 not striate (9b) ..... 29 (*Cardiocondyla* spp.)

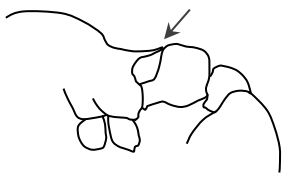


9a

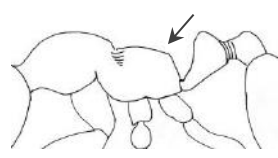


9b

- 10 Propodeum with a distinct pair of spines (10a) ..... *Wasmannia auropunctata*  
 Propodeum without spines (10b) ..... 33 (*Solenopsis* spp.)

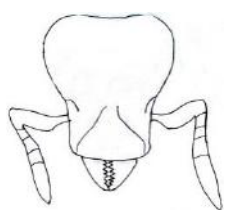


10a

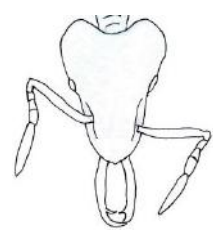


10b

- 11 Head heart-shaped, mandibles short (11a) ..... *Strumigenys membranifera*  
 Head heart-shaped, elongated mandibles (11b) ..... 12

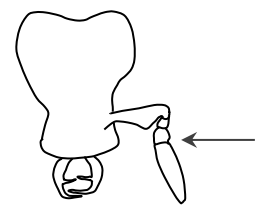


11a

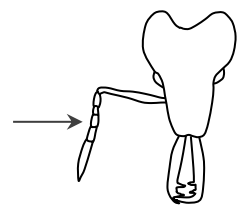


11b

- 12 Antenna (including the scape) composed of 4 segments (12a); head and dorsal surface  
 of the body densely covered with large, bulbous, fan-shaped setae ..... *Strumigenys emmae*  
 Antenna (including the scape) composed of 6 segments (12b); setae variable, may or  
 may not be present ..... 13

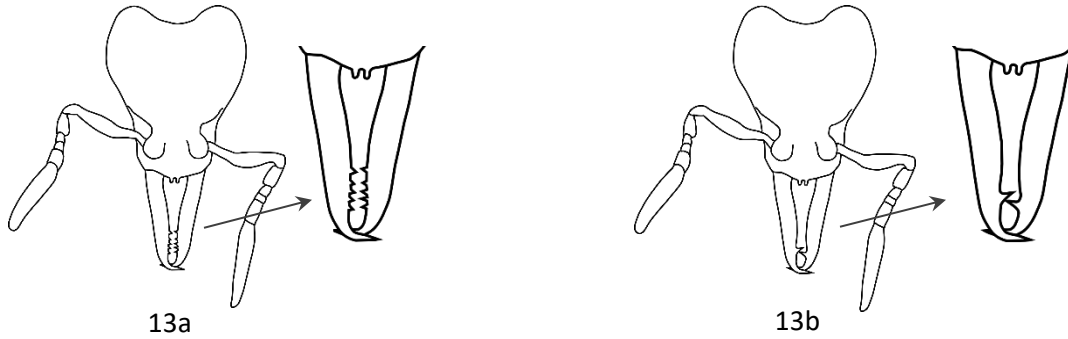


12a



12b

- 13 Mandibles armed with a row of several small but distinct teeth along the inside margin and in addition to the apical fork (13a) ..... *Strumigenys eggersi*  
 Mandibles armed with 1-2 large teeth near the apical fork (13b) ..... 14



- 14 Mandibles armed with 1 tooth in addition to the apical fork; fan-shaped setae not present (14a) ..... 15  
 Mandibles armed with 2 teeth in addition to apical fork; sparse, fan-shaped setae present on the front of the head (14b) ..... *Strumigenys rogeri*



- 15 Pronotum covered with curved “woolly” non-erect hairs..... *Strumigenys godeffroyi*  
 Pronotum with sparse erect hairs..... *Strumigenys lewisi*
- 16 Head and thorax finely textured, giving a uniform dull appearance..... 17  
 Head and thorax smooth and shiny..... 19
- 17 Head and thorax yellow or orange, or light brown..... 18  
 Head and thorax dark brown ..... *Monomorium indicum*

- 18 Approximately  $\frac{2}{3}$  of the first segment of the gaster yellow; head, thorax and petiole with pairs of short stiff setae..... *Monomorium pharaonis*  
 Approximately  $\frac{1}{4}$  (or less) of the first gaster yellow, often appearing as 2 yellow spots; head and thorax with fine hairs (not erect) ..... *Monomorium sahlbergi*  
 (= *M. bicolor* complex, *M. dichroum*)

- 19 Head and gaster uniformly colored, both distinctly darker than thorax..... *Monomorium floricola*  
 Head not the same color as gaster (gaster may be bicolored) OR body uniformly colored..... 20

- 20 Propodeum smoothly convex in profile, peduncle of the petiole less than the width of the node as viewed in profile (20a)..... 21  
 Propodeum with distinct dorsal and posterior planes, peduncle of the petiole as long or longer than the width of the node as viewed in profile (20b)..... 22

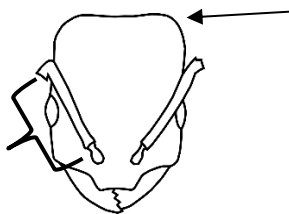


20a

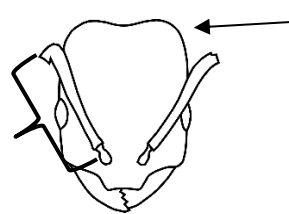


20b

- 21 Reddish-brown in color; head broadly rectangular in frontal view, dorso-ventrally flattened in side profile; antennae composed of 11 segments; antennal scape short and approximately  $\frac{2}{3}$  the length of the head (21a) ..... *Monomorium orientale*  
 Dark brown in color; head with pronounced occipital lobes in frontal view; antennae composed of 12 segments; antennal scape reaching nearly to the occiput. (21b)..... *Monomorium liliuokalanii*



21a

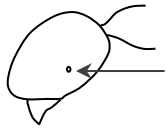


21b

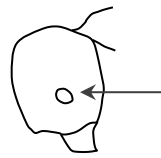
22 Eyes very small, consisting of < 5 facets (22a)..... *Sylophopsis sechellense*

Eyes normal, with > 5 facets (22b)..... *Trichomyrmex destructor*

(= *Monomorium destructor*)



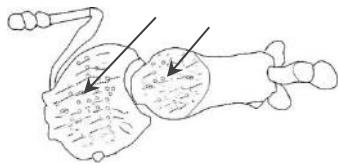
22a



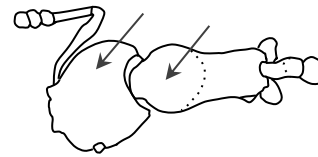
22b

23 Head, and thorax finely sculptured giving a dull appearance (23a)..... *Pheidole navigans* (= *P. moerens*)

Head and thorax smooth and shiny in dorsal view (23b) ..... 24



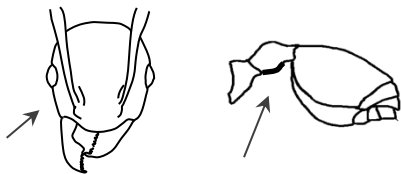
23a



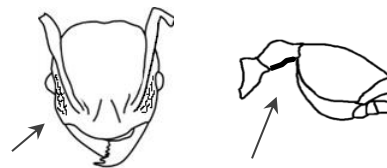
23b

24 Minor caste: Post petiole with ventral bulge, region of face between antenna and eyes smooth and shiny, usually with mild or no sculpturing (24a) however, occasionally noticeable sculpturing is present; Major Caste: Head with striate sculpturing except for the occipital lobes which are smooth and shiny..... *Pheidole megacephala*

Minor caste: Post petiole never with a ventral bulge, region of face between antenna and eyes noticeably sculptured (24b); Major Caste: Head uniformly sculptured ..... *Pheidole fervens*

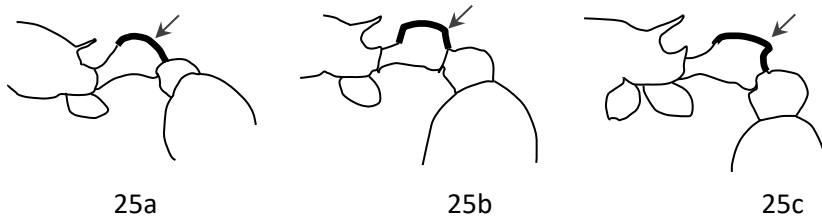


24a

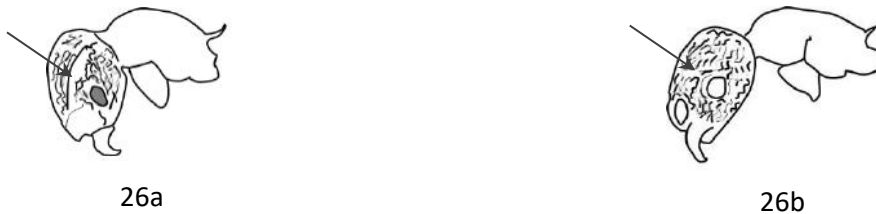


24b

- 25 Petiole rounded in profile (25a)..... 26  
 Petiole blocky in profile (25b)..... 27  
 Top surface of petiole wave-like (25c)..... *Tetramorium insolens*

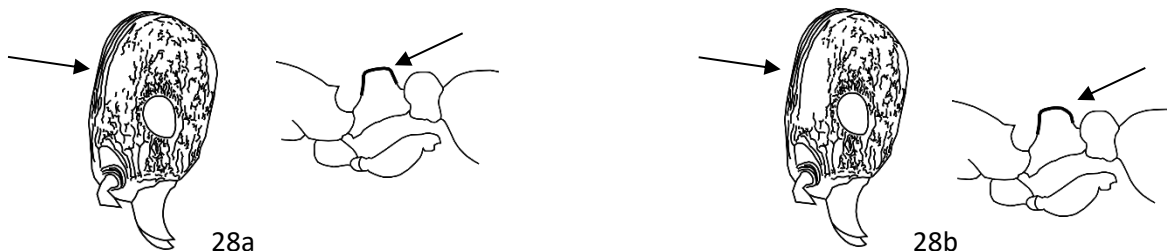


- 26 Dorsal surface of entire body densely covered with long hairs; antennal scrobes smooth and shiny (26a) ..... *Tetramorium lanuginosum*  
 Dorsal surface of entire body with sparse long hairs (26b) ..... *Tetramorium tonganum*



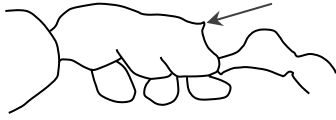
- 27 Large, total length > 3 mm ..... *Tetramorium bicarinatum*  
 Smaller, total length < 3 mm..... 28

- 28 The upper, rear margin of the petiole node forming a nearly 90° angle; antennal scrobes weakly defined, sculpturing of the head between eye and frontal carina fading from coarse reticulation to fine granulation above the mid-point of the eye when viewed from the profile (28a) ..... *Tetramorium caldarium*  
 The upper, rear margin of the petiole node slightly rounded, not forming a near 90° angle; antennal scrobes distinct, sculpturing of the head between the eye and frontal carina comprised nearly entirely of fine granulation and contrasting from the rest of the head when viewed from the profile (28b) ..... *Tetramorium simillimum*





- 29 Propodeal spine short in profile (29a) ..... *Cardiocondyla kagutsuchi/venustula\**  
 Propodeal spine moderate-long in profile (29b) ..... 30

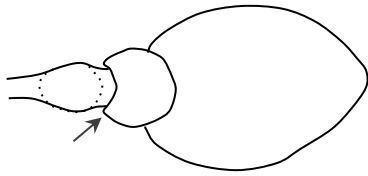


29a

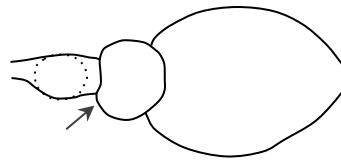


29b

- 30 Anterolateral corners of post-petiole pointed in dorsal view (30a) ..... 31  
 Anterolateral corners of post-petiole rounded in dorsal view (30b) ..... 32



30a

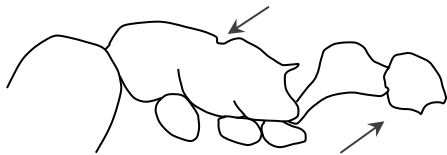


30b

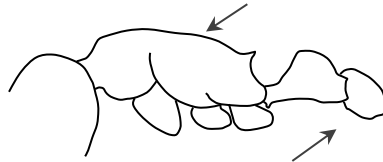
- 31 All gaster segments equally dark ..... *Cardiocondyla obscurior*  
 All gaster segments not equally dark, tergites with some color variation ..... *Cardiocondyla wroughtoni*

- 32 Dorsal profile of thorax interrupted by a distinct notch between the mesonotum and metanotum; ventral bulge present on the postpetiole (32a) ..... *Cardiocondyla emeryi*

- Dorsal profile of thorax relatively smooth and without a notch between the mesonotum and metanotum; no ventral bulge present on the postpetiole (32b) ..... *Cardiocondyla minutior*



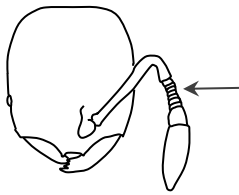
32a



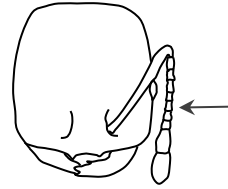
32b

\* *Cardiocondyla kagutsuchi* and *C. venustula* must be separated via discriminant analysis on measurements of morphological features to reliably tell them apart. The two species have been grouped in this key.

- 33 Small, less than 2 mm; antennal segments between scape and club narrow,  
wider than high (33a)..... 35
- Larger, > 2 mm; width of antennal segments between scape and club  
the same as, or longer than wide (33b) ..... 34



33a



33b

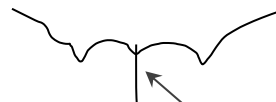
- 34 Central clypeal tooth absent (34a); mandibles with three teeth or smooth  
(34b); lower portion of mesonotum often with a forward-facing tooth,  
Spine, or 'flap' (34c), majors with dis-proportionally large heads ..... *Solenopsis geminata*

Central clypeal tooth present (34d), mandibles with four teeth (34e), lower  
portion of mesonotum never with a forward-facing tooth or spine (34f) head  
of major workers proportionally the same size as in minors, ..... *Solenopsis invicta*

(not present in Hawaii)



34a



34d



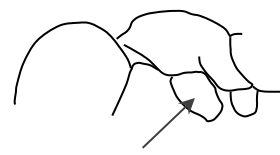
34b



34e

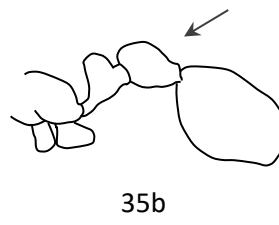
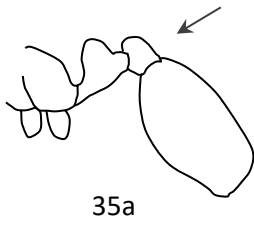


34c



34f

- 35 Eyes reduced; post-petiole smaller than petiole (35a) ..... 36  
 Eyes normal; post-petiole larger than petiole in profile view (35b) ..... *Solenopsis globularia*

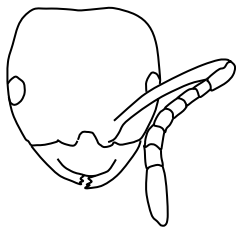


- 36 Body uniformly dark in color..... *Solenopsis papuana*  
 Body uniformly light ..... *Solenopsis abdita* (=S. HI01)

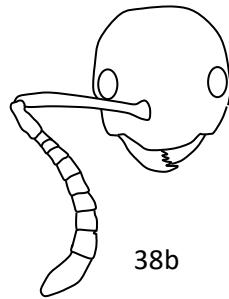
# Formicinae

- 37 Small, total length <3 mm ..... 38  
 Total length 3 mm or more..... 39

- 38 Body color brown, antenna consisting of 9 segments including the scape  
 (38a) ..... *Brachymyrmex* sp. nr. *obscurior*  
 Body color yellow, antenna with 10 or more segments (38b) ..... *Plagiolepis alluaudi*



38a



38b

- 39 Face in frontal view with erect hairs (39a) ..... 40  
 Face in frontal view without erect hairs (39b, fine hairs may be present) ..... 43

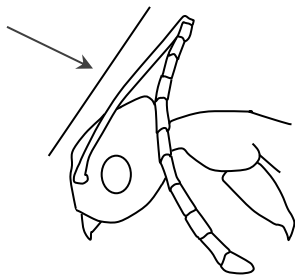


39a

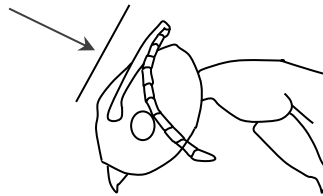


39b

- 40 Antennal scape long, more than 1.5 times the length of head (40a) ..... 41  
 Antennal scape less than 1.5 times length of head (40b) ..... 42

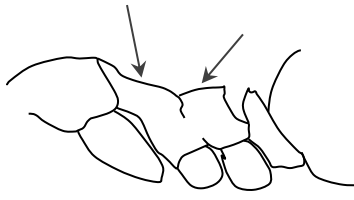


40a

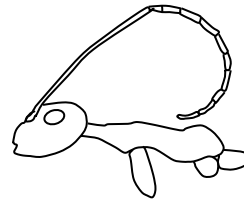


40b

- 41 Front, pronotum, and posterior margins of the gastral segments with stiff black hairs; mesonotum narrow and with a steep slope, meeting the propodium at a wide angle in profile view; propodeum and petiole armed with blunt teeth (41a) ..... *Lepisiota* sp. Hi01
- Body covered with stiff white hairs, mesonotum gradually sloping; propodium and petiole normal, not armed with teeth (41b) ..... *Paratrechina longicornis*



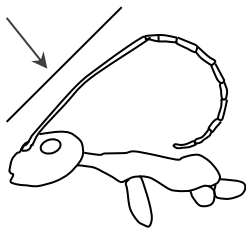
41a



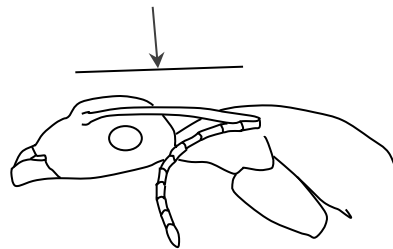
41b

- 42 Lower section of mesonotum with appressed setae ..... *Nylanderia bourbonica*
- Lower section of mesonotum without setae, glabrous and shiny ..... *Nylanderia vaga*

- 43 Antennal scape long, more than 2 times the length of head (43a) ..... *Anoplolepis gracilipes*
- Antennal scape less than 1.5 times the length of head (43b) ..... *Camponotus variegatus*



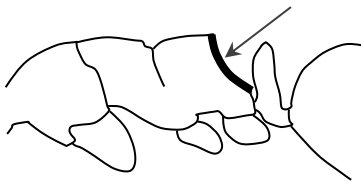
43a



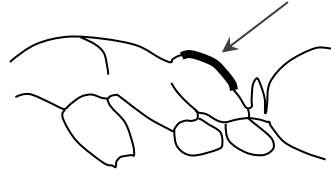
43b

# Dolichoderinae

- 44 Rear face of propodeum distinctly concave (44a)..... *Ochetellus glaber*  
 Rear face of propodeum flat or convex (44b) ..... 45



44a

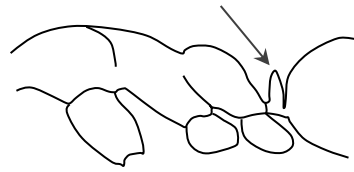


44b

- 45 Petiole reduced or absent, forward face flat or indistinct (45a) ..... 46  
 Petiole well defined, taller than wide (45b) ..... *Linepithema humile*

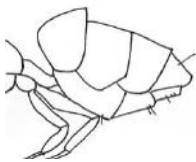


45a

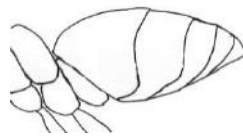


45b

- 46 Gaster with 4 plates on the upper surface (5th tergite ventral) (46a) ..... 47 (*Tapinoma* spp)  
 Gaster with 5 plates on the upper surface (46b) ..... 48 (*Technomyrmex* spp)

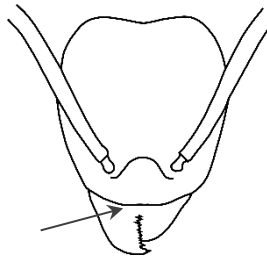


46a

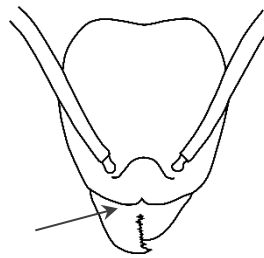


46b

- 47 Tiny (1.3-1.9 mm); legs and antenna pale in color, lighter than the head and thorax; margin of the clypeus smooth, without a central cleft (47a) ..... *Tapinoma melanocephalum* complex
- Larger (2.4-2.9 mm); legs and antenna dark in color, concolorous with the head and thorax; clypeus with a central cleft (47b) ..... *Tapinoma sessile* (Maui only)

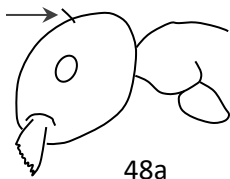


47a

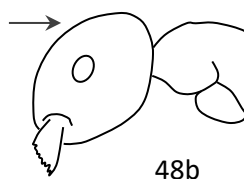


47b

- 48 Occipital region of head above the eye with one or two erect setae (48a) this feature is best seen in profile view ..... 49
- Occipital region of head without erect setae (48b) ..... 50



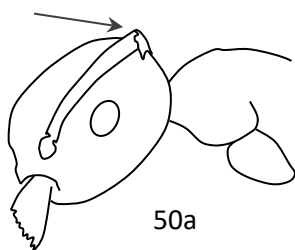
48a



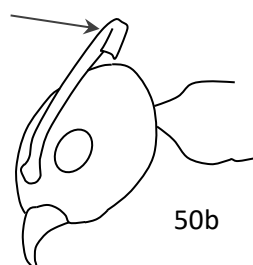
48b

- 49 Tarsus of hind leg lighter in color than tibia..... *Technomyrmex difficilis*
- Tarsus of hind leg the same color as the tibia..... *Technomyrmex pallipes*

- 50 Scape short, extending to the rear margin of head when viewed in profile (50a) ..... *Technomyrmex albipes*
- Scape longer, clearly extending beyond rear margin of head when viewed in profile (50b) ..... *Technomyrmex vitiensis*



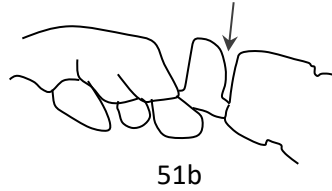
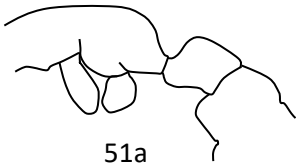
50a



50b

# Ponerinae

- 51 Rear face of petiole broadly attached to gaster (51a) ..... *Platythyrea punctata*  
 Rear and front face of petiole distinct and well-defined (51b) ..... 52



- 52 Mandibles long and slender (52a & b) ..... 53  
 Mandibles broadly triangular in frontal view (52c) ..... 54

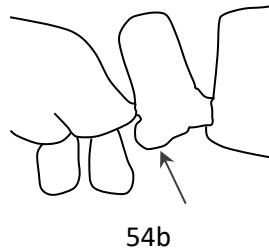
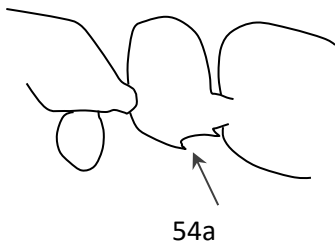


- 53 Occipital lobes indistinct; mandibles long, slender, curved inward, and originating from the far lateral margins of the head (53a) ..... *Leptogenys falcigera*  
 Well defined occipital lobes present; mandibles long, straight, and not originating from the far lateral margins of the head (53b) ..... *Odontomachus* nr. *ruginodis*

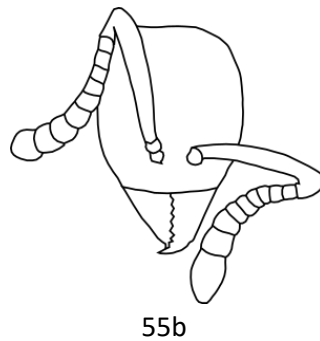
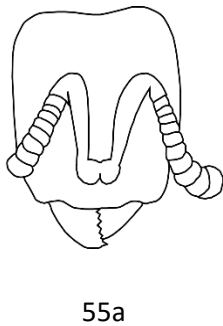




- 54 Ventral process of petiole with an acute angle (54a) ..... *Ponera swezeyi*  
 Ventral process of petiole a simple lobe (54b) ..... 55 (*Hypoponera* spp.)

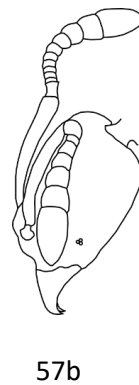
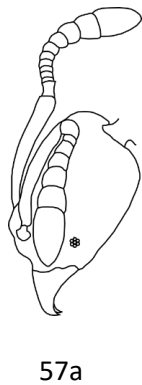


- 55 Antennal scape short and approximately half as long as the head (55a) ..... *Hypoponera punctatissima*  
 Antennal scape normal, reach to the occipital margin of the head or nearly so (55b) ..... 56

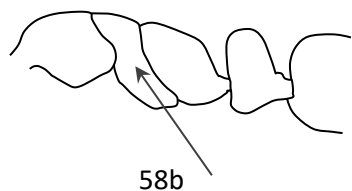
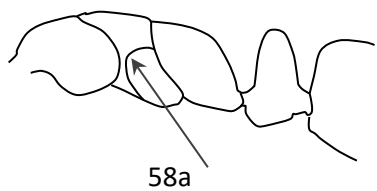


- 56 Eyes completely absent..... *Hypoponera zwaluwenburgi*  
 Eyes present ..... 57

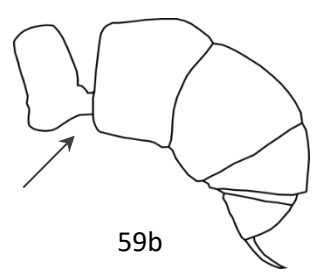
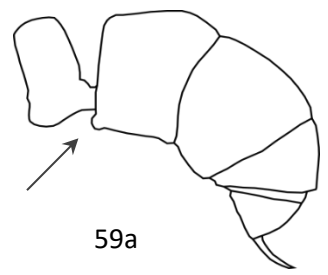
- 57 Eyes normal in size (57a) ..... *Hypoponera opacior*  
 Eyes tiny (only a few facets) (57b) ..... 58



- 58 Mesonotum bisected by a distinct suture (anepisternal suture) in profile view, delineating the anepisternum from the rest of the mesonotum (58a) ..... *Hypoponera* HI01  
 Mesonotum without a distinct suture (58b) ..... 59



- 59 First segment of the gaster with an antero-ventral projection (59a) ..... *Hypoponera opaciceps*  
 First segment of the gaster flat, without an antero-ventral projection (59b) ..... *Hypoponera punctatissima/ragusai*\*



\* *Hypoponera punctatissima* and *H. ragusai* must be separated via discriminant analysis on measurements of morphological features to reliably tell them apart. The two species have been grouped in this key.