



Ants: Yeah, they're that cool....

Taxonomy Workshop

Presented By Hawaii Ant Lab
Michelle Montgomery



Session 1: Intro to Taxonomy

And terminology



Order: Hymenoptera

BEES



WASPS



Sawflies



ANTS



Ants vs. Bees & Wasps

Ants (Family: Formicidae)

- Long antennal scape
- Antennae inserted below eyes
- Segmented waist (petiole)
 - Up to 2 segments
- Forward facing head



Bees & Wasps (various families)

- Short antennal scape
- Antennae inserted between eyes
- Segmented waist (petiole)
 - Up to 1 segment
- Head vertically aligned



Ants vs. Bees & Wasps

Ants



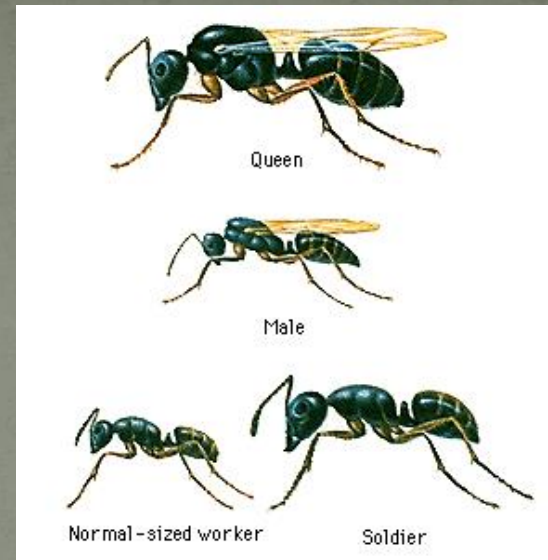
Wasps



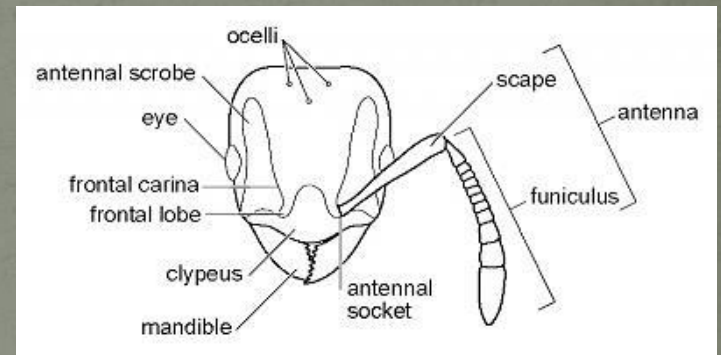
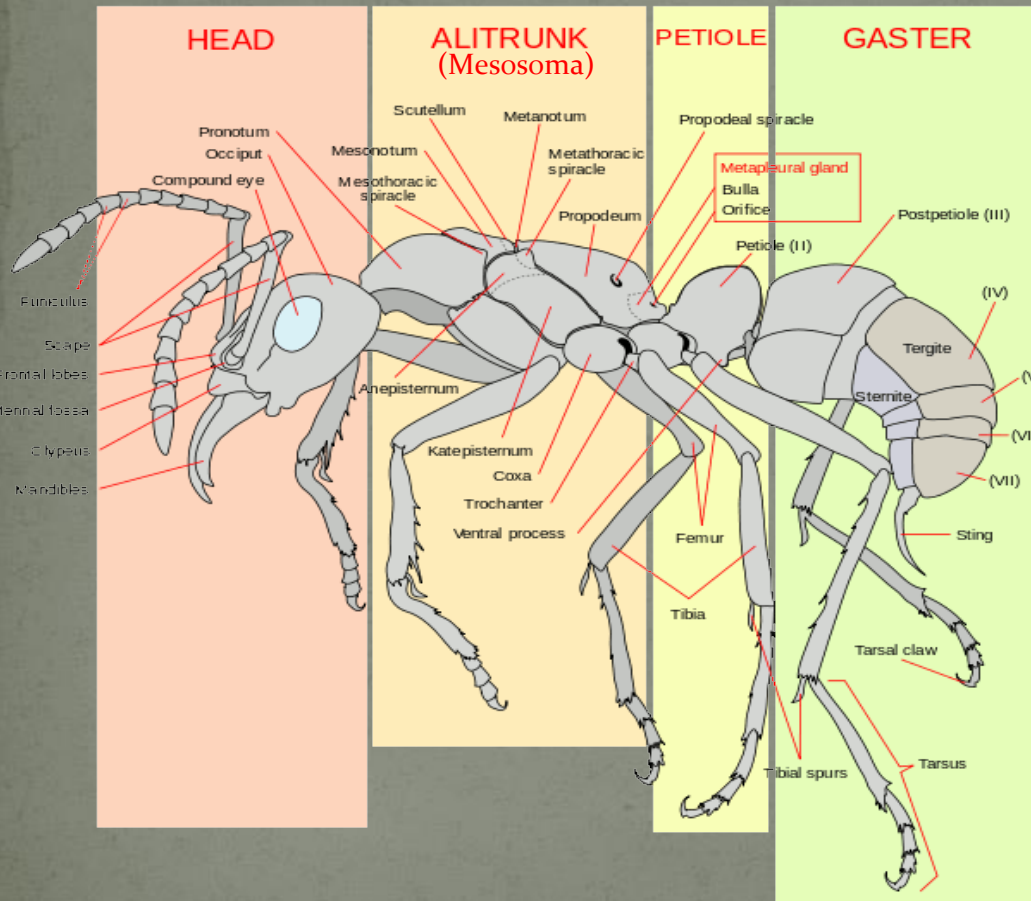
Caste System

Reproductives are difficult to identify with males association with workers. Generally, non-reproductives identification guides and keys focus on workers only.

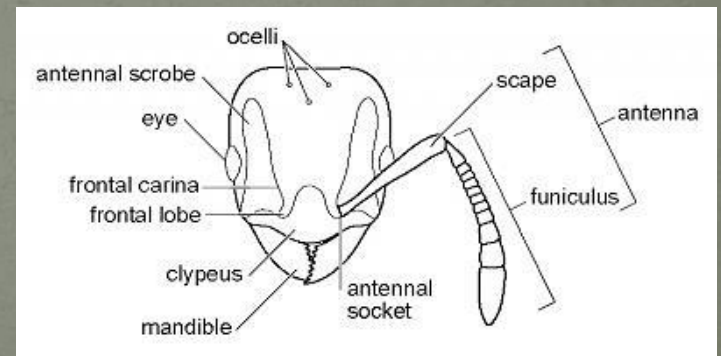
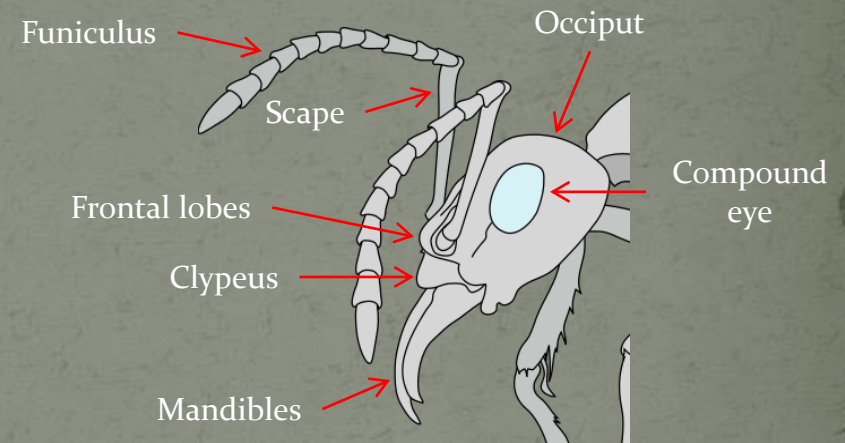
- Workers
- Major (Soldiers)
- Minor



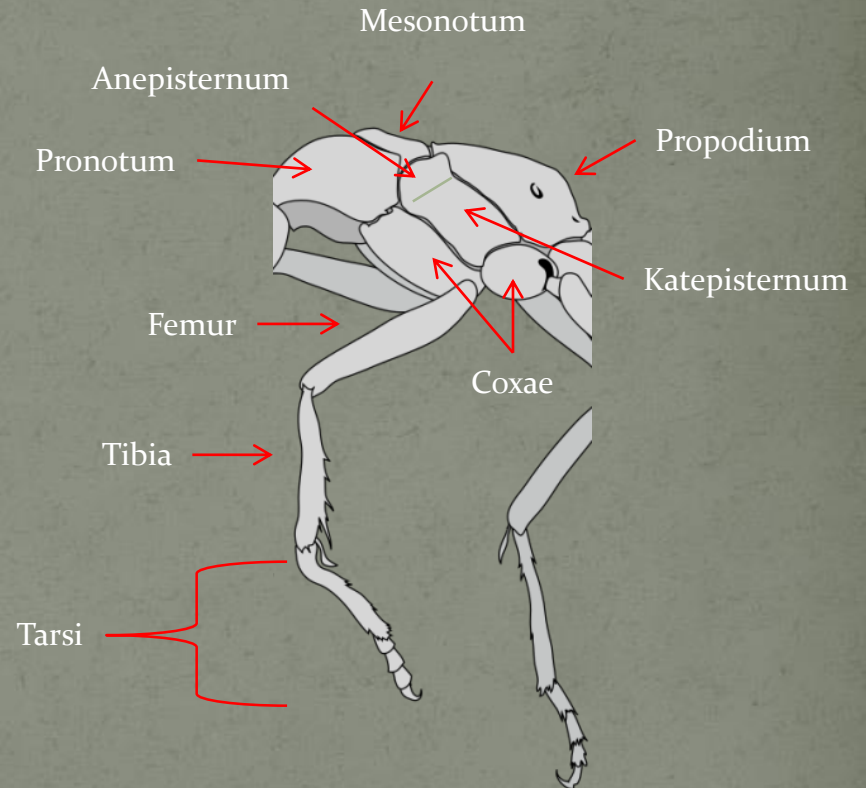
Ant Anatomy



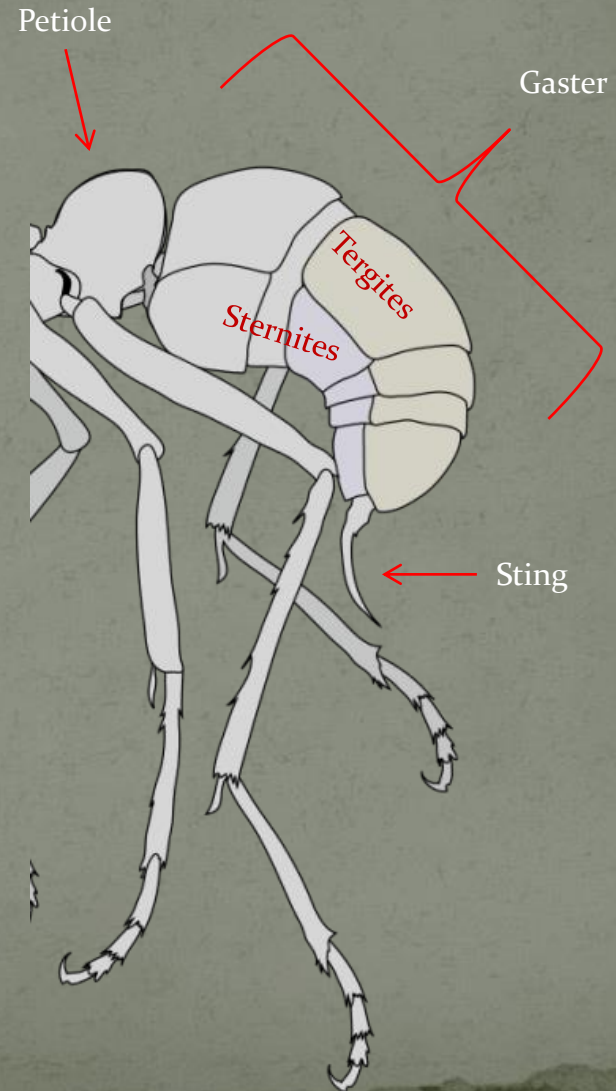
Ant Anatomy: Head



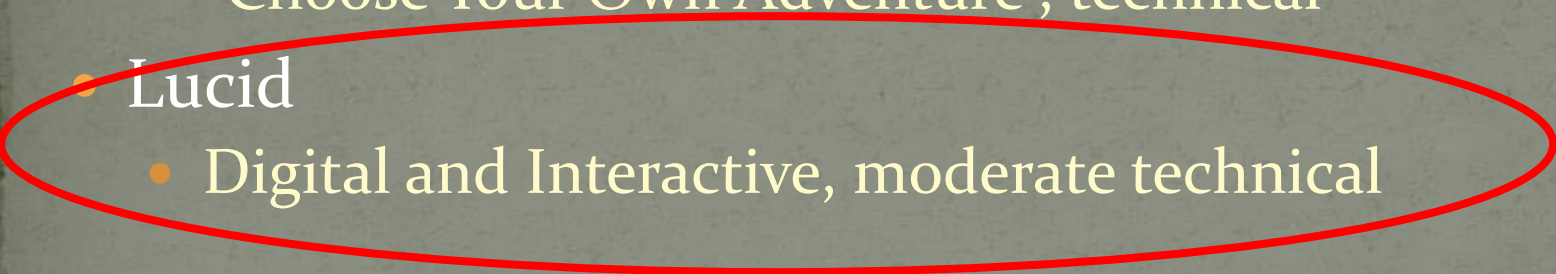
Ant Anatomy: Thorax



Ant Anatomy: Petiole and Gaster



Types of “Keys”

- Quick Sort
 - “Suspect vs. Not Suspect”, not technical
 - Dichotomous
 - “Choose Your Own Adventure”, technical
 - Lucid
 - Digital and Interactive, moderate technical
- 

Quick Sort Guides

Your Guide to
HOW TO IDENTIFY
Little Fire Ants

FIELD GUIDE

Is the ant 2mm or less in length?

no
greater than 2mm in length
Not LFA

yes
2mm or less in length

Is the ant slow moving?

no
fast moving, speedy
Not LFA

yes
very slow to moderate

Is the ant uniformly orange, red, or brown?

no
bi-colored, yellow, or orange
Not LFA

yes
solid orange, red, or brown

WARNING! Possible LFA!

In Hawaii, there are several other tiny, orange ant species that be may mistaken for a Little Fire Ant (LFA).

The following ant species are LFA look-alikes:






To verify your identification, mail or bring your ant samples to our office:

Hawai'i Ant Lab
16 E. Lanikaula St.
Hilo, HI 96720

Hawai'i Ant Lab • www.littlefireants.com • 808.315.5656

Your Guide to
HOW TO IDENTIFY
Little Fire Ants

MICROSCOPE GUIDE

Are there 2 "bumps" between the thorax and abdomen?

no
1-segmented petiole
thorax abdomen
Not LFA

yes
2-segmented petiole
thorax abdomen

Are the last 2 segments of the antenna bigger than all the others?

no
3-segmented antennal club
no club
Not LFA

yes
2-segmented antennal club

Are there 2 long spines protruding from the end of the thorax?

no
short propodeal spines or no spines
Not LFA

yes
long propodeal spines - almost reaches 1st bump

So if your ant has:

1. 2 "bumps" and
2. 2 bigger antenna segments and
3. 2 long spines

...then your ant is very probably a LFA

The following ant species look like LFA, but differ in the following features:



- 3 bigger antenna segments
- 2 short spines



- 1 "bump"
- no antennal club
- no spines



- no spines

For verification, send or bring your ant to: Hawai'i Ant Lab, 16 E. Lanikaula St., Hilo, HI 96720

Hawai'i Ant Lab • www.littlefireants.com • 808.315.5656

Lucid Keys (<http://www.piakey.com/>)

P I A k e y

The Pacific Invasive Ant Key (PIAkey) is an illustrated identification guide to invasive ant species commonly encountered in the Pacific Island region.

To learn more about the purpose, scope and features of PIAkey, start with the overview section. For assistance with your species identification, click one of the other available PIAkey features.

- PIAkey overview**
Describes the purpose, taxonomic scope, geographic scope & features of the PIAkey (Pacific Invasive Ant Key). A good place to start!
- key to species**
The species key is designed using Lucid3 software & requires a recent version of Java. See the overview section to learn more about how to best use the key.
- factsheets**
Lists factsheets for all species included in PIAkey. Factsheets contain overviews, diagnostic features, comparison charts, images, nomenclature & more.
- links & resources**
Links to additional internet resources for ant biology, identification, collection, curation, surveillance & management.
- baiting videos**
Watch video clips of invasive ant species at artificial baits. Video clips offer a good resource for field identification of species and genera.
- glossary**
Launches an illustrated glossary of morphological terms used for ant identification in PIAkey.

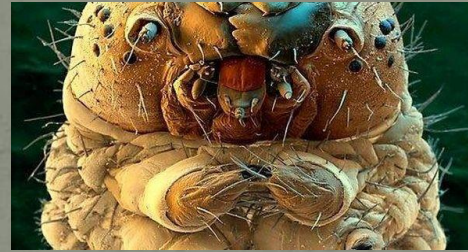
USDA UC DAVIS BIOSECURITY NEW ZEALAND

Sarnat, E. M. (Dec. 4th, 2008) PIAkey: Identification guide to invasive ants of the Pacific Islands, Edition 2.0, Lucid v. 3.4. USDA/APHIS/PPQ Center for Plant Health Science and Technology and University of California — Davis.

- Pros:
 - Semi-technical
 - Interactive
 - Can be use for full identification or to just narrow down possible species
- Cons:
 - Not maintained or updated

Working with Preserved Specimens: Contrast, Angles, and Distortion

- Background color and lighting affects what you can/cannot see.
- Ants don't usually die in a "convenient" position
- Make sure to COMPLETELY submerge specimens in alcohol.
 - Wet specimens only

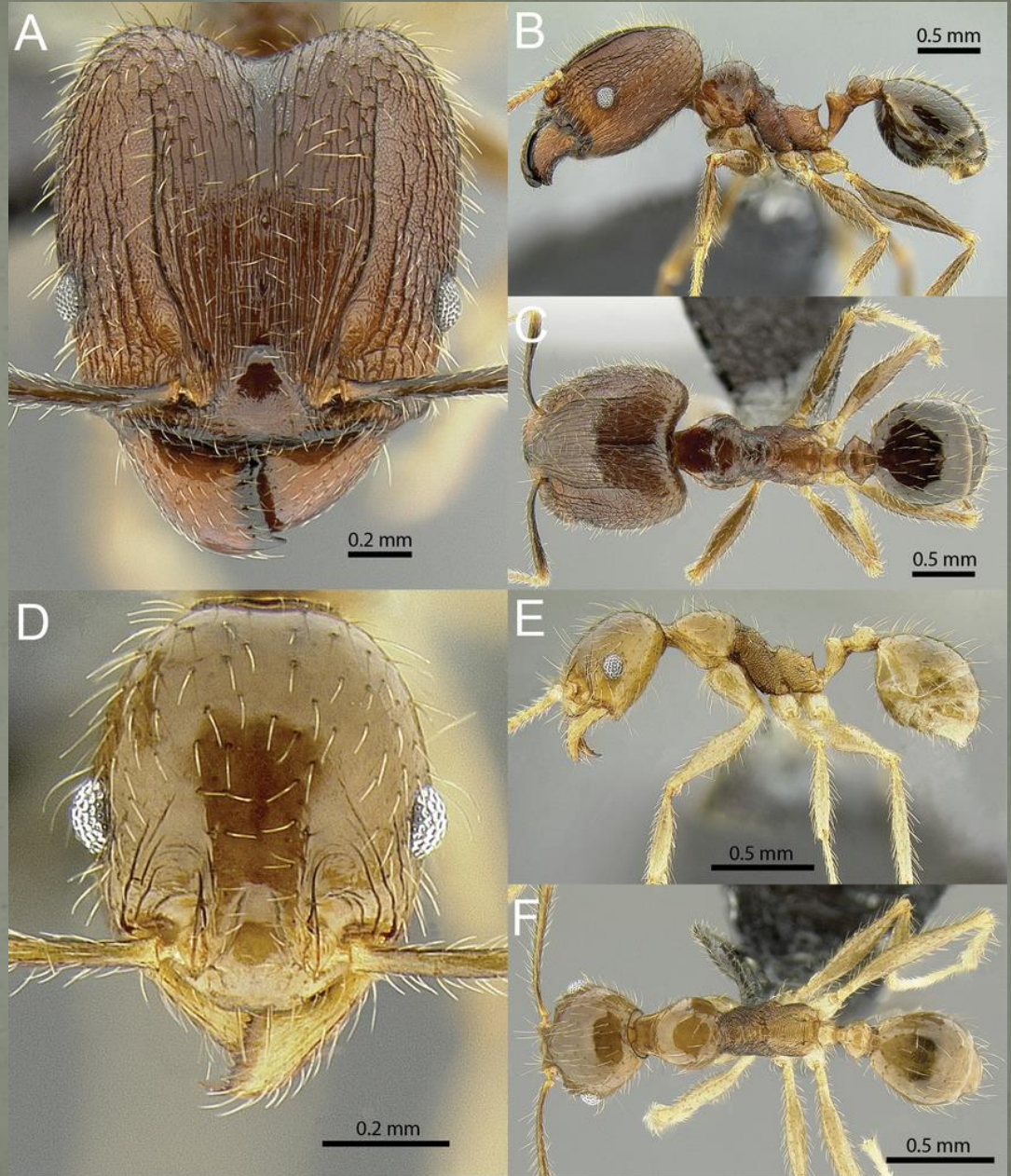


Let's Get Started!





Pheidole fervens



Paratrichina longicornis



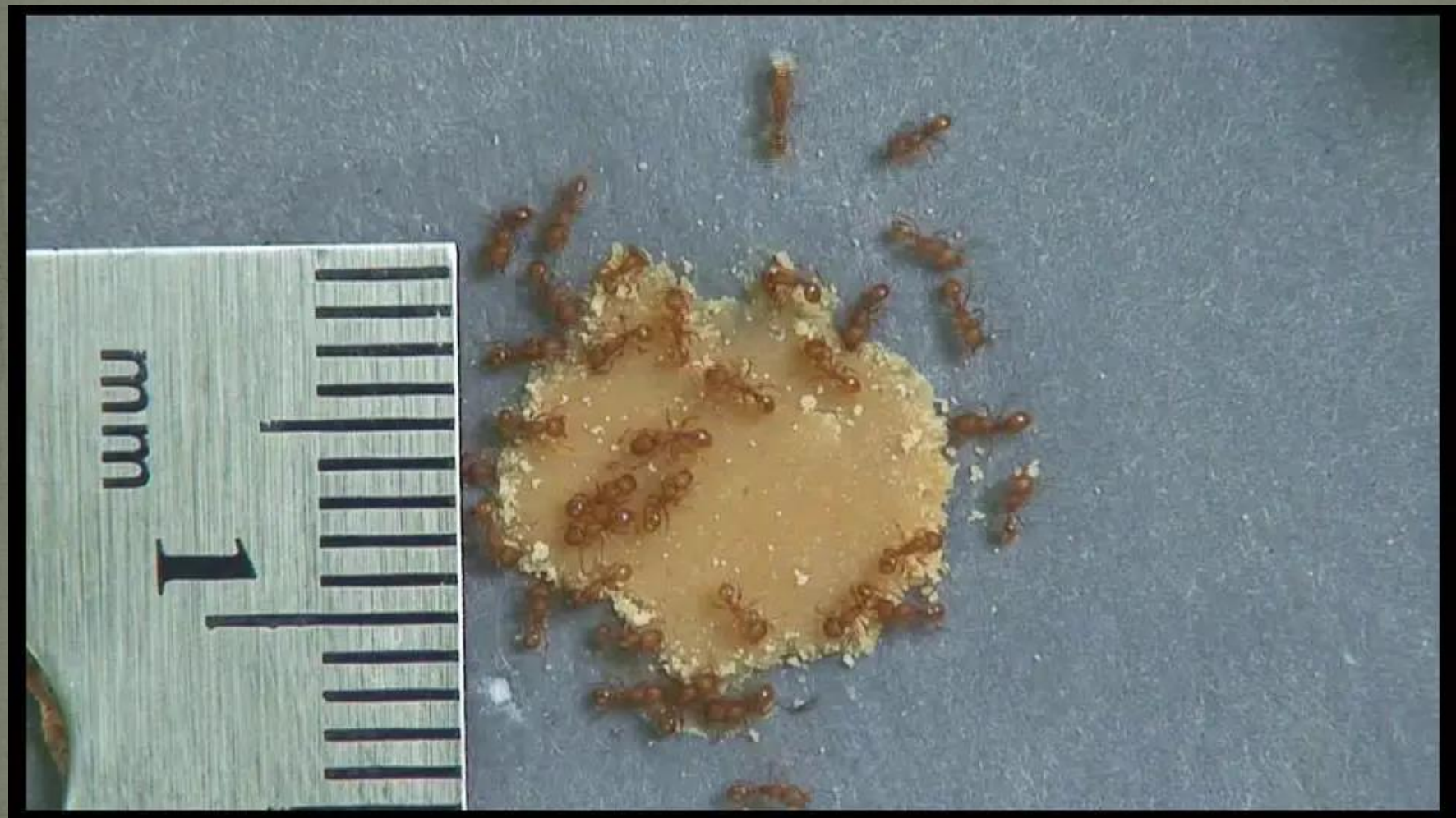


Wasmannia auropunctata

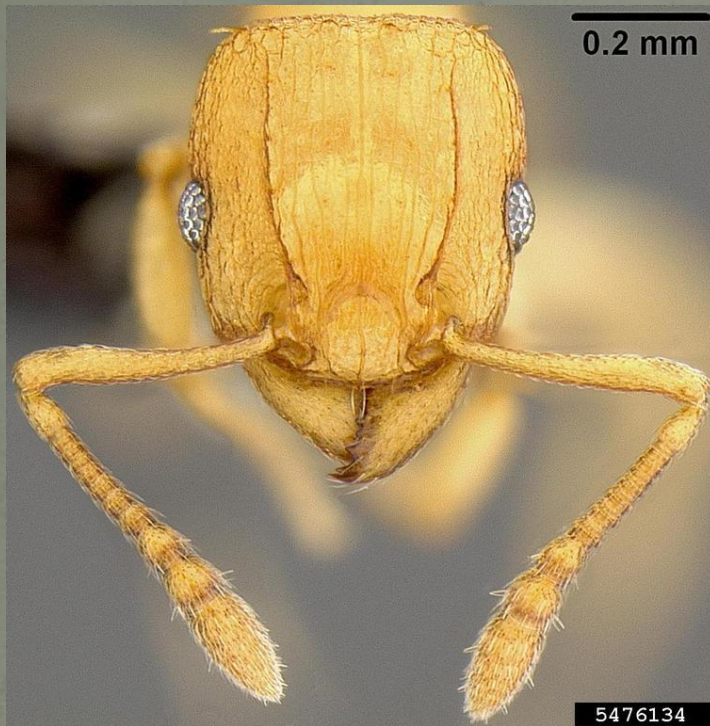


Technomyrmex albipes





Tetramorium simmilimum





5475884

Solenopsis geminata



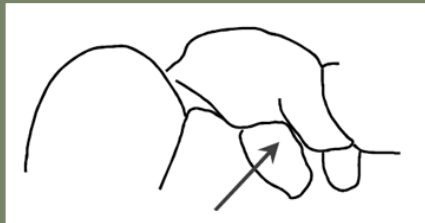
Solenopsis geminata



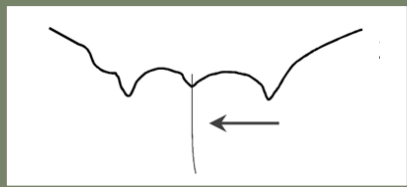
The Red Imported Fire Ant

Not present YET

The entire margin of the RIFA front coxa can be seen in profile view. There are no teeth or flanges overlapping.



RIFA have a central clypeal tooth as well as 2 outer clypeal teeth. These teeth point downwards between the mandibles. The central tooth also has a hair or setae that points down.



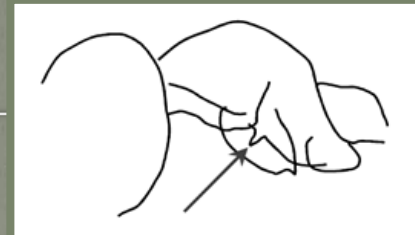
RIFA mandibles terminate in four teeth. Sometimes the first two teeth are very small but in all cases, there will be four teeth.



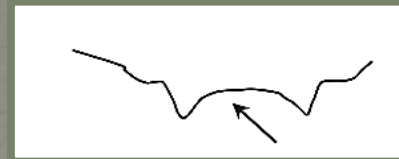
Tropical Fire Ant

Widespread

Many, but not all Red Ants will have a tooth or flange overlapping the front coxa.



Red Ants do not have a central clypeal tooth but do have the 2 outer clypeal teeth. These teeth point downwards between the mandibles. A central hair may be present, but without an obvious tooth.



Red Ant mandibles terminate in three teeth. Sometimes the mandibles of major workers have been worn down by constant work and these appear stubby, without distinct teeth.

