ANT IDENTIFICATION WORKSHOP

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Presented by Molly Keck, Janet Hurley or Wizzie Brown

THE WORLD OF ANTS

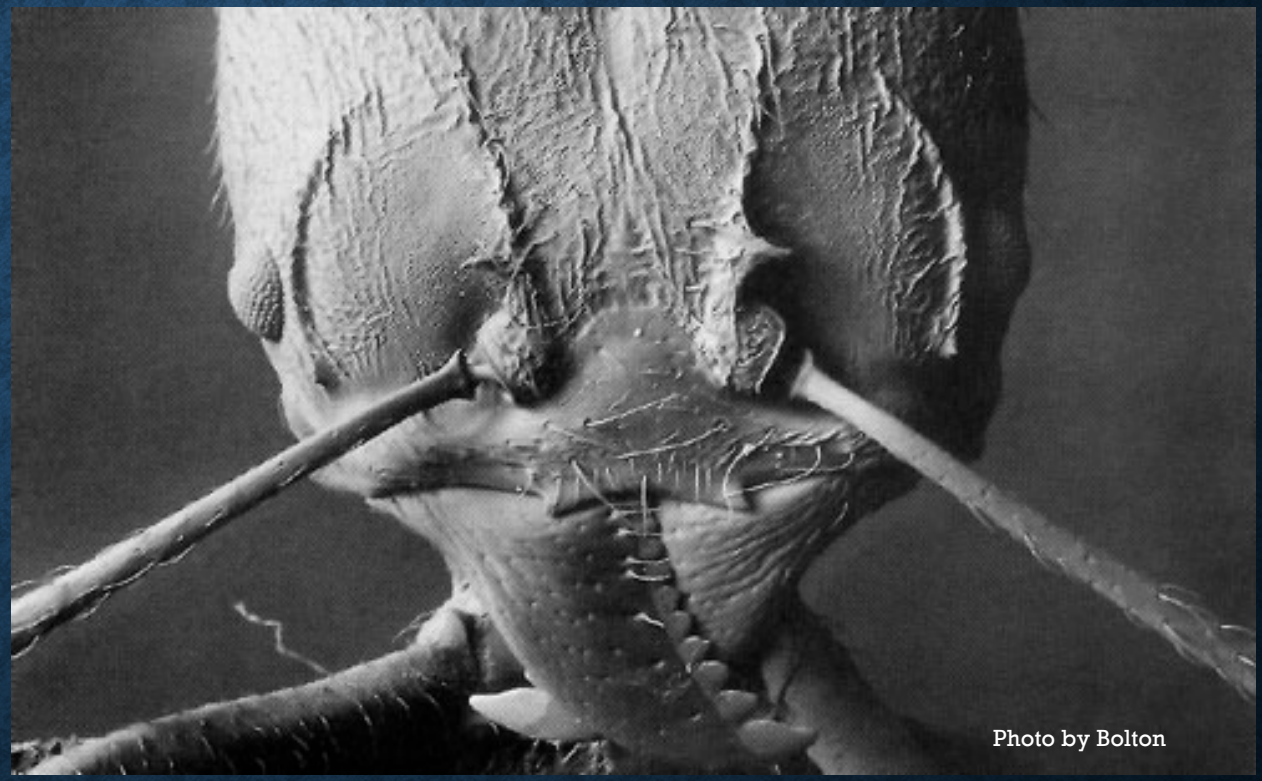


Photo by Bolton

A WORD ABOUT ANT CLASSIFICATION

- Ants belong to the Order Hymenoptera
- Family Formicidae
- Various sub-families (end in –nae)
- Various genera which indicate a general kind of ant (e.g., carpenter ants)
- Scientific names include the Genus and species name (e.g., *Campanotus sayi*)

ANTS AS SOCIAL INSECTS

From Hölldobler and Wilson 1990

- All ants are social
  - Two or more generations overlap
  - Adults care for young
  - Adults divided into castes
- Perennial nests
- Active all year

ECOLOGICAL IMPACT

- 35% of all herbaceous plant seeds are dispersed by ants
- Turn more soil worldwide than earthworms
- Predominant insect predators and scavengers

FIRE ANTS: ECONOMIC IMPACT

- Cost Texans $300 million annually
- Homeowners spend $90 million annually in Texas
- Estimated 10,000 emergency room visits annually
- Dozens of stinging cases in health care facilities

White footed ant

WHY IDENTIFY?

- 8X as many kinds as cockroaches
- Each species unique in:
  - Nesting sites
  - Food preferences
  - Damage potential
  - Behavior
  - Stinging potential

IDENTIFYING ANTS

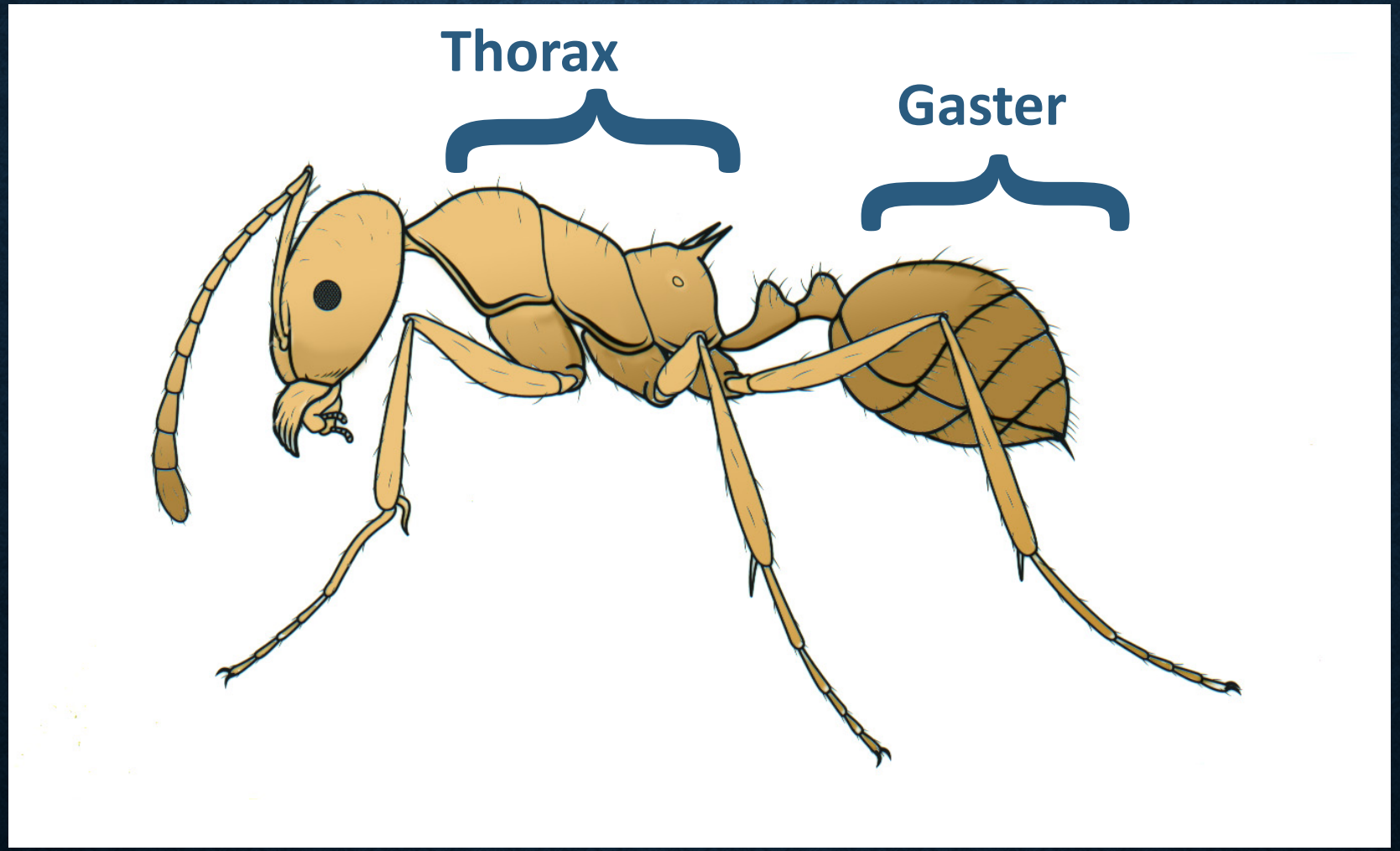
- Sometimes confused with other insects
- Pinched waist
- One or two pedicels (nodes) between thorax and abdomen
- Elbow joint in the antennae (except in some males)

MICROSCOPE OR HAND LENS?

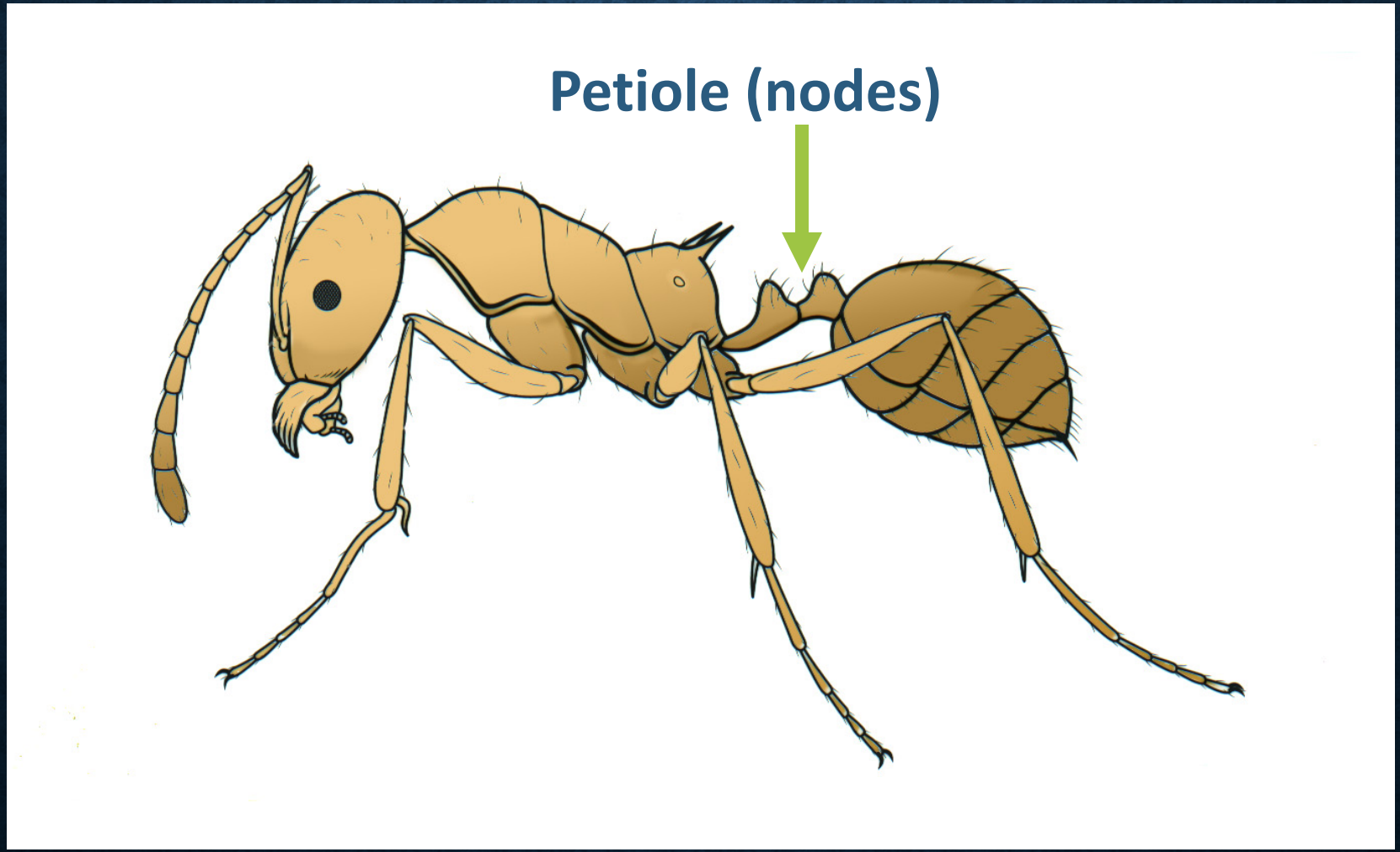
- Hand lens OK for 80% to 90% of common pest ants
- Smaller ants, like thief and Pharaoh ant, may require a quality stereo microscope

CHARACTERS USED IN ANT ID

BASIC ANT ANATOMY

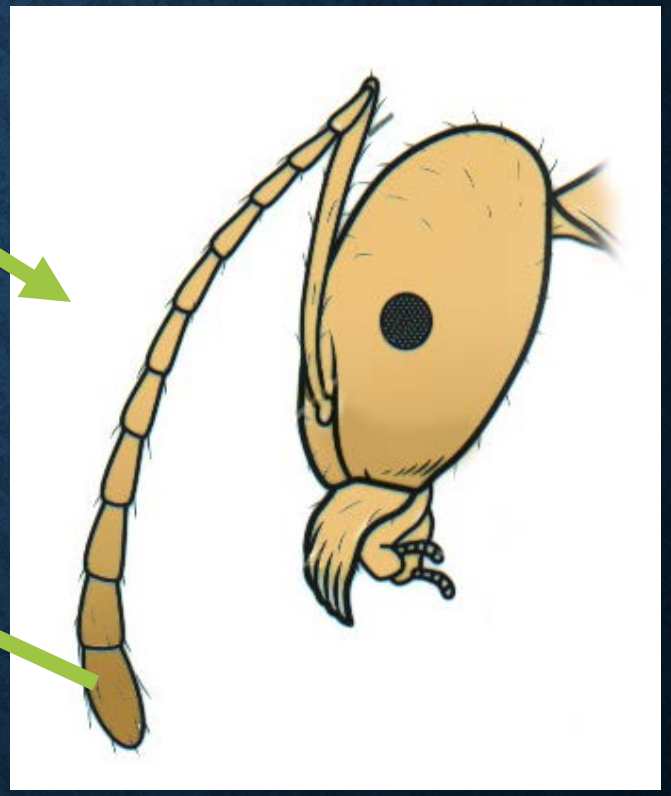


BASIC ANT ANATOMY



ANTENNAE

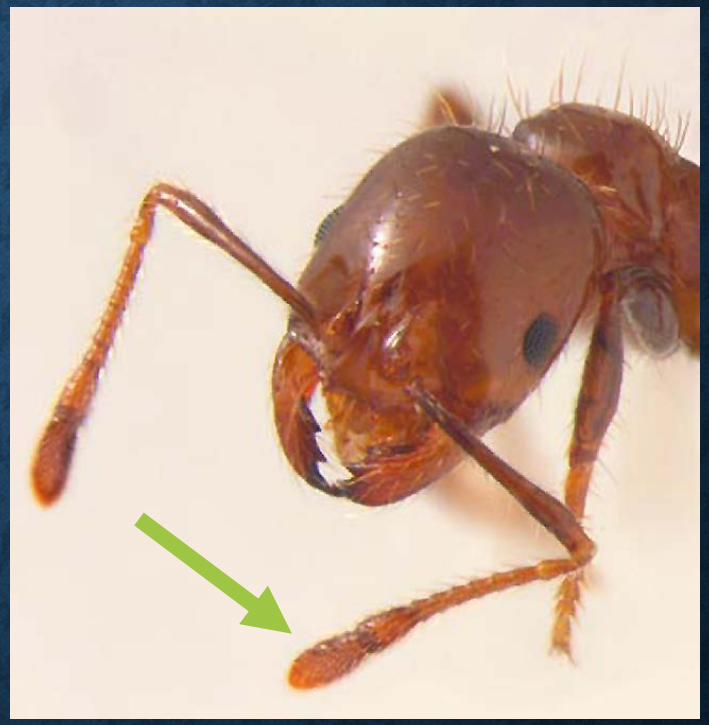
- Ants have “geniculate” antennae (elbowed)
- Length of scape
- Number of club segments



ANTENNAL CLUB

- Enlarged end (distal) segments on an antenna
- Usually two or three segmented if club is present

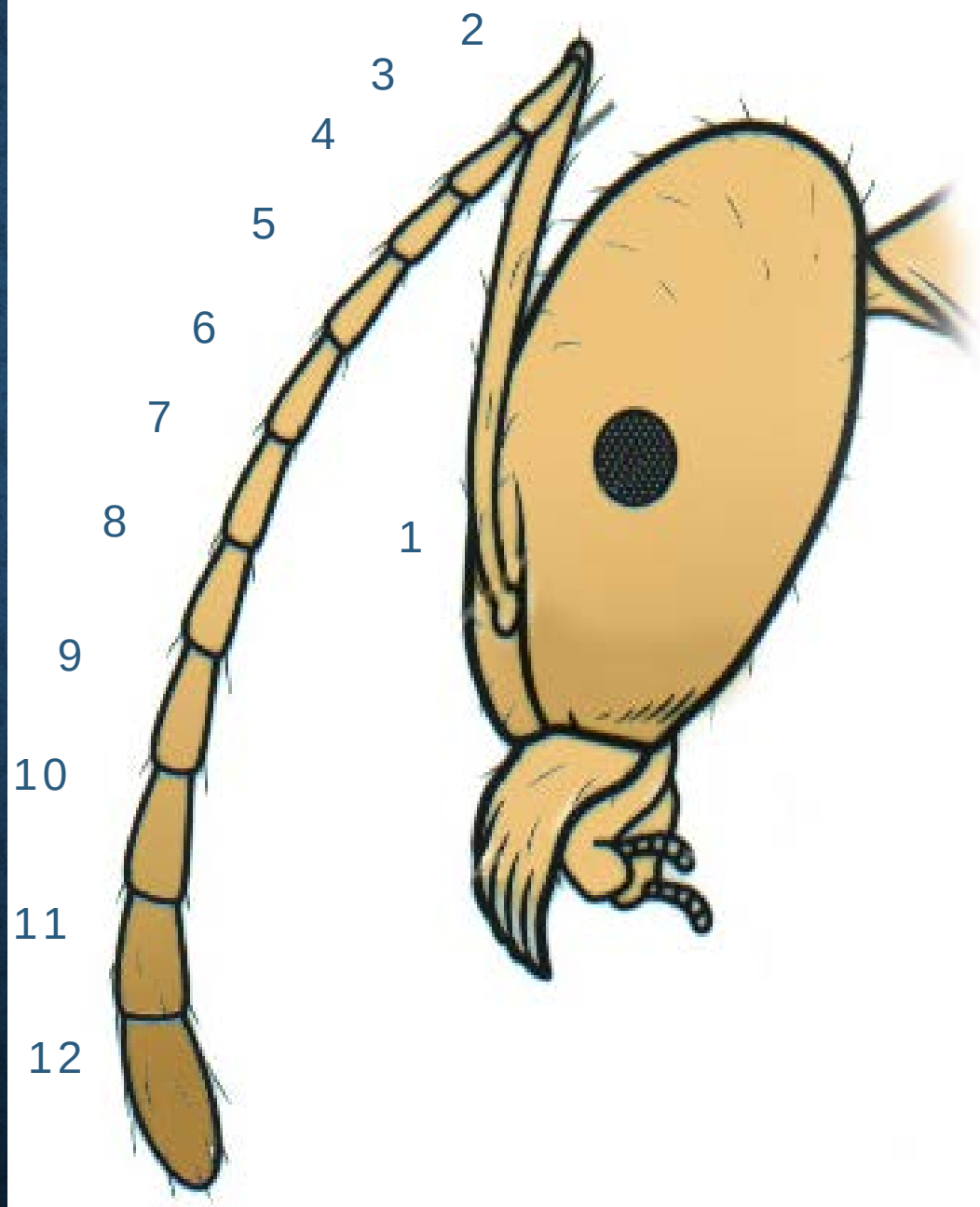
Photo by M. Yoder, Texas A&M Univ.



2 segmented club on a fire ant

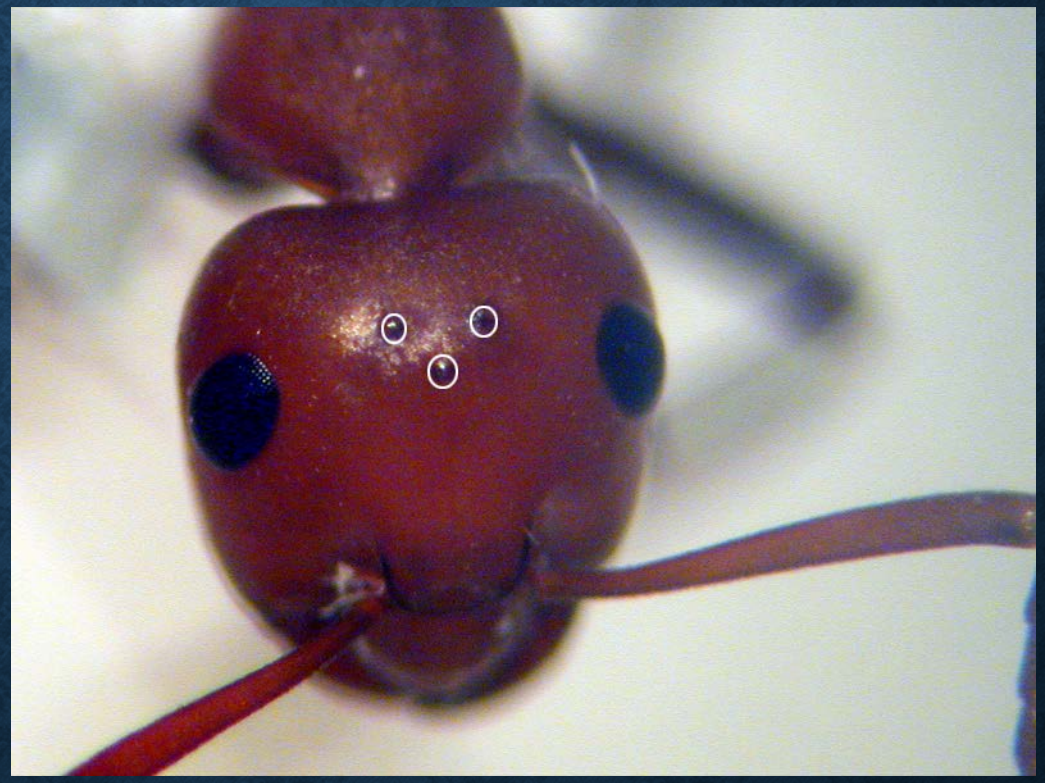
HOW DO YOU COUNT ANTENNAE?

Start counting from the scape

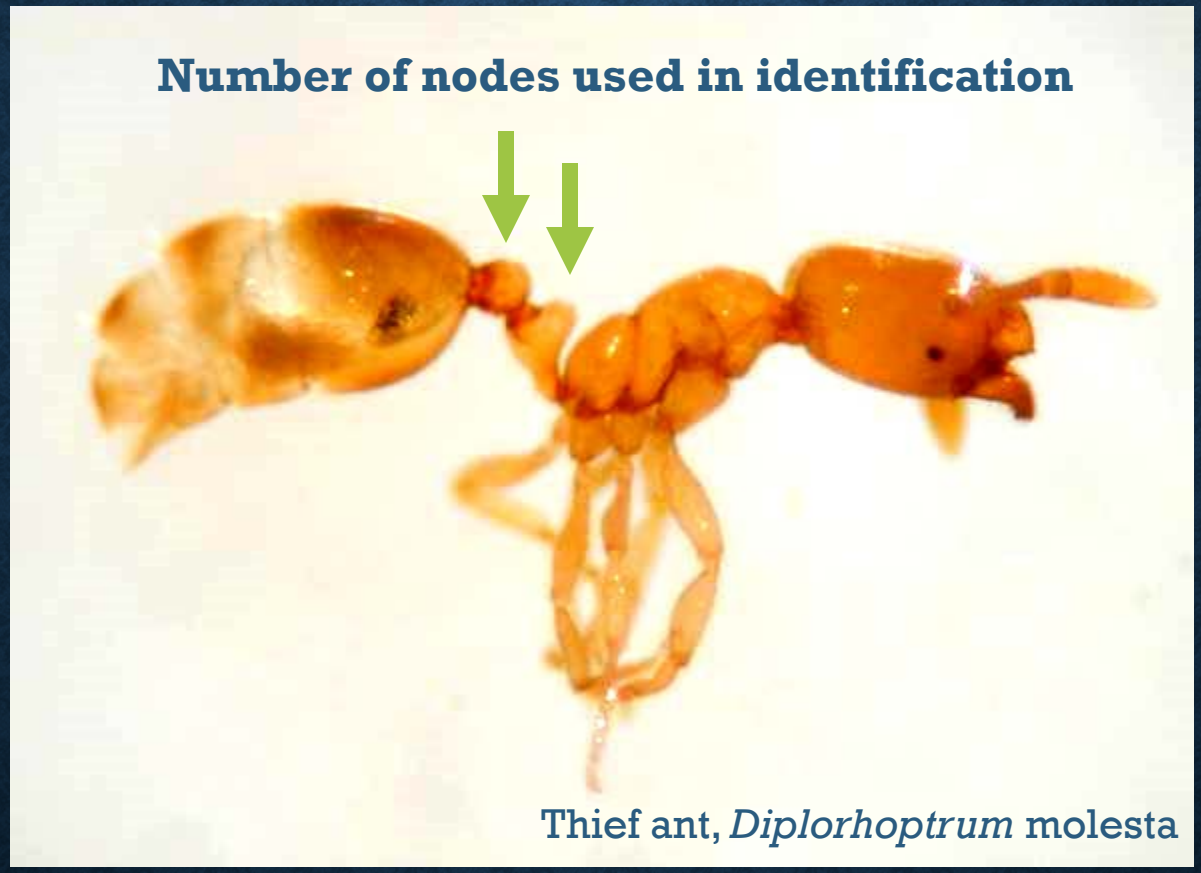


OCELLI

- Small light sensing organs between the antennae of some ants



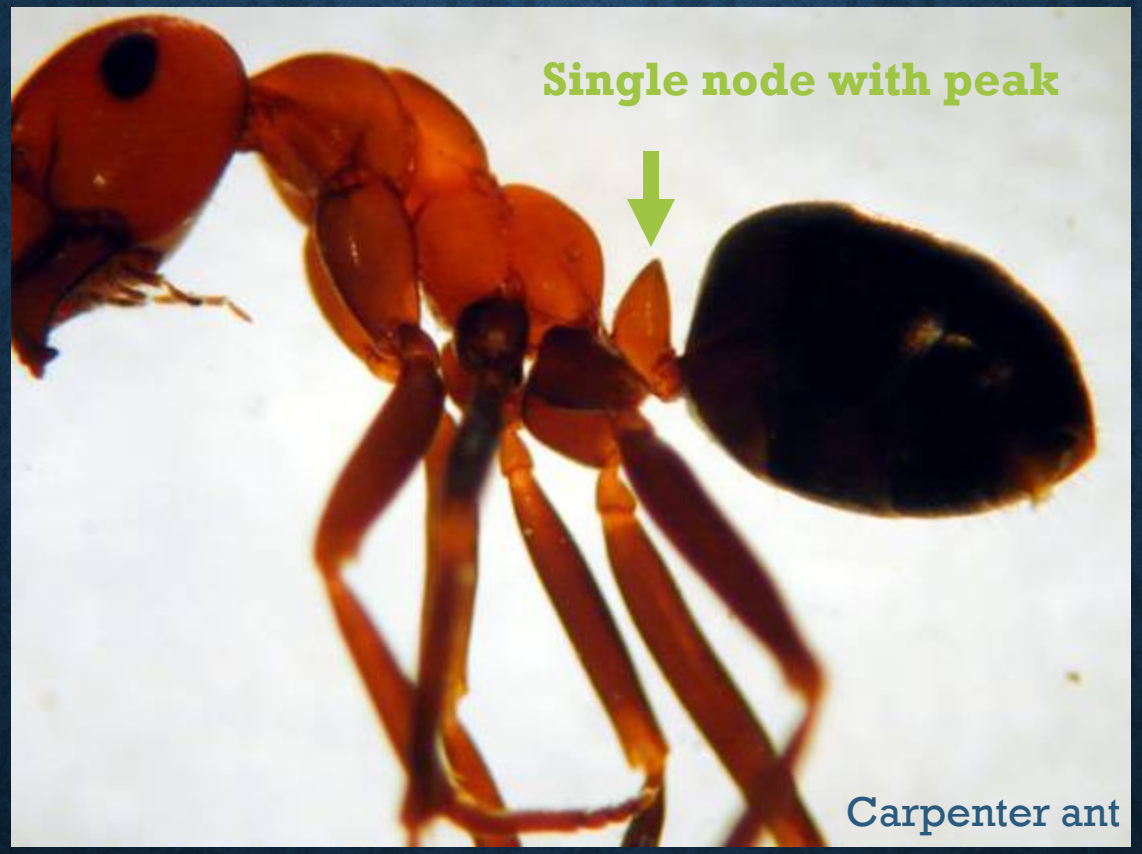
PETIOLE SHAPE AND NUMBER



Thief ant, *Diplorhoptrum* molesta

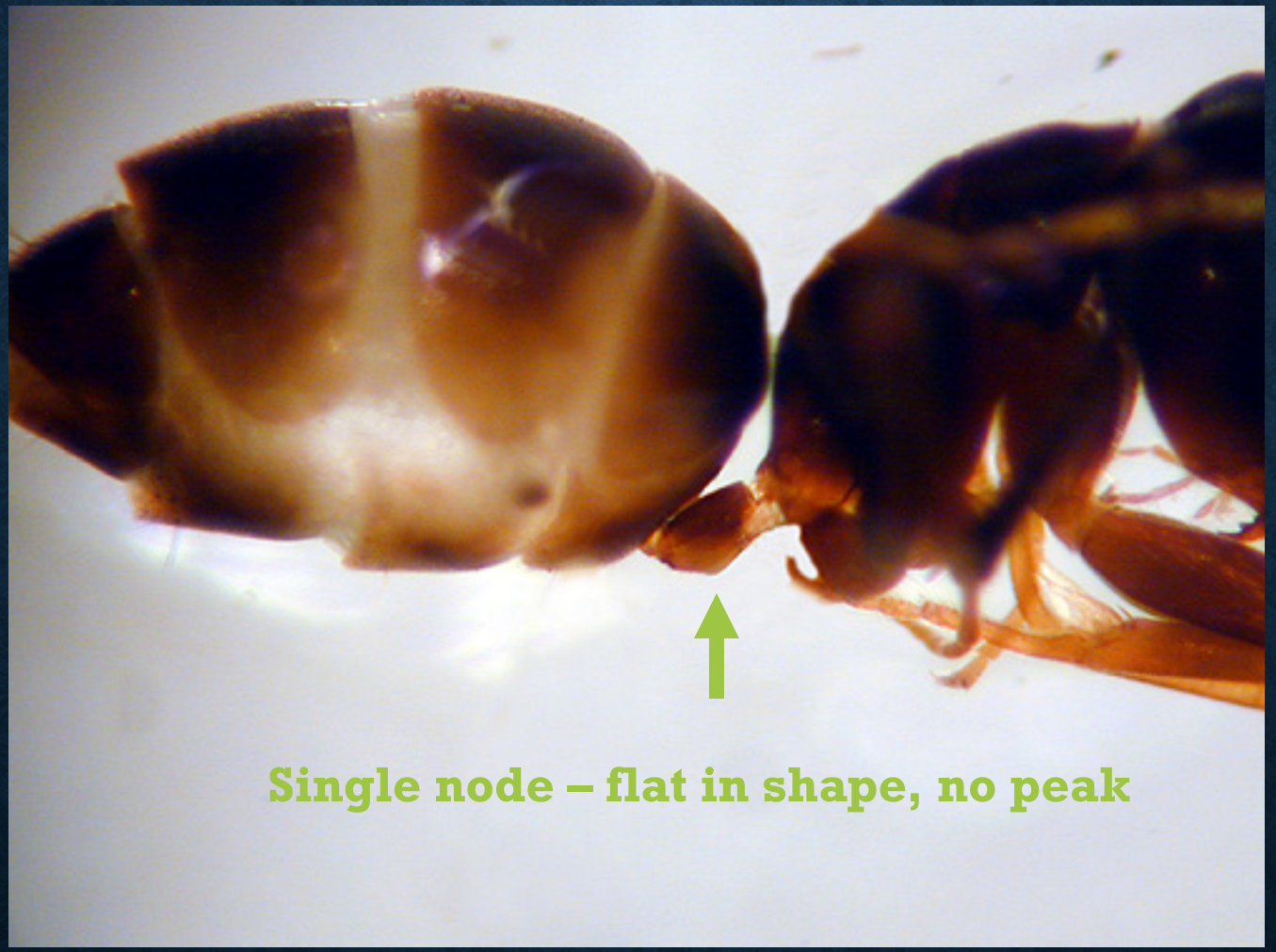
60X magnification

PETIOLE SHAPE



60X magnification

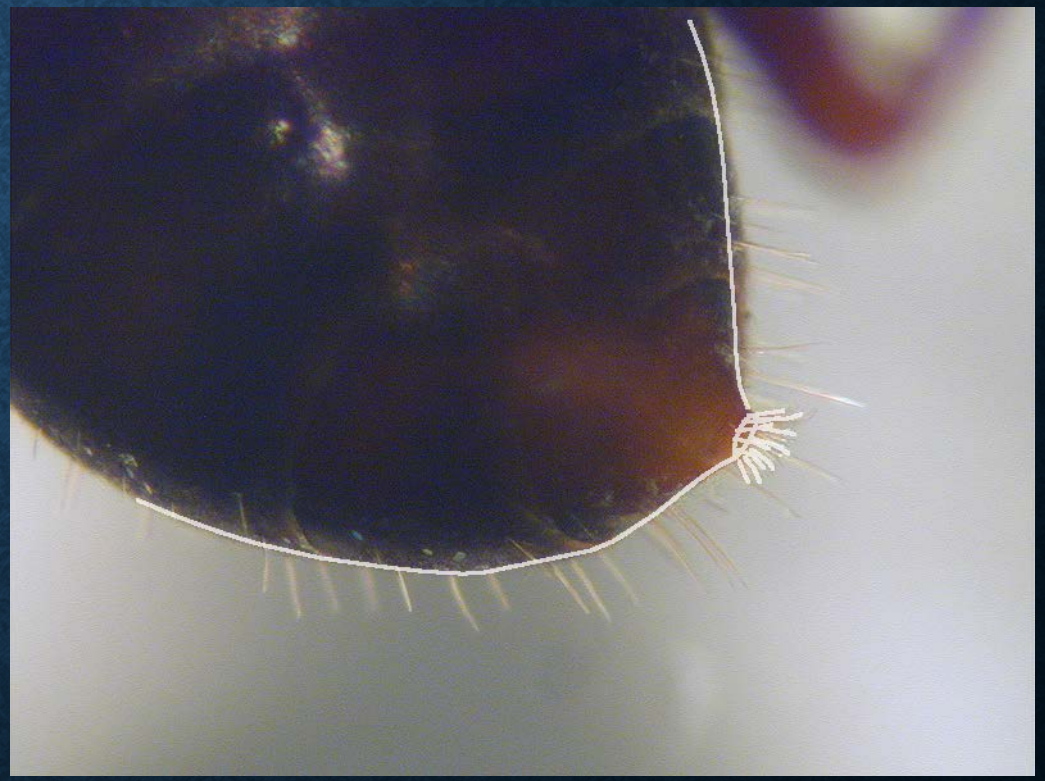
PETIOLE SHAPE AND NUMBER



60X magnification

Odorous house ant

ANAL TYPES: HOW MANY HAIRS CIRCLING THE ANUS

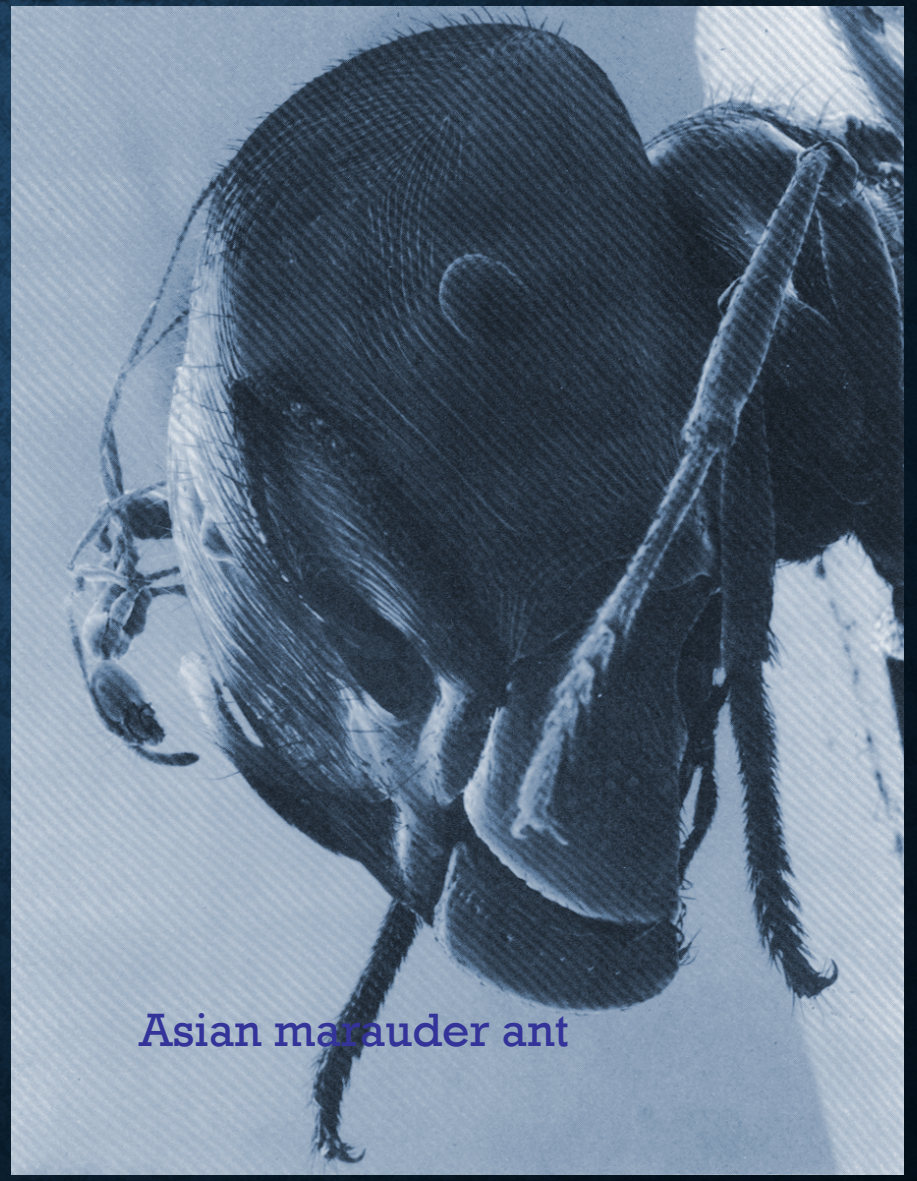


ANAL TYPES

Odorous house ant

POLYMORPHISM

- Variation in size and shape among worker caste
- Major and minor workers
- Minor workers as small as 1/500 size of a major worker



Asian marauder ant

POLYMORPHISM IN THE FIRE ANT

minor workers

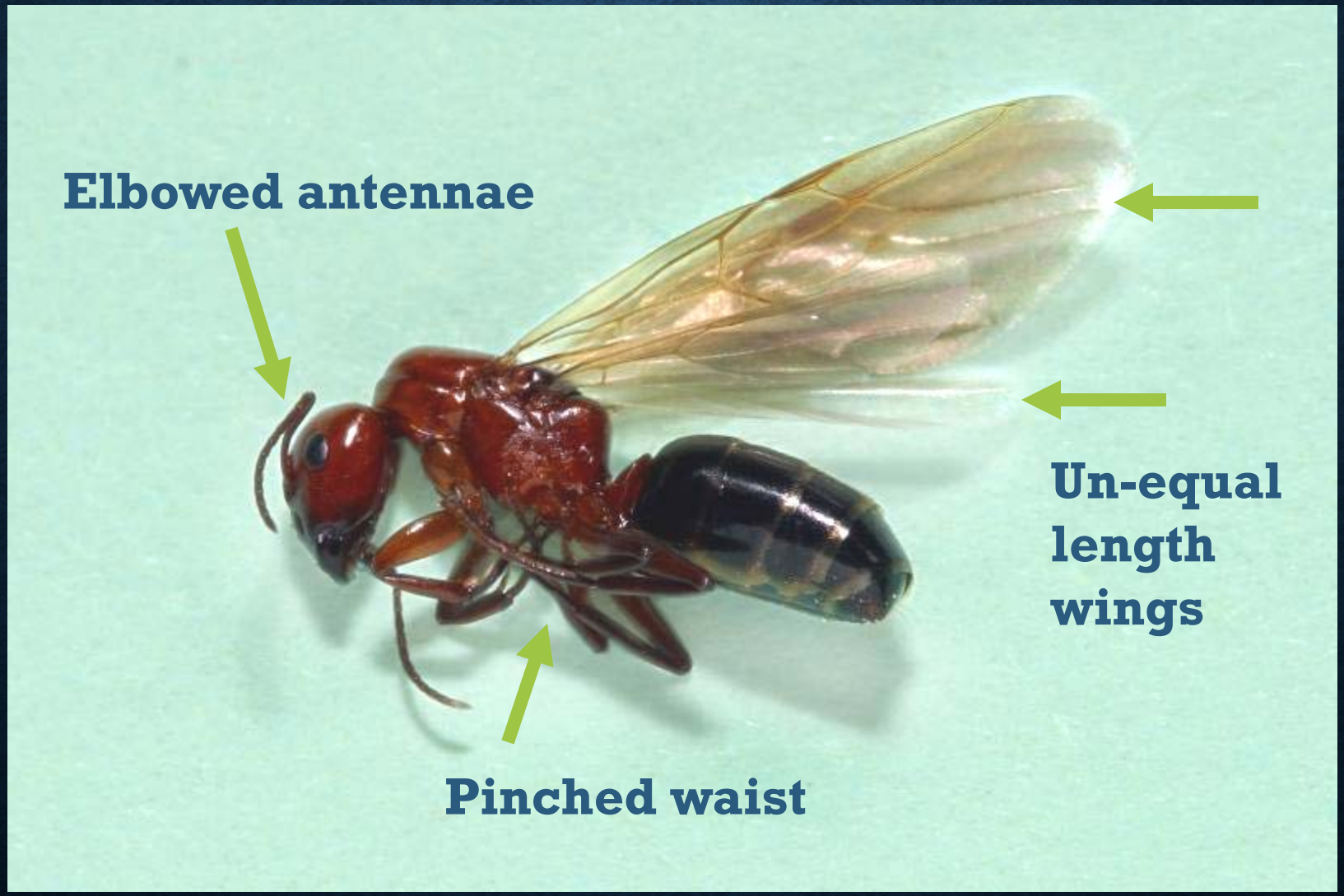
major workers

queen

OTHER CHARACTERS USED TO IDENTIFY ANTS

- Nesting sites
- Mound construction/ appearance
- Foraging behavior
- Defensive behavior

RECOGNIZING REPRODUCTIVE ANTS



YOU NEED WORKER ANTS TO IDENTIFY ANTS


MOST COMMON ANT
PESTS
IN TEXAS

IMPORTANCE

- Mostly a nuisance in schools
- Stinging risk
  - Fire ants
  - Harvester ants
  - Pseudomyrmex (Acacia ants)
- Capable of carrying pathogens (nursing office)

FORMICINAE ANTS

Characteristics

- Single node
- Tip of abdomen with fringe of hairs
- Eight genera in Texas

Common urban species

- Carpenter ants, *Camponotus* spp
- Crazy ants, *Paratechina* spp
- False honey ant, *Prenolepis impairs*
- Rover ants, *Brachymyrmex*

CARPENTER ANT, CAMPONOTUS

- Large (1/4 to ½ inch), polymorphic
- Thorax rounded in profile
- Common species are red and black, brown, or all black
- 18 species in Texas

CAMPONOTUS SPECIES WITH ROUNDED THORAX

KEY POINTS:

- Nest in hollow cavities above ground
- Indicator of moisture issue
- May produce "frass" consisting of sawdust, dead insects and pupal cases
- Scavengers, predators, sweet-loving
- Difficult to bait

Carpenter ant feeding on specially formulated carpenter ant bait (Photo by J. Tucker)

CRAZY ANTS, *PARATRECHINA*

- Small to medium sized, (1/8-1/4 inch) brown ants
- Monomorphic
- Erratic "crazy" running behavior in *P. longicornis*
- Antennal scape longer than head

CRAZY ANTS, *PARATRECHINA*

KEY POINTS:

- Nest under mulch and shrubbery, under pavement, in walls, under trash, debris, in potted plants
- Trails can be over 100 ft, often from outdoors to indoors
- Difficult to control

FALSE HONEY ANT, *PRENOLEPIS IMPARIS*

- Small (1/8 inch) golden-yellow to brown workers
- Monomorphic
- Similar to crazy ant species, but lack paired hairs on back
- Always nest outdoors, occasional indoor pest

Photo by Tim Linksvayer
(Tim.Linksvayer@alumni.carleton.edu)

ROVER ANTS - *BRACHYMYRMEX*

- Small – 1/16 inch
- Monomorphic
- 9 segmented antennae
- Node hidden by abdomen

ROVER ANTS - *BRACHYMYRMEX*

- Small colonies of 1-2 thousand
- Outdoor nesters, commonly come inside to forage
- Small, inconspicuous nests
- Liquid baits, granular baits in development

DOLICHODERINAE ANTS

Characteristics

- Single node
- Tip of abdomen without circular fringe of hairs
- Five genera in Texas

Common urban species

- Argentine ant *Linepithema humile*
- Odorous house ant, *Tapinoma sessile*
- Ghost ant, *Tapinoma melanocephalum*
- Pyramid and cheese ants, *Dorymyrmex* and *Forelius*

ARGENTINE ANT, *LINEPITHEMA HUMILE*

- Medium (1/8-3/16 inch) dark colored ants
- Smooth, hairless dorsum with pointed node
- Monomorphic
- Stale, greasy, musty smell when crushed
- Loose trails, ants move swiftly

Photo by Jack Kelly Clark

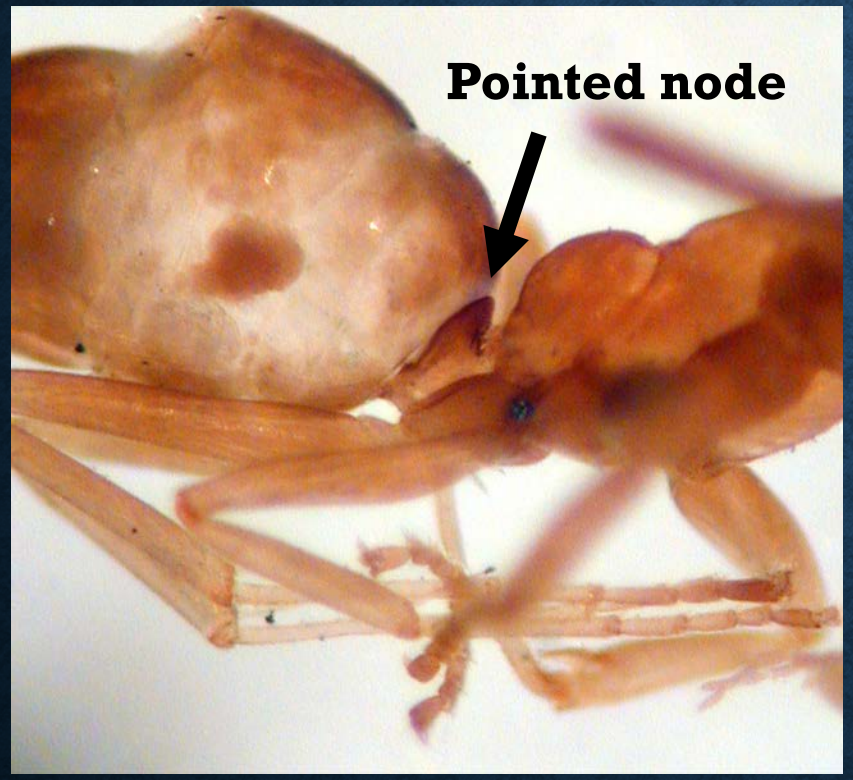
ARGENTINE ANT, *LINEPITHEMA HUMILE*

- Easy to confuse with odorous house ant, but node is more pointed
- Odorous house ant node is not pointed at top

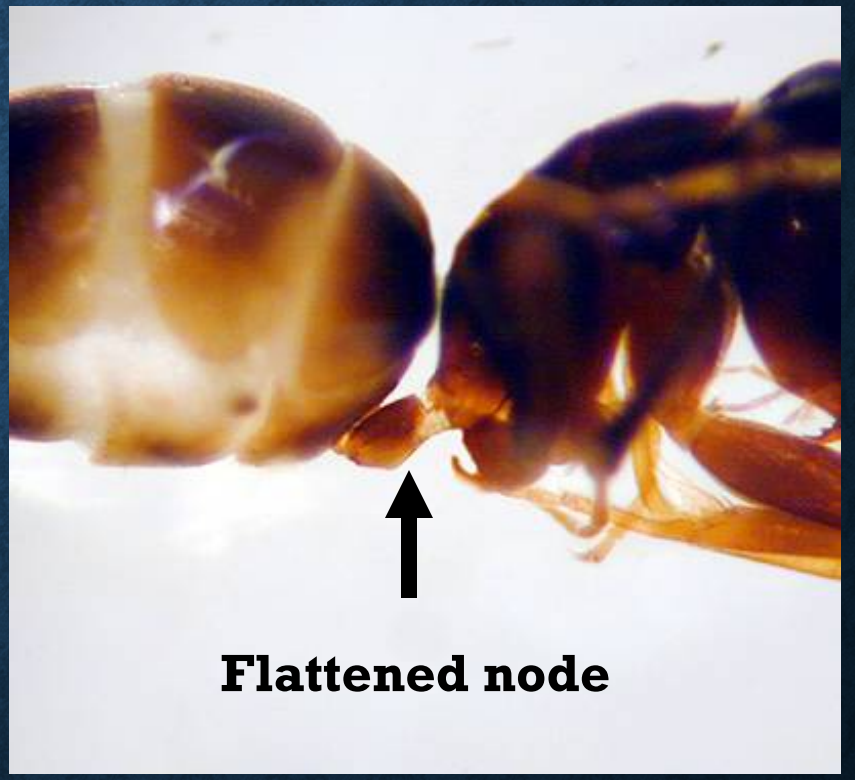
ODOROUS HOUSE ANT, *TAPINOMA SESSILE*

- Small, 1/8-3/16 inch-long, monomorphic workers
- Brown to black
- Rotten coconut smell when crushed
- Fast moving
- Smooth, hairless dorsum with flattened node

COMPARISON OF ODOROUS HOUSE AND ARGENTINE ANTS



Argentine ant



Odorous house ant

Odorous house ants on syrup bait placement

KEY POINTS:

- Numerous shallow nests outdoors and sometimes indoors
- Will take sweet baits
- Strong foraging trails can be used to locate colonies


University of Florida

GHOST ANT, *TAPINOMA MELANOCEPHALUM*

- Minute, 1/16 inch-long, monomorphic workers
- Head and thorax dark, abdomen clear
- Similar to odorous house ant except in size and color
- Found in Houston, Beaumont, Port Arthur area only

MYRMECINAE ANTS

Characteristics

- Two nodes
- Sting, tip of abdomen without fringe of hairs
- 22 genera in Texas

Common urban species

- Leaf-cutter ants, *Atta texana*
- Acrobat ants, *Crematogaster*
- Pharaoh and little black ants, *Monomorium*
- Harvester ants, *Pogonomyrmex*
- Fire ants and thief ants, *Solenopsis*
- Pavement ants, *Tetramorium*

LEAF-CUTTER ANTS, *ATTA TEXANUS*

- Large, 3/16 to ½ inch polymorphic workers
- Reddish in color
- Spines on head
- Three pairs of spines on thorax

LEAF-CUTTER ANT SWARMERS

KEY POINTS:

- One of most agriculturally destructive ants in some parts of the world.
- Can cause foundation damage to homes
- Large, multi-crater nest

Photo by B. Drees, Texas A&M Univ.

ACROBAT ANTS, CREMATOGASTER SPECIES

- Small to medium sized (1/8 to 3/8 inch) monomorphic, red and black ants
- Heart shaped abdomen
- Spines on thorax

KEY POINTS

- Nest in trees, wall voids
- Honeydew feeders
- Prefer areas of higher moisture in structures
- Strong trails--should be followed to suspected nest site

PHARAOH ANT, *MONOMORIUM PHARAONIS*

- Minute, 1/12 inch, yellowish brown
- Antenna with 12 segments and 3-segmented club
- Darker tip on gaster

KEY POINTS

- Readily nests indoors
- Indoor nests frequently forage outdoors in summer
- Nest location difficult
- Baiting most effective
- May be confused with thief ant

LITTLE BLACK ANT, *MONOMORIUM MINIMUM*

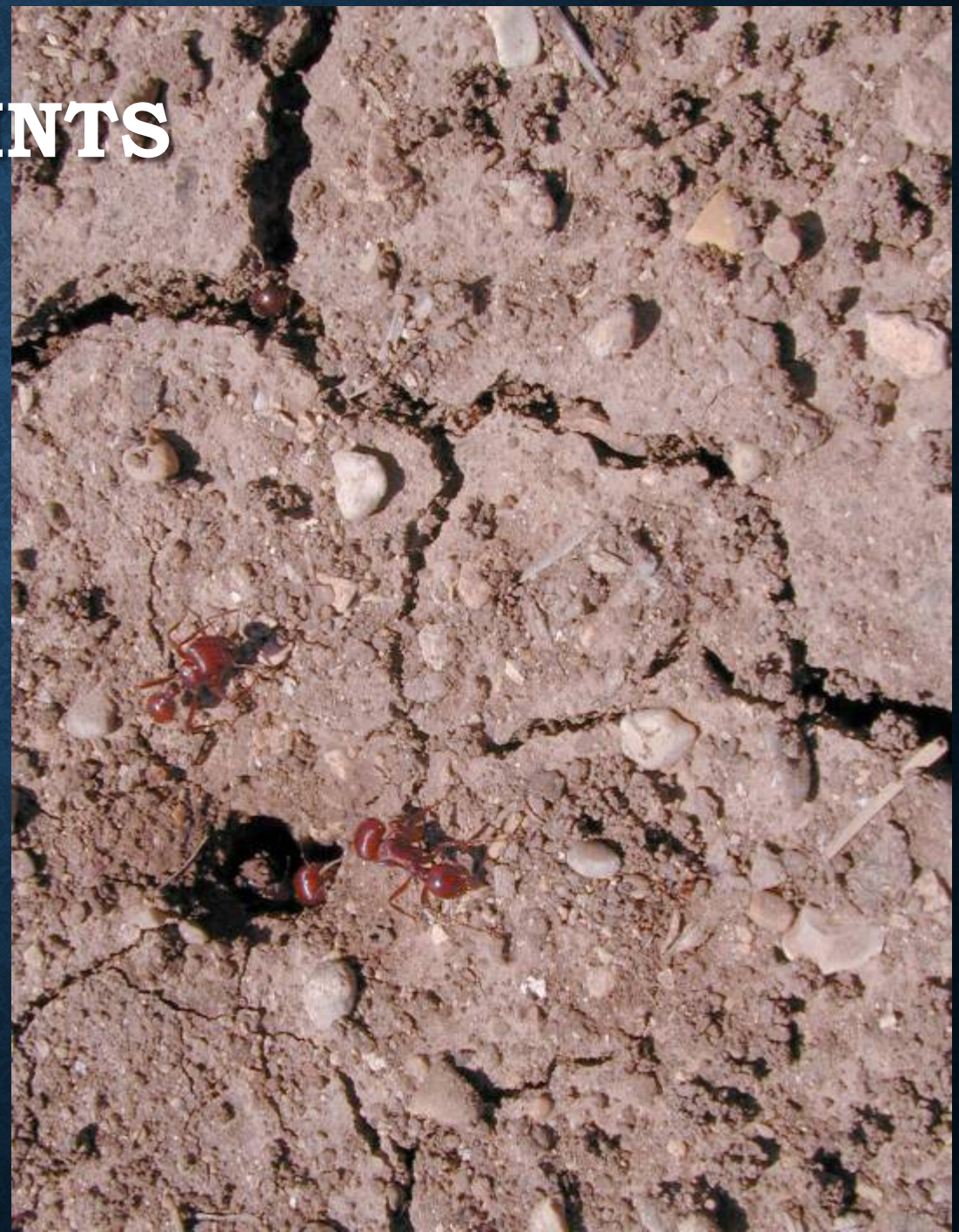
- Minute 1/16 inch, black, monomorphic
- Resembles pharaoh ant except for color
- Outdoor nester
- Stings
- Small mounds often confused with fire ant mounds

HARVESTER ANT, *POGOMYRMEX*

- Large 1/5-1/2 inch, monomorphic workers
- Red to black
- May have spines
- Row of hairs on underside of head

KEY POINTS

- Outdoor nester
- Large clearing around single exit hole for nest
- Will sting!
- Beneficial competitor with fire ants



FIRE ANTS, *SOLENOPSIS* SPECIES

- Most easily identified by mound, sting
- Small-medium 1/8-1/4 inch, reddish brown polymorphic workers
- Species identifications based on jaws

Photo by M. Yoder, Texas A&M Univ.

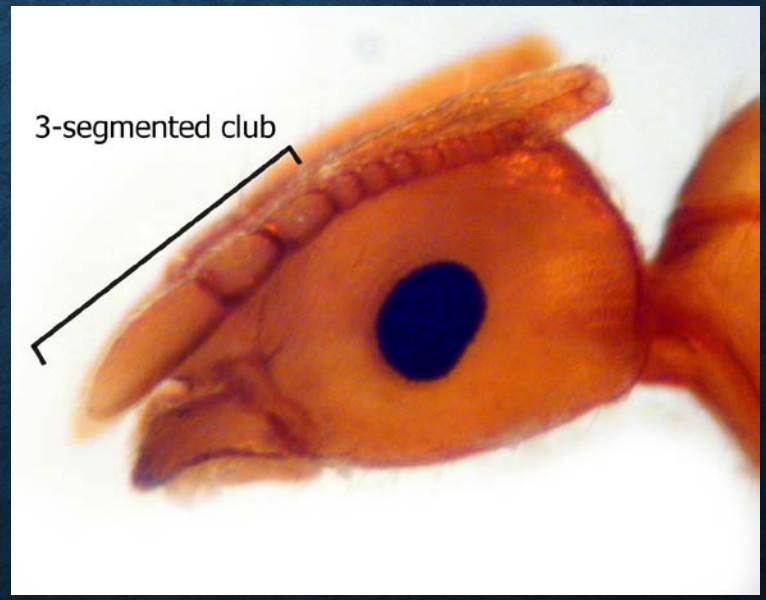
THIEF ANTS, *SOLENOPSIS (DIPLORHOPTRUM) SPP.*

- Minute, 1/16 inch, yellowish ants
- Commonly confused with pharaoh ants
- Principally outdoor ants

DISTINGUISHING THIEF AND PHARAOH ANTS

2-segmented club on a thief ant

3-segmented club on a Pharaoh ant



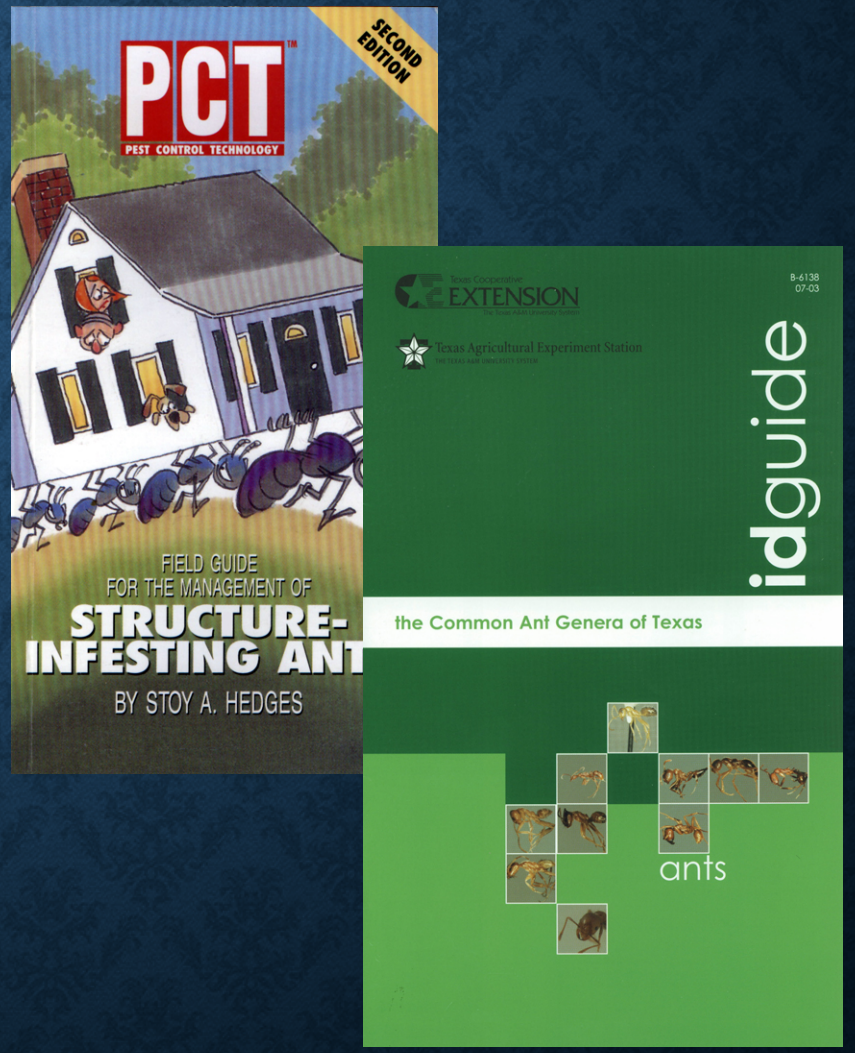
PAVEMENT ANTS, *TETRAMORIUM* SPECIES

- Slow moving, medium-sized (1/4 inch) brown and black ants
- Series of ridges running the length of head
- Nuisance because of their nesting behavior around sidewalks

Courtesy Bayer Environmental Science

IDENTIFICATION RESOURCES

- PCT Field guide $12.95
  - www.pctonline.com
- Common Ant Genera of Texas
- UC Davis online ant key (free)
  - www.ipm.ucdavis.edu/TOOLS/ANTKEY/



QUESTIONS?