NORTHWEST ARKANSAS

BEEKEEPERS ASSOCIATION

Beginning Beekeeping Series

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Beginning Beekeeping Series Overview

Part 1 – February 10th

- Introduction to Beekeeping
- Types of Beekeepers
- Basic Bee Biology

Part 2 – February 17th

- Hive Components and Equipment
- Hive Placement
- Installation of Bees

Part 3 – February 24th

- Hive Management and Inspections
- Honey Harvesting
- Winter Prep and Moisture Control

Tonight's Agenda

- Welcome
- Series Overview
  - Introduction to Beekeeping
- Break
  - Honey Bee Biology
- Q & A
- Closing/Class Survey

(We must be out of the building by 7:45)

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We are a non-profit supporting beekeepers in NWA through monthly educational programs and collaboration.

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Beginning Beekeeping : Part 1

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Introduction to Beekeeping

Common Myths

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- **Bees are aggressive and will sting my neighbors.**
  - Most honey bees are surprisingly chill. If they're well-managed and not provoked, stings are rare. Backyard hives don't "roam" looking for people to sting—defensive behavior usually comes from poor management, genetics, or rough handling.

- **You need a lot of land to keep bees.**
  - Nope. Bees don't care about your property line. Many successful hives live happily in small suburban yards, rooftops, and even downtown areas—as long as there's forage nearby and good hive placement.

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- **The queen runs the hive.**
  - Not even close. Worker bees decide when to raise a new queen, when to swarm, where to forage, and even when the queen's time is up. Democracy, not monarchy.

- **Bees always make tons of honey.**
  - Some years? Yes. Other years? The bees eat most of it. Weather, nectar flows, droughts, and colony health all matter. A beekeeper prioritizes bee survival over honey jars.

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- **If you keep bees, you'll get stung all the time.**
  - Not unless you want to. Most beekeepers get stung less than people expect—often fewer times than gardeners or lawn care folks. Protective gear and calm handling go a long way.

- **Beekeeping is a cheap hobby.**
  - Startup equipment, bees, tools, and ongoing supplies add up. It can pay off over time—but nobody should go in thinking it's a budget hobby.

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- **Beekeeping can be just set it and forget it.**
  - This one gets folks in trouble. Bees are livestock. They need regular inspections, pest management (hello, varroa mites), and seasonal care. You don't have to hover—but you do have to show up.

- **Good beekeepers don't lose hives.**
  - Wouldn't that be nice.....
  - Good beekeepers:
    - lose fewer
    - learn faster
    - and adjust sooner

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Introduction to Beekeeping

Types of Beekeepers

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Hobbyists

Typically from 1 to 10 hives in a single location.

In general:

- You spend more on bees than you make.
- Honey is a bonus, not a business plan.
- Lose a hive? Disappointing—but not catastrophic.
- Equipment is often mixed, mismatched, and sentimental.
- Time invested per hive is high (lots of inspections, learning, tinkering).
- You're more likely to name queens than cull them.

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Sideliner

Typically, from 20 to 300 hives across one or more locations.

In general:

- Efficiency starts to matter more than curiosity.
- You track costs—even if loosely.
- Honey sales, nucs, or queens offset expenses.
- You expect to lose a percentage of your hives.
- Standardized equipment becomes important.
- Time per hive drops sharply—fast, imperfect inspections.

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Commercial

Typically over 500 hives (often thousands) across multiple locations.

In general;

- Primary source of income.
- Every decision is measured in minutes per hive.
- Queens are replaced regularly—sentiment is a luxury.
- Uniform equipment only.
- Labor and transportation logistics are as important as bees.
- Striving for large scale pollination contracts.

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Commercial

HONEY BEE POLLINATION MIGRATION

Map based on National Geographic Magazine's
"Bees on the Move"

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Why Commercial Matters to the Hobbyist

- $1.2 billion industry
- Supports beekeeping suppliers (Mann Lake, Better Bee, etc.)
- Industry keeps investment in innovation going.
- Migration paths means problems spread fast.
- Queen genetics are guided by commercial priorities (may not be the same as yours.)

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Introduction to Beekeeping

Getting to Know our Pollinators

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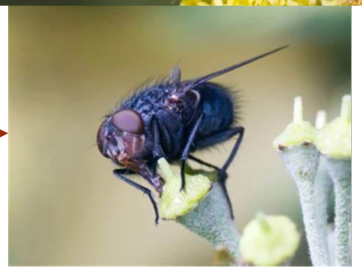
- Globally, 87 of the leading 115 food crops consumed by humans are dependent on animal pollinators. (Kind of important!)
- Contribute heavily to biodiversity
- Bioindicators of environmental health

WHO are the pollinators ?



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Pollinators: Bees Hymenoptera

- Order Hymenoptera = “membrane wings” (bees, wasps, ants, sawflies)
- 7 families of bees worldwide (6 are in the U.S.)
- Two groupings: Social and Solitary bees
  - Solitary bees where the females construct and provision their own nest without help from others
  - Social bees construct hives, produce and store honey and wax, and have a caste system
- Two nesting styles: Ground and Cavity
  - Ground refers to in-ground tunnel systems
  - Cavity refers to those of trees, plant stems, branches, etc.

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Ground Nesters

Andrenidae (Miner Bees)

Melittidae (Melittid bees)

Colletidae (Plasterer/Polyester bees)

Halictidae (Sweat bees)

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Cavity Nesters

Megachilidae (Mason & Leafcutter Bees)

Apidae (Carpenter bees, Orchid bees, etc)

- Exteriors -

- cross sections -

Cavity Nesters

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- Honey Bees
- Managed Pollinators: *Apis mellifera*
- Perennial colonies

- Bumblebees
- Annual colonies

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Native Bees in AR

- ~4,000 species of native bees in North America
  - AR has ~400-650 of those species
- Honeybees are not included in this category….But Why?

Native vs Introduced Perspectives

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- Honeybees are not native to North America; they were first brought over from Europe in ~1622 by English settlers to the colonies and were Apis mellifera (European/German/Black bees)

- Layman's Opinion: BUT since they've been here for 400 years already and such an integral part of our agricultural way of life (90% of animal pollination is done by bees), should we still be treating them as non-native?

- Conservationist Standpoint: it is better to plant/plan to encourage native pollinators that are present locally in an area first. If unsuccessful or the populations are low or nonexistent to the point where pollination can't be achieved, honeybees (in covered structures) should then be introduced.

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Pollinator Habitat Planning/Planting

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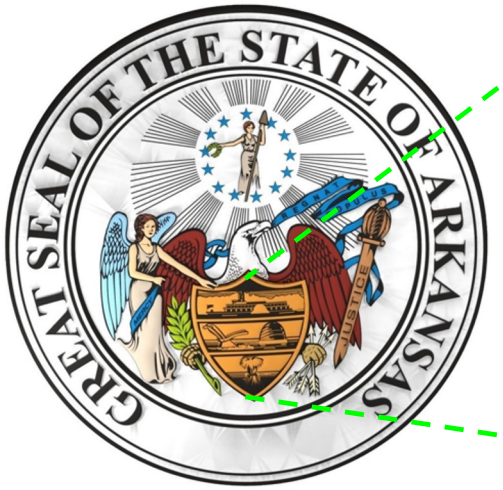
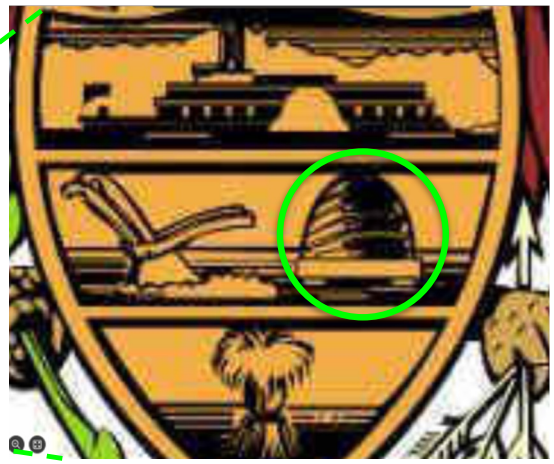
Significance to Arkansas

- The honeybee is the State Insect of Arkansas

- The official seal of the State of Arkansas features a beehive among its other symbols of industry.





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Honey Bee Biology

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GOAL

Understanding how bees work will make it easier for you to work WITH them!

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What do Bees Want?

- In a natural hive bees want:
  - Sheltered dark cavity,
  - Adequate size for growth,
  - Defensible entrance,
- They construct parallel combs:
  - Bee space between combs,
  - Organized into brood/food areas,
  - Etc.
- Modern hives are modeled after this behavior

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The Colony or Hive

- All the bees in a hive function as a unit to survive and propagate
- The hive is a super-organism

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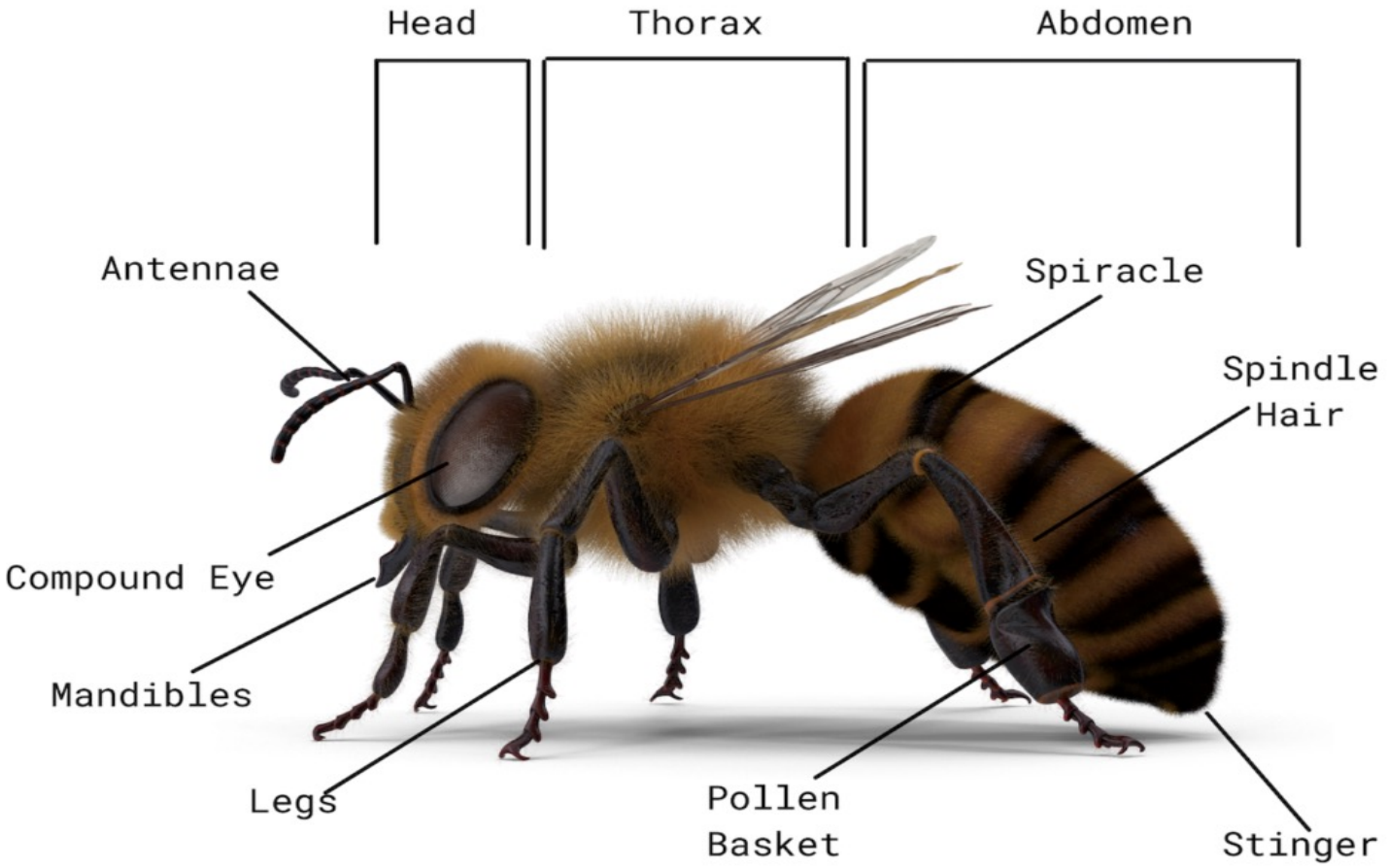
Basic Anatomy



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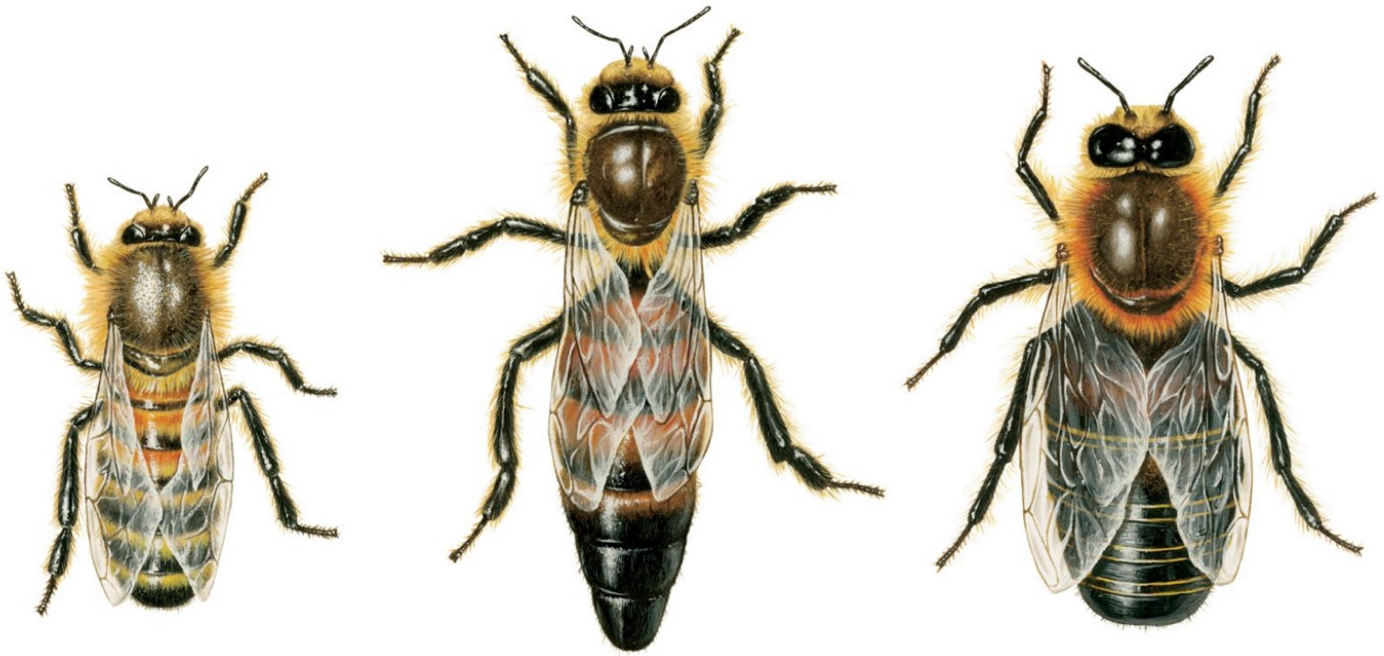
Three Castes of Honey Bees



Worker Queen Drone

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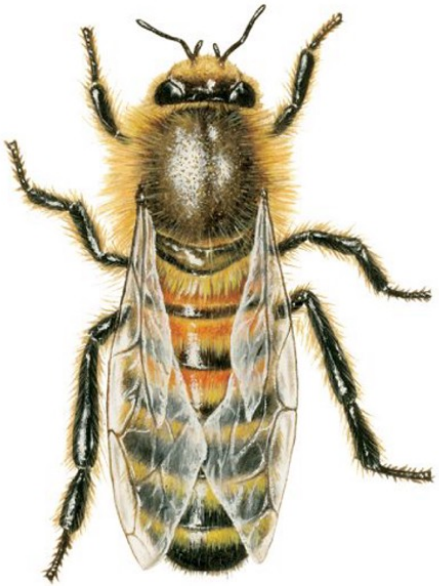
Worker Bees

- **Versatile Workers:** female bees responsible for all hive duties, from cleaning the hive, feeding young and foraging for resources.
- **Short Lifespan:** Only live from 3 to 5 weeks, especially during the busy season.
- **Specialized Bodies:** bodies adapted with pollen baskets on their legs and a stinger for defense.
- **Backbone of the Hive:** Worker bees are the force behind the hive's survival and productivity and make up 85-90% of the hive pollution.



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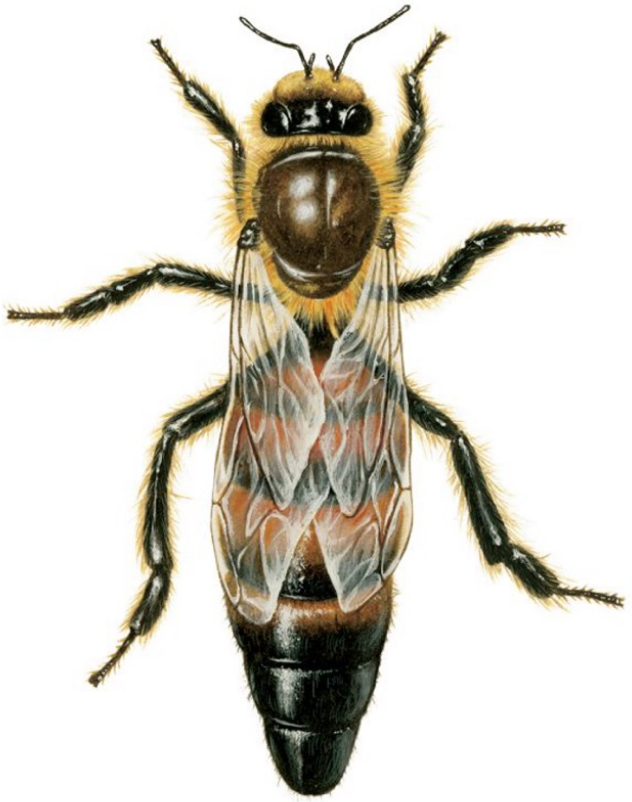
Queen Bee

- **Royal Role:** There is typically only one queen per hive and the sole reproductive female in the hive laying from 1 to 2 thousand eggs per day.
- **Longevity:** 2 to 5 years, much longer than worker bees.
- **Physical Distinctions:** She is larger than worker bees, with a longer abdomen and a slender shape.
- **Pheromone Control:** She releases pheromones that regulate the hive's social behavior and influence the development of other bees.



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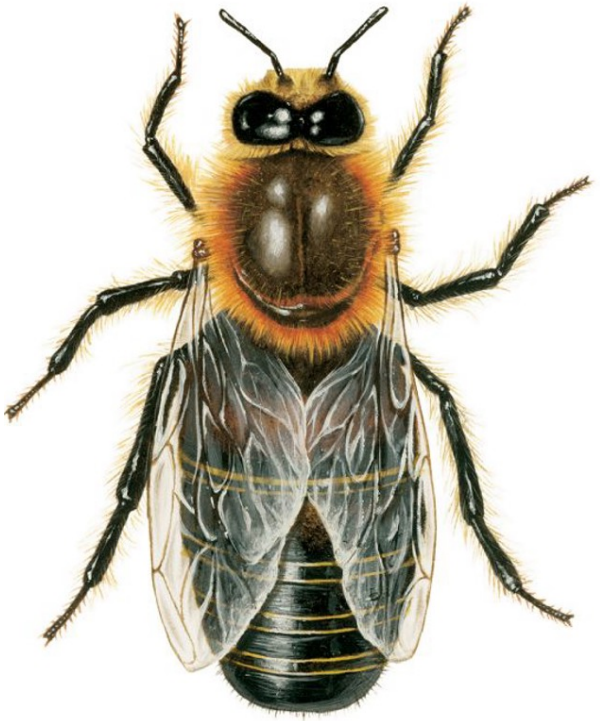
Drones

- **Single Purpose:** Drones are male bees whose sole purpose is to mate with a virgin queen.
- **Physical Characteristics:** They are larger and stouter than worker bees, with large eyes for spotting a queen.
- **Lack of Worker Skills:** Drones cannot sting, collect pollen, or produce honey. They rely on worker bees for their needs.
- **Seasonal Existence:** Drones are typically produced in the spring and summer and represent 10-15% of the hive population. They are expelled from the hive in the fall when they are no longer needed.



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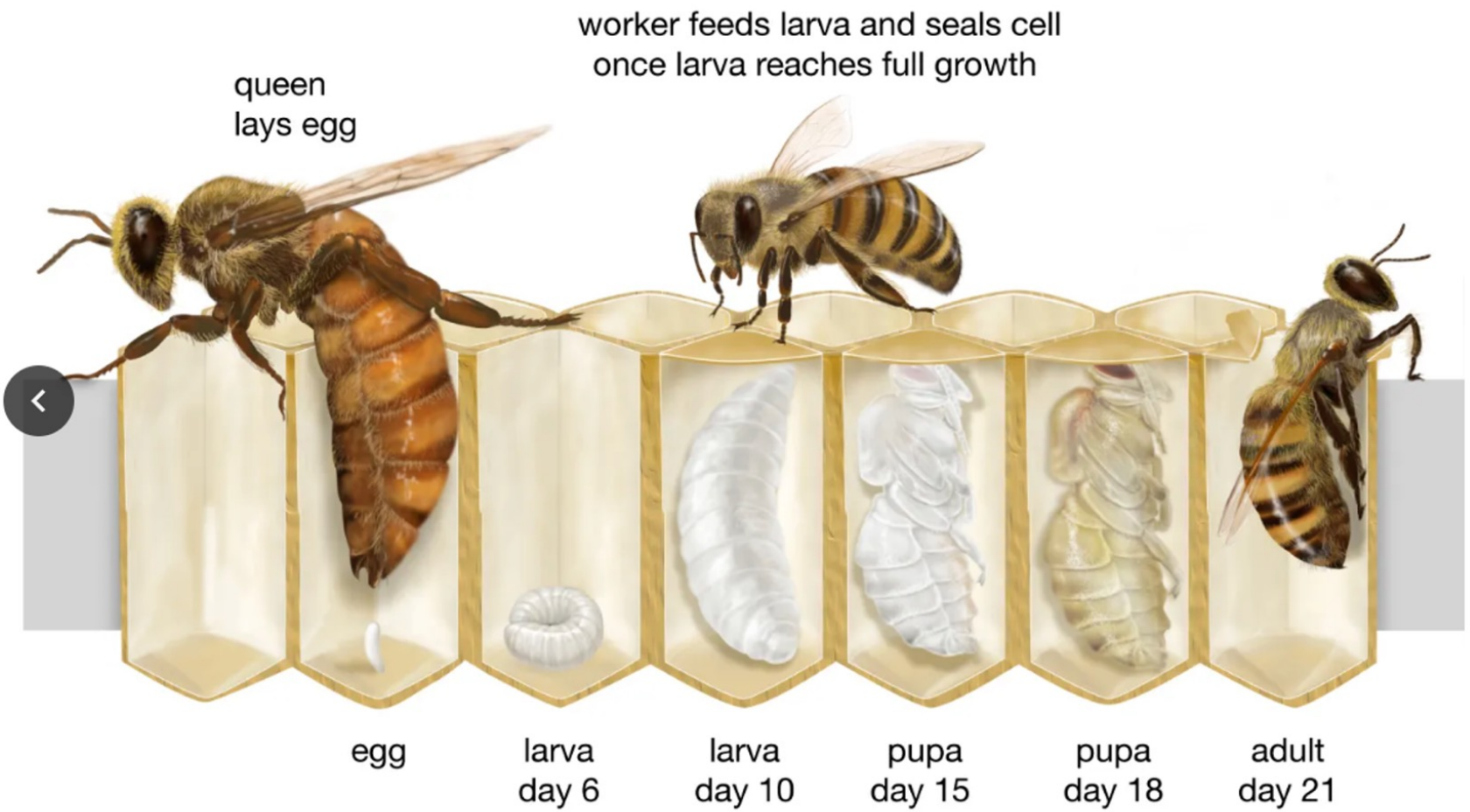
Life Cycle



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Stages of Development

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Worker Bees Role by Age

1. NURSE BEES
   - 1- 3 days: clean cells
   - 3 - 6 days: produce royal jelly and feed young larva
   - 6 - 9 days: feed older larva

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Worker Bees Role by Age

2. HOUSE BEES
   - 9-12 days: wax builders
   - 12 - 18 days: guard, heat, and cool
   - the next one to two weeks: convert nectar to honey and store honey and pollen

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Worker Bees Role by Age

3. FIELD BEES
    - Foraging for
        - nectar,
        - pollen,
        - water
        - tree sap

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Queen and Drone Development

- Queens
  - Vertical “peanut-shaped” cell
  - Only fed royal jelly
  - Fully developed in 16 days
  - Job 1: dispatch the competition
  - Job 2: mating flights
- Drones
  - Oversized cells
  - Only one job

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Queen Development

- Multiple queen cells
- In general
  - Swarm cells at the bottom of frame
  - Supersedure cells on frame, often in the middle
  - Emergency cells wherever possible after sudden loss of queen

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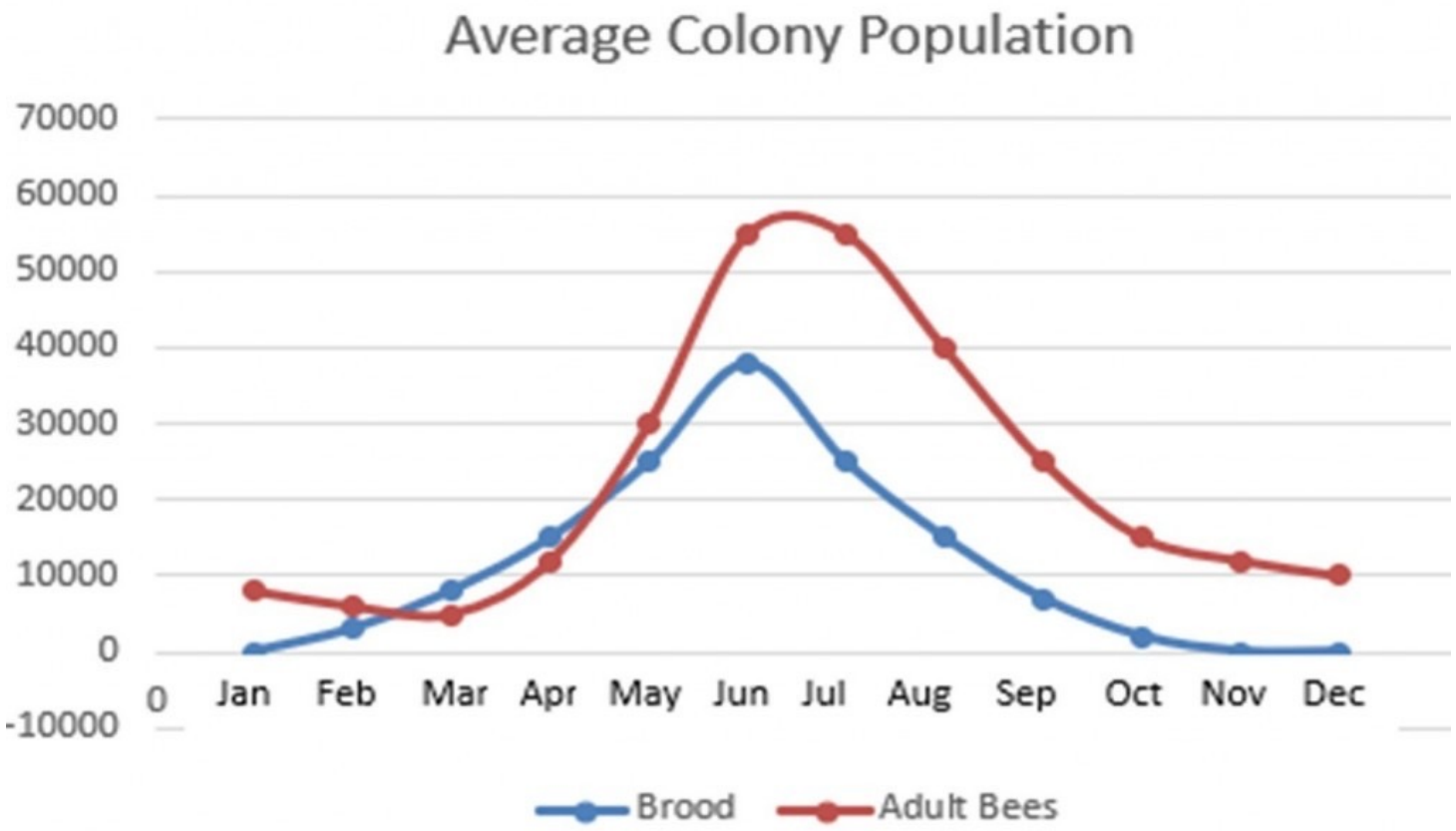
Hive Population Throughout Year



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Hive Communication

- Bees need to communicate:
  - the identity of the colony
  - the needs of the colony
  - dangers to the colony, and
  - the location of resources

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Modes of Communication

- pheromones (smell)
- Dances (to communicate direction and distance)

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Queen Pheromones

- Identity and stabilization (Lemongrass)
- stimulate brood rearing
- attract drones for mating
- swarm
- control rearing of replacement queens

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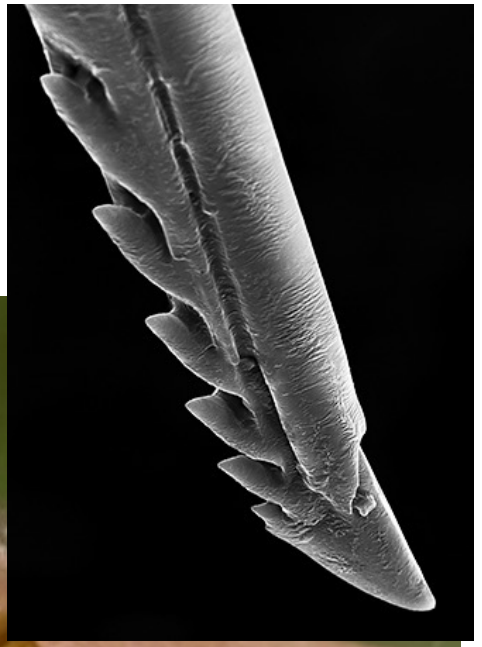
Worker Pheromones

- Orientation (scenting) odor plume
- Alarm (bananas)
  - mandibular gland
  - sting gland
- Trail pheromone
- Brood pheromone
- Others



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Swarming

- When all is well in the hive it is instinctive to reproduce (1-3 times/yr.)
- The old queen and approx. ½ the workers leave to establish a new hive.
- Bees tend to swarm at the beginning of a “nectar flow” leaving a smaller colony which cannot make much surplus honey.
- minimizing swarming is important to beekeepers and sometimes their neighbors.

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Understanding how bees work will help you learn to work WITH them!

Thank you.

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Class Survey

Your input is critical to both the Association and the Fayetteville Public Library

Part 2 – February 17th

Agenda

- Welcome
  - Hive Components
  - Equipment and Tools
  - Installing Bees
- Q & A
- Closing/Class Survey

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Thank You