



# THE PLACE OF HONEY BEES IN THE WORLD

CHAPTER 1, FIRST LESSONS IN BEEKEEPING

# OUTLINE FOR CHAPTER 1

1. Classification system for honey bees
2. Where do honey bees come from?
3. The common types of honey bees



## AUDIENCE POLL

- How many of you think that all honey bees are the same? *Meaning, they look the same and behave the same.*

# DISCUSSION

- We can probably agree before the start of this talk, that not all honey bees are the same.
- Some honey bees are better at honey production or overwintering, some are more resistant to parasites and disease, and some are more gentle.
- Let's discuss some of the reasons why

# WHAT IS IN A NAME?

- Remember from high school, the “Hierarchy of classification”

- Kingdom
  - Phylum
    - Class
      - Order
        - Family
          - Genus
            - species



# CLASSIFICATION OF BEES

- Kingdom – **Animalia**
  - Phylum – **Arthropoda**
    - Class – **Insecta**
      - Order – **Hymenoptera**
        - Family – **Apidae**
          - Genus – ***Apis***
            - Species – ***mellifera***



- Binomial nomenclature (how we name things scientifically) uses both the genus and species names: ie. ***Apis mellifera*** is the honey bee
- We refer to ***Apis mellifera*** as the species name for the honey bee

# WHAT IS A SPECIES?

- In a simple sense, a species is simply a group of individuals that are capable of interbreeding in nature
- As we will see shortly, there is tremendous variation in a species
- We use subspecies to discuss different races/stocks of bees:
  - I.e. ***Apis mellifera ligustica*** (The Italian bee) is a subspecies of ***Apis mellifera***
- Although we have different subspecies, they are all capable of mating and producing offspring



# TWO DIFFERENT SUBSPECIES OF BEES



*Apis mellifera caucasica* and *Apis mellifera ligustica*



# MORE ON SUBSPECIES

- These two subspecies have different “traits” that are desirable (as we will discuss in more detail in a bit)
- We can either choose to raise a specific subspecies for its traits, or we can select “hybrids” between various subspecies
- If you look inside a bee hive, you will probably see a lot of variation in color, due to the exchange of genes in nature



# HONEY BEE VARIATION

- There are at least 20 recognized subspecies, races, or locally derived biotypes of *Apis mellifera* from Europe, the Middle East, and Africa
- The photos to the right are both *Apis mellifera* honey bees
- The mixing of different genes, subspecies, races and biotypes can create a lot of color variation within and between colonies.

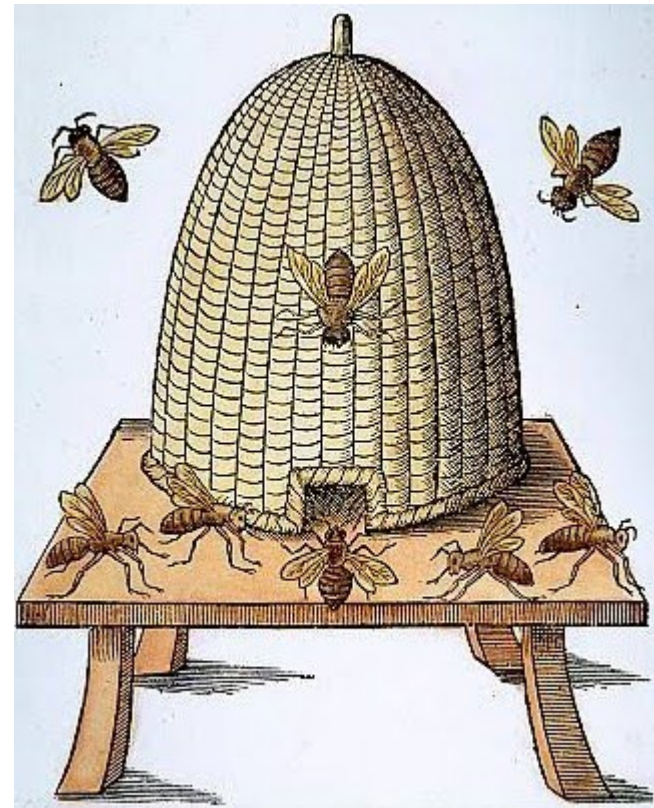


# MAP OF *APIS MELLIFERA* SUBSPECIES



# HONEY BEES IN NORTH AMERICA

- *Apis mellifera* is not native to North America
- Many honey bees were introduced during European colonization of North America
- Many of the honey bees we are familiar with come from Europe, the Middle East, and Asia



*English woodcut 1658*

# SOME COMMON HONEY BEES

1. German black bees
2. Italian honey bees
3. Caucasian bees
4. Carniolan bees
5. Russian bees
6. Africanized honey bees



# THE GERMAN BLACK BEE

- *Apis mellifera mellifera*
- Also known as the north European bee (Native to England and Germany)
- Was likely the first honey bee imported into North America (1600s – 1800s)



# THE GERMAN BLACK BEE (*CONTINUED*)

- Suitable for northern latitudes (do well in damp/cold environments)
- Has a tendency to sting a lot, and swarm
- Prone to serious diseases
  - I.e. American foulbrood
- Not very common in the US anymore



# THE ITALIAN HONEY BEE

- *Apis mellifera ligustica*
- Very popular bee throughout history and most common for beginners
- Native to Italy
- Usually have bands on their abdomen of brown to yellow color





# THE ITALIAN HONEY BEE (*CONTINUED*)

- Relatively gentle
- One of the most productive honey bee races (but must be managed carefully to prevent reckless spending)
- Great foragers
- Use less propolis and keep a clean hive
- Have some tendency to rob
- General susceptibility to pests and diseases



# THE CAUCASIAN HONEY BEE

- *Apis mellifera caucasica*
- Native to region between the black and Caspian seas
- Imported into North America around the late 1800s
- Body is grey/black



# THE CAUCASIAN HONEY BEE *(CONTINUED)*

- One of the most gentle bees
- Forages earlier and on cooler days
- Winters well
- Less productive than Italians
- Slower spring start up
- Tendency to use a lot of propolis
- Less prone to robbing



# THE CARNIOLAN HONEY BEE

- *Apis mellifera carnica*
- Native to east-central Europe
- The second most popular bee after Italians
- One of the darkest of the races



# THE CARNIOLAN HONEY BEE *(CONTINUED)*

- Thought to express a measure of resistance to mites
- Conservative use of food resources
- Average production
- Are better in northern climates and winters well
- Little use of propolis
- Less susceptible to brood diseases
- Less likely to rob



# THE RUSSIAN HONEY BEE

- From the Eastern part of Russia in the Primorsky region
- This region of Russia is home to Varroa mites and Tracheal mites, and it had been hypothesized that the local bees might be resistant
- Brought into the United States by the USDA in 1997 due to the potential for Varroa mite resistance



# THE RUSSIAN HONEY BEE (*CONTINUED*)

- Most important characteristic is that they are resistant to Varroa and tracheal mites
- Adapted very well to cold climates (overwinter well)
- Tends to swarm
- Can be expensive



# THE AFRICANIZED HONEY BEE

- *Apis mellifera scutellata*
- AKA “killer bee”
- Were transported to tropical regions of South America from tropical Africa
- Reputation for being extremely defensive





# THE AFRICANIZED HONEY BEE (*CONTINUED*)

- Despite infamous reputation for being defensive, these bees are popular in Brazil (tropical climate)
- Under good management, these bees are quite productive
- We will discuss the Africanized honey bee later on in the course



## OTHER RACES/STOCKS NOT LISTED

- **Starline** – hybrid Italians. Can be very prolific and productive.
- **Cordovan** – a subset of Italians that are very yellow. They are gently, and more likely to rob.
- **Midnite** – A hybrid of Caucasian and Carniolan
- **Buckfast** – a mixture of bees that are gentle, and build up rapidly in the spring, excellent honey produces, some mite resistance
- **LUS** – small black bees that have good production and temperament, and have some mite resistance
- **All American Bee** – Italian hybrid for mite resistance, quick build up, gentle, and good housekeeping
- **VSH bees** – Varroa sensitive hygiene

# WHY IS ALL OF THIS IMPORTANT?

- Because there is so much variation in honey bees, you can select the race/stock of bee that is most suitable to your situation
- If you are looking for the best bee for beginners, you might select Italian bees
- If you want to manage mites without control products, you might select a Russian or VSH bee
- New stocks/races are continually being developed to accommodate different issues



# For your own use

Bee (color)	Varroa mite resistance	Productivity in Louisiana	Gentleness	Propolis production	Wintering in the U.S. (general)	Hive robbing	Excessive swarming
German (black)	Susceptible	Average	Tendency to sting	Average	Excellent	Not available	Average
Italian (yellow)	Susceptible	Very good	Very gentle	Average	Fair	Tendency to rob	Average
Caucasian (grey/black)	Susceptible	Above average	One of the most gentle	High	Good	Less likely to rob	Low
Carniolan (dark)	Susceptible	Average	Very gentle	Low	Excellent	Less likely to rob	High
Russian (dark or mixed)	Excellent	Average	Average	Low	Excellent	Less likely to rob	Above average
Buckfast (yellow to brown)	Susceptible	Very good	Very gentle	Low	Good	Tendency to rob	Low
Africanized (yellow)	Good	Poor	Very defensive	High	Suitable for tropical climates	Not available	High

# SUMMARY

- The key similarity of all of the mentioned races/stocks is that they all can be **“kept”**
- Beekeeping occurs on all continents (except Antarctica)
- Beekeeping can be practiced in most environments (rural, suburban, urban, agricultural, etc.)
- Beekeeping can be done by a beginner hobbyist to a large scale commercial beekeeper for multiple purposes (leisure, honey, pollination, etc.)



# NEXT SECTION: HONEY BEE BIOLOGY

Any questions?

