

# Butterflies and Moths of the Pinelands

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# Butterflies and Moths

- Kingdom: Animals
  - Phylum: Invertebrates
    - Class: Insects
      - Order: Lepidoptera
- Lepidoptera means « scale wing » in Greek
- 4 wings covered by overlapping scales
- Found anywhere where land plants grow, most abundant in tropics
- 90% of lepidoptera species are moths (150,000 species out of 165,000 world-wide)
- Over 12,000 species in North America (725 butterflies)

# Butterflies

# Moths

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- Diurnal
- Antenna are clubbed
- Chrysalis (naked pupa)
- Generally nocturnal
- Antenna are feathered
- Cocoon (pupa inside)

## Skippers

- Construct loose cocoons
- Hold their wings at different angles (at rest)
- Swift flight with little fluttering

# Butterfly Life Cycle

## Larval Stage: Caterpillar

- Plant eating machines (1000x weight)
- 3 pairs of true legs and several false legs
- Pair of jaws for slicing through plants
- Simple eyes
- Primarily feed on a specific host plant (adult lays her eggs on this plant)

# Butterfly Life Cycle

- Adults
  - Mostly drink flower nectar through a long proboscis
    - **These are pollinators of plants**
  - Some woodland butterflies feed on tree sap, rotting fruit, dung, carrion
    - **These are recyclers of nutrients and waste**
  - Compound eyes
  - Antennae packed with nerve endings sensitive to airborne chemicals

# Butterfly Behavior



- Taste with their feet
- Puddling: when butterflies land on sand, mud, etc. to take up water and minerals dissolved in it, especially when it is hot and sunny.
  - Salt is difficult to find in plant nectar, & also why they land on your sweaty hand.

# Butterfly Behavior

## Heat regulation

- Bask in sun with wings open to warm themselves (flight muscles need to warm to  $\sim 85^{\circ}\text{F}$ , why most butterflies are not out on cloudy days)
- Can reposition their wings to minimize exposure
- Those with dark undersides of wings will close them and then turn them to face the sun to warm up

# Butterfly & Moth Defenses

- Some are camouflaged (mourning cloak, comma, question mark, most moths)
- Some are poisonous (monarch)
- Some have patterns that mimic species that are poisonous (viceroy)
- Some have eyespots that make it look like a large animal to frighten off predators (wood nymph)



# Butterfly Behavior

## Territorial Defenses

- Males defend locations frequented by females
- Some patrol the same paths
- Ascending flight (spiral)

## Hilltopping

- Widely dispersed, low density, or limited vision
- Instinctively fly to local high points to find mates

# Butterfly Behavior

## Mating

- Last segment of male's abdomen has clasping mechanism to lock onto female
- Female's abdomen contains a retracting ovipositor

# Skippers

- Construct loose cocoons
- Hold their wings at different angles (at rest)
- Swift flight with little fluttering
- Most are brown or pale orange

# Moths

- Most construct cocoons consisting of plant materials mixed with saliva
- Rely on their sense of smell more than sight, for flying in the dark
- Moths fly to artificial lights because they are confused or dazzled by the bright light



# Attracting Butterflies & Butterfly Gardens

- Mix of annuals and perennials
- As many native species as possible
- Should include host plants as well as flowers for nectar
- Full sun



# Conclusion

- **Butterflies & Moths = Lepidoptera**
- Adults are pollinators or recyclers of nutrients/waste
- Complete metamorphosis
  - Egg, larva, pupa, adult
- Can reposition themselves to regulate heat
- Territorial Defenses (Patrolling & ascending flight)
- Migratory status: 10 species in our area

Cloudless Sulphur, Common Buckeye, Red Admiral, Monarch, Painted Lady, American Lady, Pipevine Swallowtail, Fiery Skipper, Long-tailed Skipper, Sachem