Arthropods of Veterinary Importance

- Taxonomy
- Identification
- Biology – Life cycle
- Behavior and Ecology
- Veterinary Importance
- Prevention and Control

Arthropods Affecting Horses

- Mosquitoes
- Black Flies
- Tabanids (deer and horse flies)
- Horse bots

MOSQUITOES

Order Diptera

Family Culicidae (culex for “gnat”)

41 genera, 3200 recognized species

Subfamily Toxorhynchitinae
Subfamily Anophelininae
Subfamily Culicinae

Floodwater
Standing water
MOSQUITO - EGGS

• Floodwater species
  Aedes
  Deposit eggs singly on or in water or substrate
  (sites subject to spring flooding)

• Standing water species
  Culex, Culiseta
  Temp/permanent ponds, ditches, wetlands, artificial water-holding containers
  (bird baths, pools, water tanks, etc.)

Sites where mosquitoes lay eggs

MOSQUITO - LARVA (LARVAE)

• 4 instars, known as wiggles
• Distinct head with cluster of ocelli
• Chewing mouthparts with brushes
• Elongate air tube
  • Culicines
  • Absent in anophelines
• Saw-like in Coquillettidia
**Metamorphosis**

**MOSQUITO – PUPA (PUPAE)**
- Known as tumblers
- Non-feeding
- Formation of adult characters occurs
- Respiration trumpets

**MOSQUITO - ADULT**
- Adult emergence takes a few minutes
- Egg to adult: 10 – 14 days, summer temps.
Identification

- Adults are slender, thin legs, narrow elongate wings
- Wings and body covered with scales forming chalk patterns and colors
- Long proboscis is distinctive
Mosquito Feeding

- Nectar feeding by male and female
- Mating (female mate once)
- Female seeks blood meal
- Host finding cues
  - Chemical: CO2, lactic acid, octenol
  - Visual: size, shape, color
  - Body temperature

Mosquito Feeding

- Hosts include mammals, birds, reptiles, amphibians
- Many species are host specific
  - *Aedes* & *Culiseta*
    - Large, small mammals
    - Rarely to occasionally birds
  - *Culex*
    - Birds and mammals
Mosquito blood meals taken from avian and mammalian hosts

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<th>Deer</th>
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**Egg Development**

- Egg development follows blood meal
- Eggs mature in 2 to 5 days after blood feeding (temp dependent)
- Eggs expelled (oviposition)
- Gonotrophic cycle = blood meal to egg laying
- Another blood meal follows
- Gonotrophic concordance

**Mosquitoes**

**Veterinary Health Importance**

- **Irritation by large swarms**
  - Disrupts normal behavior
  - Decreases weight gains & milk production
  - Shock, exhaustion
- **Blood loss**
  - Anemic conditions
  - Exsanguination
- **Allergic reactions**
  - Local swelling, secondary infection
- **Vector of pathogens**