Entomology 156: Biology Of Parasites
The Arthropod Parasites Lecture 7. RB Kimsey
The Advanced Parasitic Flies

I. Tsetse -Family Muscidae, genus Glossina

A. General biology and life cycle

1. Similar to house fly
2. Adults suck blood

A. General biology and life cycle

3. Larviparous- females deposit fully developed larvae which pupate in soil

B. Important species groups

1. Glossina morsitans group- transmits Trypanosoma brucei rhodesiense "acute form"
   a. Savanna and thicket species
   b. Feed on large suids and bovids, and Bushbuck- not humans

B. Important species groups

1. Glossina morsitans group- transmits Trypanosoma brucei rhodesiense "acute form"

B. Important species groups

2. Glossina palpalis group- transmits Trypanosoma. brucei gambiense "chronic form"
   a. Riverside or lake shore, water associated fringing forests
   b. Feed on humans, crocodiles and Bushbuck

B. Important species groups

2. Glossina palpalis group- transmits Trypanosoma. brucei gambiense "chronic form"

B. Important species groups

3. Glossina fusca and Glossina tabaniformis groups
   a. Forest species
   b. Hippopotamus, rhinoceros, and suids

C. African sleeping sickness

1. Pathogens- Family Trypanosomatidae, Genus Trypanosoma
   a. Human trypanosomiasis
      1) T. b. gambiense milder chronic form of disease
      2) T. b. rhodesiense acute form of disease
   b. Salivarian trypanosomes transmitted in saliva of Glossina the Tsetse

2. Epidemiology
   a. Chronic "Gambian" disease
      1) Human to human, antelope reservoir to human transmission
      2) Distributed generally in "Western fly belt"
      3) Endemic, focal transmission
      4) Concentrated where human population coincides with river water points and forest cover
      5) Domestic pigs, sheep possible reservoirs

2. Epidemiology
   b. Severe "Rhodesian" disease- disease of game
      1) Maintained in an enzootic cycle among game animals.
      2) Little chance of transmission to flies from humans
      3) Subject to epidemic out breaks

b. Severe "Rhodesian" disease

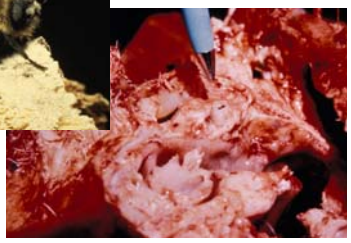



2. Epidemiology
   c. Control- directed only at the fly
      1) Indirect
         a) Habitat destruction
         b) Starvation by shooting all wild game

c. Control- directed only at the fly
      2) Direct
         a) Capture
         b) Biological control- predation and parasitism
         c) Reproduction inhibitors- Chemosterilization, Chromosomal manipulation, or sterile male release
         d) Insecticides

II. Bots, Warbles, floor maggots
   A. Bot flies and head maggots- families Gastrophylidae and Oestridae
      1. Life history- parasitic larvae, free living adult
         a. Gastrophylidae- stomach bot of equids elephants and rhinoceroses
         b. Oestridae- head maggots of sheep horses and deer
         c. Resemble bees

Oestridae- the Nose bots



2. Example Gastrophilis intestinalis- the horse bot
   a. Eggs attached to hair of knees
   b. Eggs hatch upon licking
   c. Larvae penetrate tongue, migrate to stomach and attach
   d. Two molts, pupate, defecated
   e. Nonfeeding adult emerges in 2-3 weeks

Gastrophilidae- the Horse bot fly

B. Warble flies family Cuterebridae the skin bots

1. Parasites of rodents lagomorphs and marsupials
2. Eggs laid on skin or hair
3. Larvae burrow under skin, greatly enlarge
4. Molt, exit skin, pupate in soil

Cuterebriidae
the Warble flies

C. Louse Flies family Hippoboscidae

1. Louse like external parasites of mammals and birds
2. Winged, wingless
3. Larviparous- single larva at a time
4. Glue pupae to fir or feathers

Family Hippoboscidae
the Louse flies

Families Streblidae
and Nycterbiidae

D. Family Calliphoridae the blow flies

1. Numerous forms cause myiasis

D. Family Calliphoridae the blow flies

2. Auchmeromyia lutiola the Congo floor maggot
   a. Blood sucking maggots of human
   b. Eggs laid in huts
   c. Larvae feed like bed bugs on sleeping humans