Lecture No.36 PARASITOLOGY DR. Raad H.H.

**Order: Diptera; suborder: Nematocera**

**FAMILY: Psychodidae; Subfamily: Phlebotominae (sand flies):**

1. 700 spp and about 6 genera; only **3 genera suck blood**
2. slender flies, 1.2-3.5 mm long
3. elongate wings that are lanceolate, held erect over body at about 60 degree angle when fly is at rest; weak fliers
4. cutting mandibles; no proboscis like moquitos
5. males never suck blood and feed on plant juices; females feed both on plant juices and take blood meals
6. most species nocturnal; few diurnal however
7. exoskeleton delicate; need to avoid hot, dry conditions
8. life-cycle
   1. females attracted to areas with feces or decaying vegetation; males often territorial in these areas
   2. following mating and a blood meal, females lay eggs in dark areas with high humidity and the organic debris; several eggs layed at a time
   3. larvae hatch and feed on organic debris
   4. larvae with two pair of long, posterior (caudal) bristles
   5. 4 larval instars (2-10 weeks total); some larvae overwinter
   6. pupate; lasts about 10 days
   7. larval skin still remains attached to posterior end of pupa, so that the two pair of posterior bristles of the larvae remain
9. **3 important genera and some others of lesser importance** 
   1. ***Lutzomyia* (new world) (14 spp known from the U.S.)**
   2. ***Brumptomyia* (New World)**
   3. ***Phlebotomus* (Old world)**
   4. ***Sergentomyia* (Old world)**
   5. ***Warileya* (New World**)
10. capable of **carrying** various **diseases**
    1. Carrion's disease (*Bartonella bacilliformes*) in South America; bone, joint, and muscle pains; occasionally death
    2. Sandfly fever, an Arbovirus in the Mediterranean/Asia/India area producing a non-fatal, febril illness
    3. *Leishmania* spp.

**FAMILY: Ceratopogonidae (biting midges, no-see-ums)**

1. 5500 or more described spp; 125 genera
2. small dipterans, less than 1 mm in length
3. mainly day feeders
4. most spp feed on insects. Some feed on cold-blooded vertebrates and 4 genera are known to feed on mammals.
   1. *Austroconops*
   2. *Culicoides*
   3. *Forcipomyia*
   4. *Leptoconops*
5. the genus *Culicoides*, with about 1,200 species, is the most important (although some members of the genus *Leptoconops* can also pose a biting problem)
   1. pair of humeral pits (depressions) located at anterior, dorsal end of thorax
   2. many spp have thorax covered by small, dark spots
   3. females feed on plant juices and also suck blood
   4. males with plumose antennae
   5. wings narrow, with few veins and often spots
   6. females deposit eggs in water or moist soils; common sites include in decaying vegetations, cattle manure, and temporary tree or stump holes with water
   7. vectors of some diseases
      1. bluetongue (an orbivirus) is a hemorrhagic disease of ruminants
      2. some filarids, i.e. several *Mansonella* spp., a couple of *Onchocerca* spp.
      3. some malarias (some *Leukocytozoon* spp., some *Haemoproteus* spp., some *Hepatocystis* spp.)