SAN BERNARDINO COUNTY SHERIFF – CORONER
EVIDENCE COLLECTION FOR THE
FORENSIC ENTOMOLOGICAL EXAMINATION

BUGS!

I. Why collect insect evidence?
   A. Can help determine time of death
      1. Life cycles of various species
      2. Flies find corpse and lay eggs often within 30 minutes of death
   B. May help determine cause of death
      1. Flies normally lay eggs in eyes and mouth first
      2. Attracted to proteins of blood
      3. Egg masses in other areas can indicate the presence of blood (from injuries)
   C. May determine if body was moved
      1. Many fly species are very environment specific
      2. “City” fly on body dumped in rural area can mean body was moved after eggs were laid.
   D. Can get toxicology from maggots that have consumed remains

II. The Decomposition Environment
   A. Body becomes a unique ecosystem as it decomposes
   B. Native fauna leave area as decomposition juices permeate soil
   C. New species move in to inhabit corpse
      1. Necrophogous species
      2. Predators
      3 Scavengers
   D. When corpse is skeletonized environment returns to original

III. Entomological Succession
   A. Flies
      1. Blow flies
      2. Flesh flies
   B. Beetles
      1. Carrion beetles
      2. Burying beetles
      3. Dermestid beetles
   C. Others
      1. Bees & wasps
      2. Cockroaches
      3. Moths & butterflies
      4. Spiders
      5. Ants

IV. Life Cycle of the Fly
- A. Egg
- B. Larva (maggot0
  - 1. First instar
  - 2. Second instar
  - 3. Third instar
- C. Pupa
- D. Adult

V. Collection of samples
- A. Living sample
  - 1. Allowed to mature for species identification
  - 2. Must be contained with food, water, and air
  - 3. Do not mix flies and beetles
  - 4. Do not mix sizes of maggots
- B. Killed sample
  - 1. To show stage of development at discovery
  - 2. Place in 20% Ethyl Alcohol solution
- C. For toxicology freeze sample ASAP

VI. Documentation of scene
- A. Record temperature of
  - 1. Maggot masses
  - 2. Ambient air
  - 3. Ground underneath body
  - 4. Internal body
  - 5. Ground 1” deep
- B. Other things to document
  - 1. Position of body (compass directions)
  - 2. Covered or not
  - 3. Amount of daily direct sun
  - 4. Types of vegetation in area

VII. Practical exercise – 8hr class only

Student will document and collect evidence, maggots, and other insect species from decomposing corpses. All exercise props are models. No real corpses or insects are used.

Skeletal elements are scientific polymer casts of actual human skeletons or non-forensic human remains donated and prepared for educational purposes.

Students will be provided with all necessary personal protective equipment.