

Critters on Cadavers Background Information

1. Name the four applications of forensic entomology.

- Determine TOD
- cases involving possible sudden death
- traffic accidents w/no obvious cause
- possible criminal misuse of insects

2. Describe what each of the three general areas of forensic entomology studies.

- Urban Entomology use of insects in legal proceedings as it relates to insects that affect man made structures & other aspects of the human environment
- Stored Product Entomology insects infecting food and beverages as well as other kitchen products
- Medicocriminal Entomology insects that feed on human tissue post-mortem

3. Which two insects arrive at the body first and how fast is their arrival?

Blow flies (Calliphoridae) and flesh flies (~~Calliphoridae~~ Sarcophagidae) arrive w/in minutes-hours

4. Describe the colonization pattern of blow flies and flesh flies.

Flesh flies deposit larvae in natural body openings while ~~blow~~ blow flies lay eggs in clusters in and around body openings

5. What is a spiracle?

breathing apparatus on maggots (fly larva)

6. Explain the process of pupation.

after 3rd instar, the larva burrow in the soil & pupate. the process includes shrinking & hardening of the skin which results in a "cocoon"

7. Describe the shape, color, and how long the pupal case lasts.

Small football shaped structures that are reddish to dark brown in color. It does not decompose and can last hundreds of years

8. Explain maggot respiration.

consists of @ tubes running throughout the interior of the body with an opening to the outside

9. What is the function of the peritreme?

regulates the opening of the spiracles to allow for gas exchange

10. The number of spiracular slits can vary. What can the number of these slits tell an entomologist about the maggot?

they can be used in species identification or to verify the stage of the insect

11. Define the following acronyms as they pertain to entomology.

a. PMI Post mortem interval

b. ADD Accumulated degree day

c. ADH Accumulated degree hour

12. How do you determine the heat input using the Accumulated Degree Method? What are the units?

multiply the # of hours it took to reach that stage by the temperature at which growth took place.

units = ADH

13. How do entomologists use the accumulated heat units? How can weather affect their analysis?

They look at how long it took to accumulate those degree hours. if they got them quickly (like a hot day) then they would grow quicker

14. What is a base temperature for insects? What is the base temperature for cold weather tolerant insects? Cold intolerant insects? base temp is temp above the lethal temp but below temp where development occurs.

cold tolerant = 6°C

warm tolerant = 10°C

15. Briefly describe the Case Study example at the end of the thermal history section. How do the entomologists choose a day for colonization and therefore death of the body?

They have to add up to 72 ADD. by calculating and adding together the ADD for each day, you find you get bit 67.5 and 86.2 ADD on Aug 5, meaning the person was dead that day