

Insects and People – Entomology 101

The Life That Lives on Man

"Clean-Body - Clean Mind"

- a relatively modern axiom
- the debauchery of the public bath
- laws that limit the number of baths one can take!

Parasite - An organism, usually smaller than its host, that attains needed nourishment from its host to complete its life cycle. May feed on one or several hosts during its lifetime.

Obligate and Facultative Parasites

- Obligate - adapted to a specific host; must complete life cycle on that host with no or few interruptions
- Facultative - capable of completing the life cycle on any one of a number of host species (host may or may not have to be closely related)

1. Lice

- sucking lice; feed primarily on mammals
- chewing lice; feed primarily on birds
- a. Human body louse (note singular form of lice)
 - worldwide in distribution
 - feed on blood but often found off of the host in clothing, bedding, etc.
 - eggs laid in clothing or bedding, need to feed every several days, may leave host after feeding
 - capable of transmitting several important diseases (epidemic typhus, trench fever, relapsing fever) but not a disease problem in US
 - causes severe skin irritations, swelling, may develop allergies
 - wash infested garments and bedding with hot water, dry hot, use insecticidal soaps
 - pediculicidal soaps for personal use
- b. Head louse (a subspecies of body louse)
 - found only on the scalp
 - hair combs from 100 BC with lice eggs and remains
 - do not transmit disease however, great social stigma
 - eggs (nits - "nit-picker") glued to shafts of hairs
 - delouse individuals with insecticidal shampoos; try to remove eggs from individual; delouse clothing, bedding, combs, brushes
 - reintroduced into a population quickly through sharing of combs, hair brushes, hats, etc.

- c. crab louse (pubic louse)
 - "pediculosis pubis"
 - confined to pubic area (rarely eyebrows, underarms)
 - do not transmit disease but causes severe itching and may lead to secondary infections
 - obtained through sexual contact and (sometimes) toilet seats
 - delouse individuals with insecticidal products; wash clothing and bedding

2. Bed Bugs (Hemiptera)

- human bed bugs feed primarily on humans but may take other hosts (closely related to bat bug)
- do not appear to transmit disease
- nocturnal feeders; severe itching and inflammation associated with bites
- spend diurnal and non-feeding periods in seams of mattresses, under baseboards, under peeling wallpaper, etc.)
- can survive long periods of time without feeding
- treat infested area with insecticides; treat bites with antibacterial lotions and creams

3. Fleas (Siphonaptera)

- complete metamorphosis; adults are blood feeders while immatures feed on detritus (food particles, dead skin cells, feathers, dried blood from wounds or defecated by adult fleas, etc.). Eggs are usually laid in bedding of host.
- among the most important disease vectoring organisms (e.g., plague)
- for most, fleas are a source of insidious attack causing irritation, blood loss, and severe discomfort - a human curse
- most of the more common fleas are not host specific.
- can survive long periods without feeding

- cat and dog fleas
- oriental rat flea (vectors causative agent of plague)
- human flea (not specific to humans)
- chigoe flea
 - mostly tropical and subtropical
 - burrows into skin
 - causes severe itching and inflammation

Treatments

- chigoe fleas can be removed surgically
- antihistamines may relieve itching and corticosteroids can aid in healing lesions
- remove infestation
 - insecticidal treatments (in and around home)
 - clean pets
 - clean animal bedding thoroughly and often

4. Follicle mites

- live exclusively in hair follicles and sebaceous glands
- no apparent detrimental affects
- almost all people have them

5. Chigger mites

- very common in south and humid areas of midwest
- larvae may burrow into the skin causing swellings, sever itching, and irritation
- do not suck blood; inject saliva that dissolves host cellular tissue; mites ingest a mixture of dissolved body tissue and stray blood cells

6. House Dust mites

- two primary species found worldwide
- associated with mattresses, sofas, reclining chairs, debris in carpet
- thought to feed on shed skin cells
- can cause allergies which may become severe
- vacuum frequently; avoid carpets (hard floors better), keep bedding very clean

8. Myiasis

- Myiasis is an invasion of living tissue by fly maggots

-Human bot fly

- obligatory human parasite
- very unusual method of attaining host
- feed subdermally for 5-10 weeks
- feed on head, arms, back, abdomen, buttocks, thighs
- surgically remove - do not crush

-primary screwworm fly

- facultative human parasite
- can be devastating to cattle and other domestic and wild animals
- Sterile Insect Technique
- flies deposit eggs in wounds; larvae tunnel through and feed on living flesh