EXTERNAL PARASITES

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WHAT ARE EXTERNAL PARASITES?

- External Parasites (or ectoparasites) live on the outside of the body
- The most common external parasites are fleas, lice, mites, and ticks, but it does not stop there
- They can be extremely irritating to our patients and can cause serious skin issues and even carry disease

WE WILL COVER:

- Facts about common external parasites
- Identification methods and procedures
- Common clinical signs
- Diseases they may carry
- Removal and treatment options
- And more

WITH TREATMENT, ALWAYS:

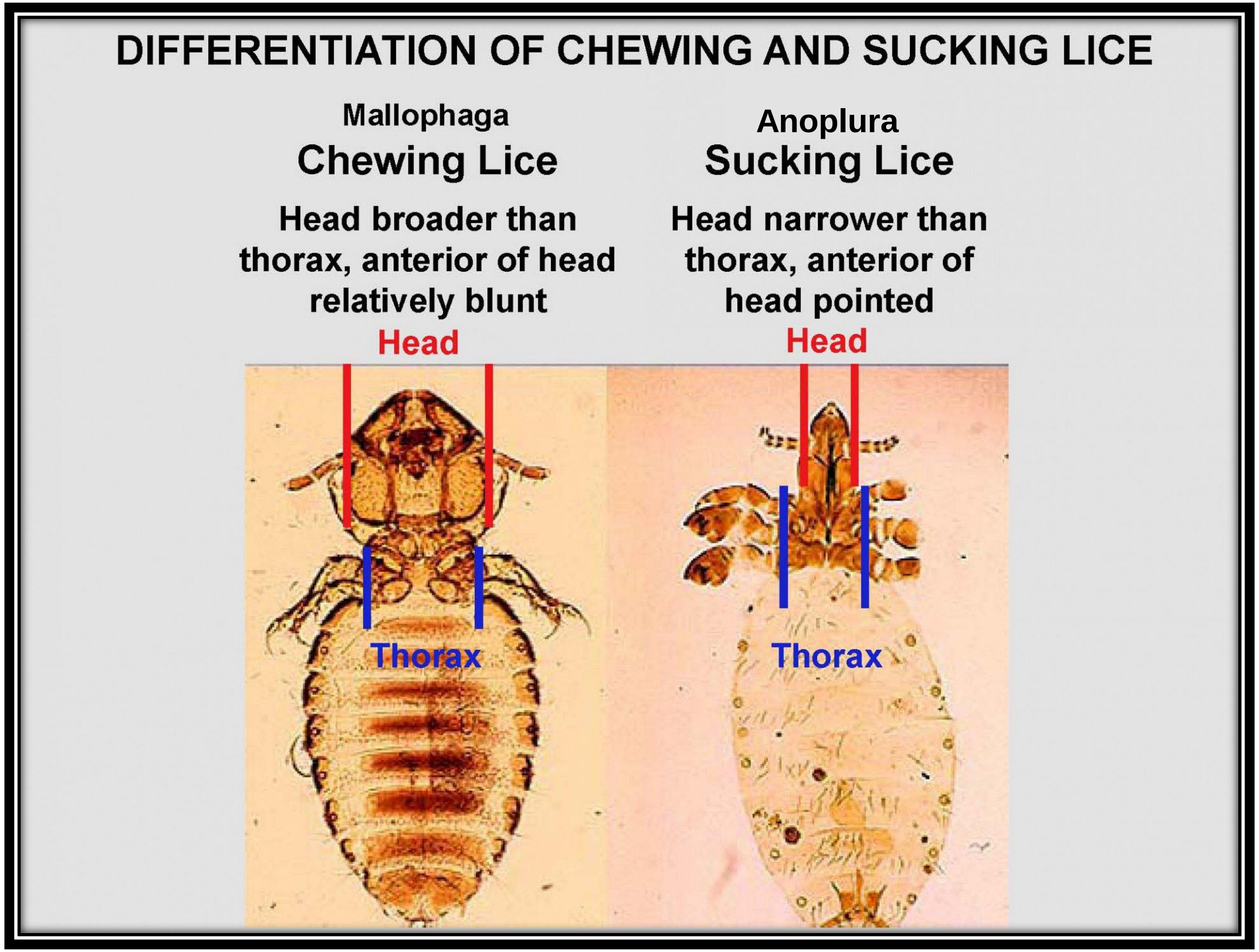
- Confirm with microscopic examination when applicable
- Assess the risks
- Do your research
- Always be cautious using products on debilitated and young patients
- ALWAYS ask for dosing and treatment advice from your vet
- Understand the parasites life cycle
- Avoid eyes and mucous membranes when using powder medications
- Wear gloves when manually removing external parasites or using medications
- Wash hands in-between patients

THE CREEPY CRAWLY BUGS OF WILDLIFE REHABILITATION

LICE:

- Lice effect a variety of species (including mammals and birds)
- Latterally Flattened and possess no wings
- Very host specific and tend not to leave their preferred host
- 2 groups:
  - Anoplura- Sucking lice (suck blood)
  - Mallophaga- Biting or chewing lice (chew skin, do not suck blood)

LICE:


DIFFERENTIATION OF CHEWING AND SUCKING LICE
Mallophaga
Chewing Lice
Head broader than thorax, anterior of head relatively blunt
Head
Thorax
Anoplura
Sucking Lice
Head narrower than thorax, anterior of head pointed
Head
Thorax

ANOPLURA:

- Sucking lice
- Feed on blood
  - Anemia
  - Weakness
  - Even death
  - Do not itch

MALLOPHAGA:

- Chewing or biting lice
- Feed on skin debris
  - Itchy
  - Irritating
  - Not deadly

LICE:

- Diagnosis
  - Visual exam

- Treatment
  - Pyrethrins (wide variety of product available)
  - Fipronil or Frontline (do not use in rabbits or animals under 8wks.)
  - Flea powders labeled safe for kittens

Source: (NWRA, 2017)

MITES:

- Mites effect a variety of species (including mammals, reptiles, and birds)
- Very small and barely visible to the naked eye
- LOTS of different species exist
- Diagnosis
  - Ear mites: ear swab with mineral oil (mammals)
  - Avian and reptile mites: visual exam, place suspected mite on a slide with mineral oil if not sure (do not let mineral oil get in feathers)
  - Sarcoptes, Cheyletiella, Demodex: Skin Scrape
  - Cheyletiella: Tape preparation

SARCOPTES:

- Burrowing mite
- Contagious and Zoonotic
- Intense puritis (itching)
- Diagnosed with deep skin scraping
- Can be severe in the red fox
  - Rare in gray fox

NOTOEDRIC:

- Effects felids
- Similar to Sarcoptes
- Highly contagious
- Dry crusty skin
- Diagnosis: Deep skin scrape

DEMODEX:

- Small cigar shaped mites
- Live inside the hair follicles
- Not zoonotic
- Alopecia (hair loss)
- Diagnosis- Deep skin scrape

CHEYLETIELLA:

- Walking dandruff
- Can be found on canids, felids, and lagomorphs (rabbits)
- Possible to see movement of dandruff on the skin
- Generally, does not cause significant disease
- Diagnosis- Tape Prep or Skin scrape

OTODECTES:

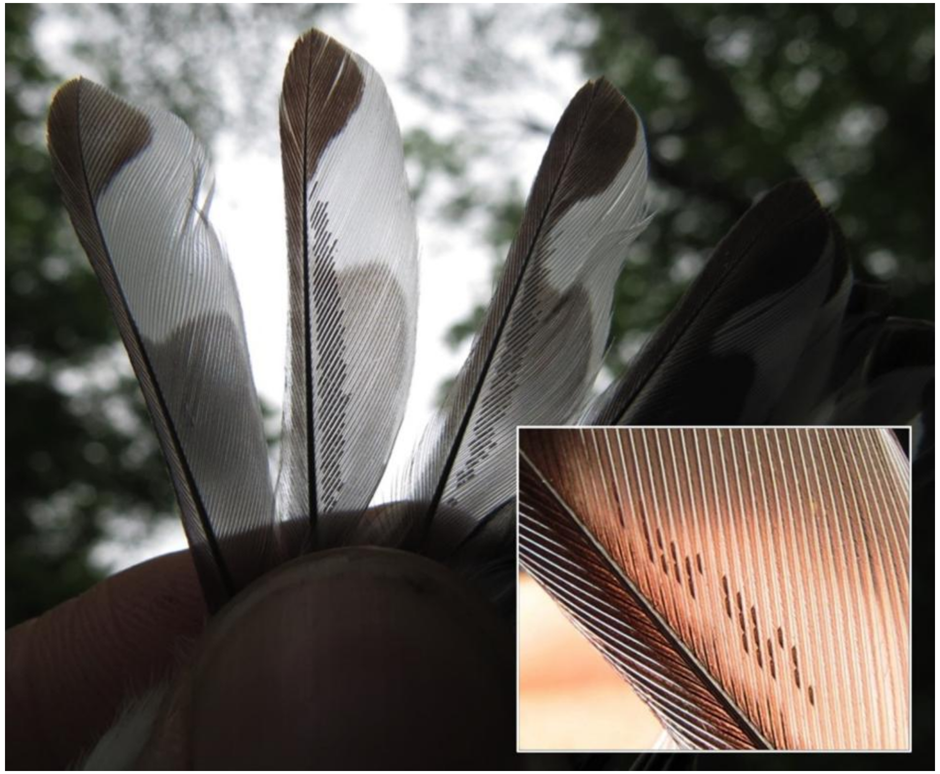
- Most common ear mite
- Black pruritic exudate present in the ear canal of mammals
- Tip- looks like coffee grounds
- Diagnosis- Ear swab with mineral oil (view at 4-10x)

KNEMIDOKOPTES :

- Scaly leg mite
- Scaly gray or white crusty lesions on skin especially on feet, legs and beak
- Diagnosis
  - skin scraping of the infected area

FEATHER MITES:

- More than 25 species
- Feed mainly on feather oils, debris, fungi, and skin scales
- Diagnosis
  - Feather under microscope or visual exam

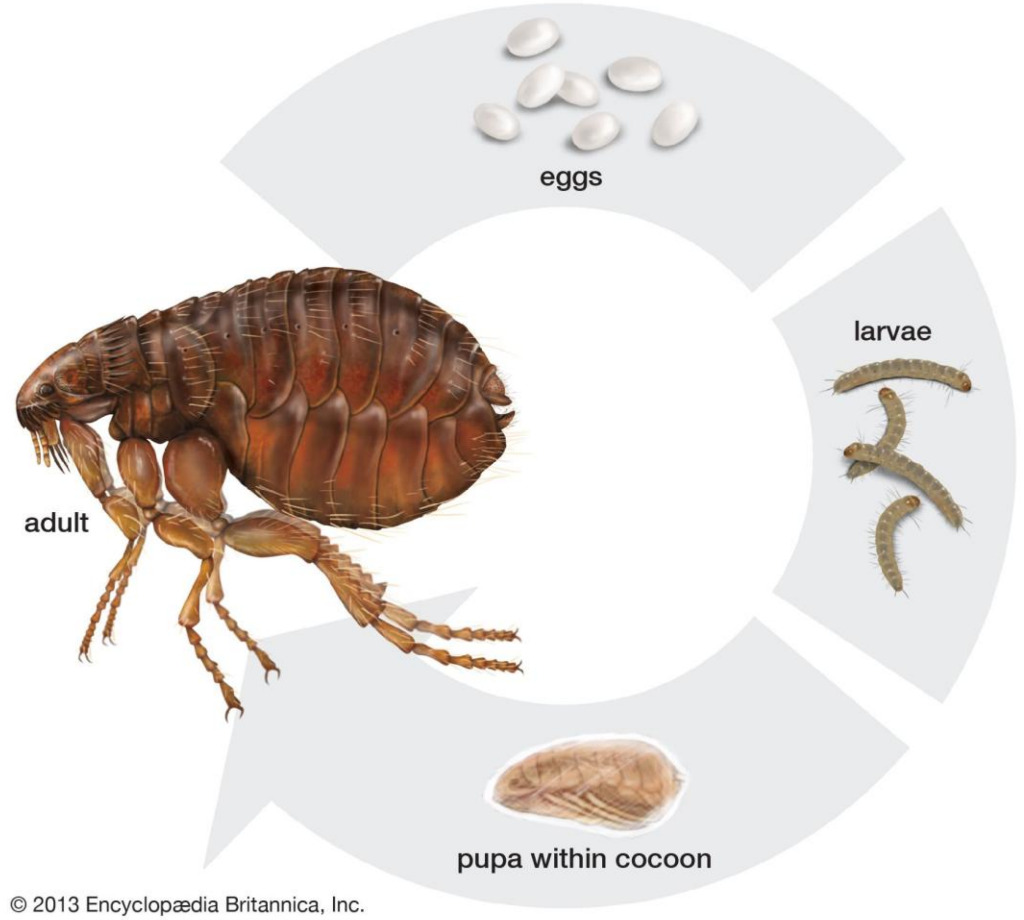


MITES:

- Treatment:
  - Ivermectin (do not use in chelonians, crocs, indigo snakes, or skinks)
  - Selamectin or Revolution (mammals and birds); Cat version recommended for fox
  - Demodex: Amitraz or Mitaban (not recommended for animals under 4 months); Ivermectin in white-tailed deer
  - Light dusting of Sevin Dust (on birds only, use with caution and do not apply when wet or if the animal is under 4 wks. old)

FLEAS:

- Small and usually dark in color
- Fleas don't fly they jump
- Can cause flea allergies and flea bite dermatitis
- Diagnoses- Visual



FLEAS:

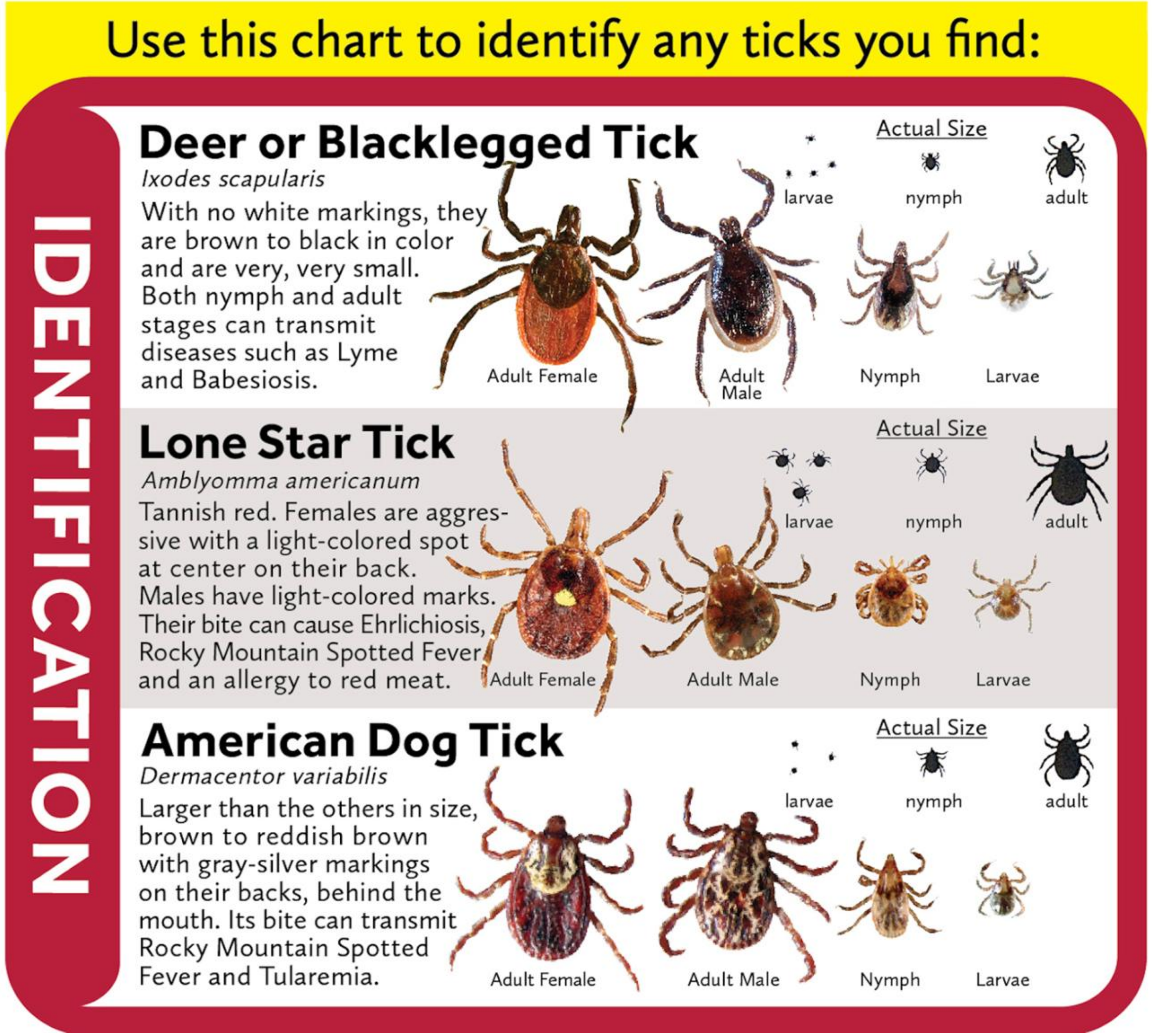
- Treatment
  - Flea Baths (if patient is stable)
  - Flea and Tick Powder (do not use in animal under 4 wks. old)
  - Capstar

TICKS:

- Ticks are blood-sucking parasites that attach themselves to animals and people
- Transmit many diseases, including Rocky Mountain spotted fever, ehrlichiosis, Q fever, and Lyme disease
- Ticks are not insects, they are arachnids.
- Could cause anemia, paralysis, and other complications

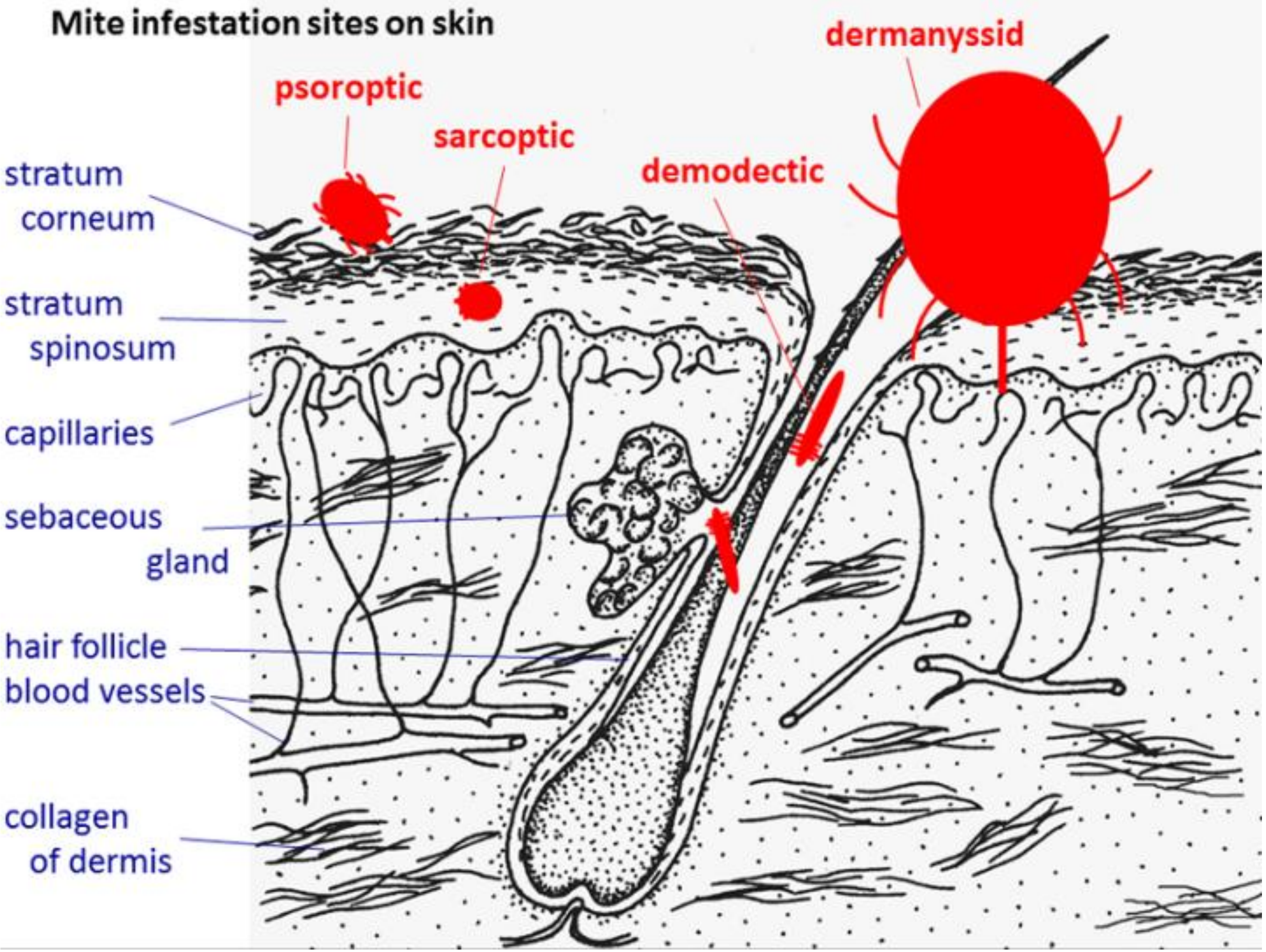
TICKS:

- Diagnosis
  - Visual Exam
- Treatment
  - Manual Removal
  - Flea and Tick Powders safe for kittens



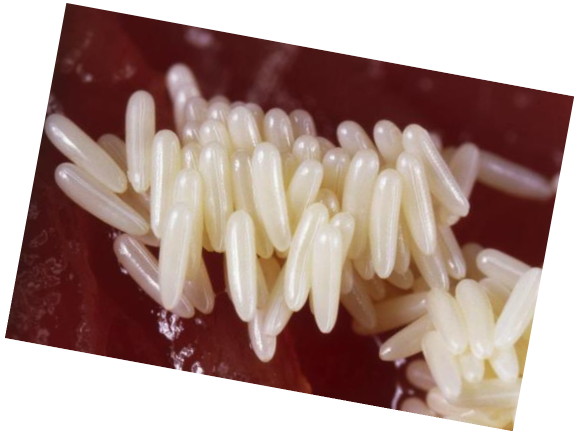
TICKS:

- Give all patients a thorough look over, including tortoises
- Can lead to anemia with heavy infestations


Mite infestation sites on skin
psoroptic
sarcoptic
demodectic
dermanyssid
stratum corneum
stratum spinosum
capillaries
sebaceous gland
hair follicle
blood vessels
collagen of dermis

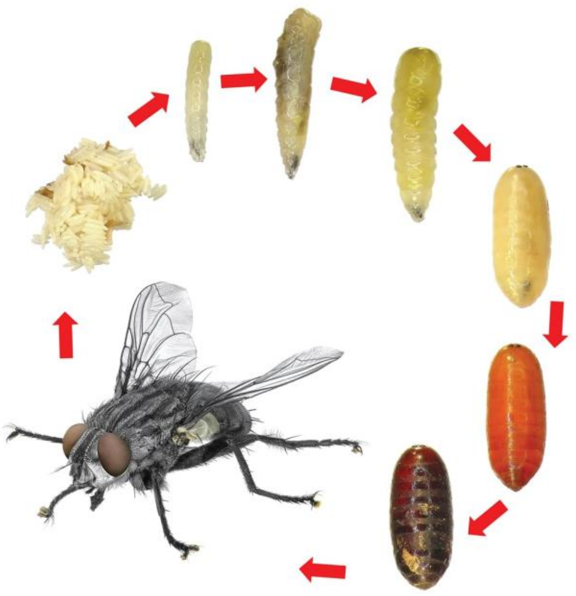
MAGGOTS

- **Fly strike-** is a painful, sometimes fatal, condition caused by flies laying eggs on an animal. Once the flies hatch into maggots they eat their 'hosts' flesh
- Fly eggs can be brushed off with stiff brush
- Infestations on existing wounds
  - Emergency (lots of damage in a short amount of time)
  - They consume healthy tissue



MAGGOTS

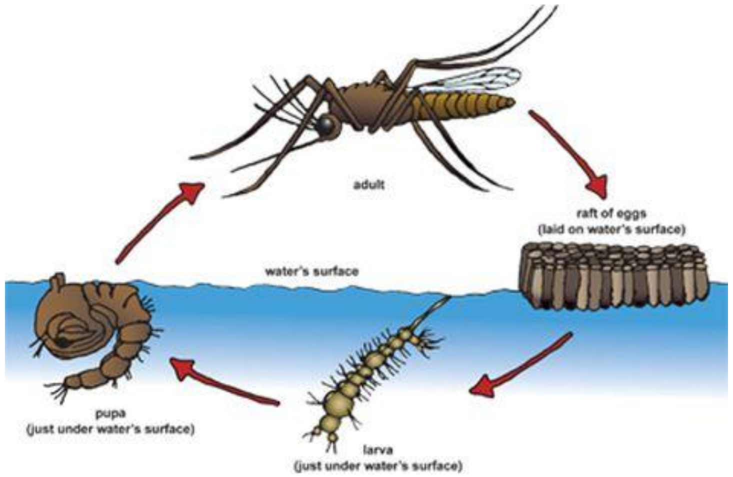
- Maggots and fly eggs need to be manually removed (anesthesia is helpful)
- Thoroughly flush and debride wounds
- Diagnosis: Visual Exam
- Treatment: Flush wound with Capstar, can also be given orally



MOSQUITOS

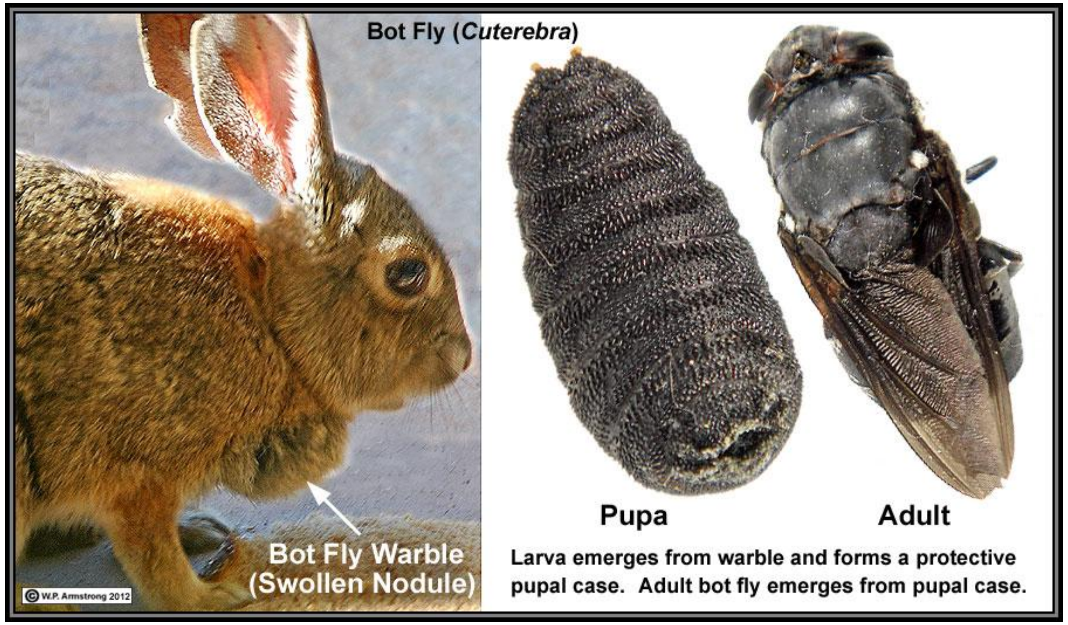
- Arthropods
- Transmit many diseases including West Nile Virus (WNV)
- West Nile Virus (WNV) infects over 250 species of birds, but corvids (crows, blue jays, and ravens) are the most susceptible to dying from the disease.
  - Fact Sheet from Cornell Wildlife Health Lab: https://cwhl.vet.cornell.edu/system/files/public/cwhl-fact-sheetswnv.pdf

- Use mosquito netting over outdoor aviaries and cages.
- Bat Houses
- Avoid standing water



BOT FLIES

- Cutaneous swelling with a breathing hole
- Many infected animals show multiple nodules
- Diagnosis
  - Visual Exam
- Treatment:
  - Manual removal of larva, followed by wound cleaning and supportive care



FLAT FLIES

- Hippoboscidae or Louse Flies
- Flattened bodies, allowing them to easily slip sideways between feathers or hair on the hosts body
- Commonly found on debilitated birds
- Treatment: manual removal, difficult to get rid of

LEECHES

- Can be found of the nasal passages and nictitating membranes of dabbling ducks and swans
- Finding leeches on aquatic turtles is common
- Treatment: Manual removal

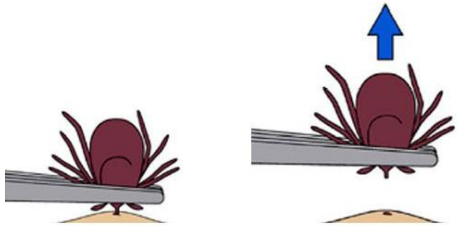
WHAT ABOUT BATS?

- Bats can be affected by mites and lice
- They can be removed with a cotton swab and alcohol
  - Be careful when using alcohol, it can cause your patient to get cold
  - Larger parasites can be removed with hemostats
- No additional treatment is required
- Large amounts indicate an underlying health issue
- Insecticides should not be used, good husbandry and nutrition should control the burdens

PROCEDURES FOR EXTERNAL PARASITE IDENTIFICATION

*YOU DO NOT NEED A MICROSCOPE TO SEE ALL EXTERNAL PARASITES, BUT IT HELPS TO HAVE ONE

HOW TO REMOVE A TICK:



1. Use fine-tipped tweezers or tick removal device to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick
   - This can cause the mouth-parts to break off and remain in the skin
   - Never remove a tick with your fingers. It's not only ineffective, but the squeezing may also further inject infectious material.
3. After removing the tick, thoroughly clean the bite area

SKIN SCRAPE

- Materials Needed:
  - Scalpel Blade
  - Mineral Oil
  - Glass Slides
  - Gauze
- Note: Scrapings must be from the infected area.
  1. Identify the skin in the area to be scraped (you need more than one location if available)
  2. Place a drop of mineral oil on the slide
  3. Dull the blade on a hard surface
  4. Coat the scalpel blade or the area being scraped with mineral oil
  5. Scrape the skin with the edge of a scalpel blade. Not just the surface skin, get a deep skin sample. You want to see some capillary action.
  6. Transfer scraped material to the slide and mix with mineral oil
  7. Place cover slip on slide
  8. Place slide on microscope and examine

Tape Preparation

- Materials Needed:
  - Clear tape (not frosted, can use packing tape)
  - Glass Slides

1. Firmly and repeatedly press a piece of clear tape to infected area
2. Place the clear tape on the slide
3. Examine under microscope

EAR SWAB (FOR EAR MITES)

1. Lightly coat a cotton-tipped applicator in mineral oil
2. Place drop of mineral oil on microscope slide
3. Swab the debris from the animal’s ear
4. Roll debris onto microscope slide mixing into the mineral oil
5. Place cover slip on slide
6. Examine under microscope

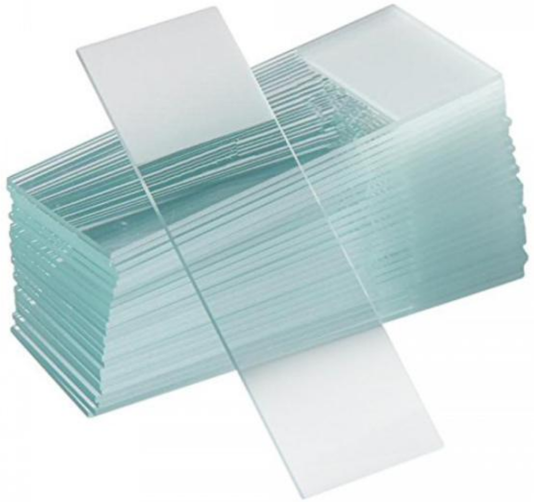
BOT FLY REMOVAL TIPS

- Cover the breathing pore with white petroleum jelly for 10−15 minutes before grasping the parasite can make it easier to remove
- The lesion should not be squeezed (larval rupture can cause anaphylaxis)
- If possible, the larva should be removed in one piece; recurrent abscesses at the site of previous Cuterebra infestation suggest residual infection or remaining pieces of larva.
- The area should be thoroughly flushed with sterile saline, debrided (if necessary), and allowed to heal by granulation.
- Healing may be slow
- Anesthesia (if possible, with heavy infestations)

NOT SURE WHAT IT IS?

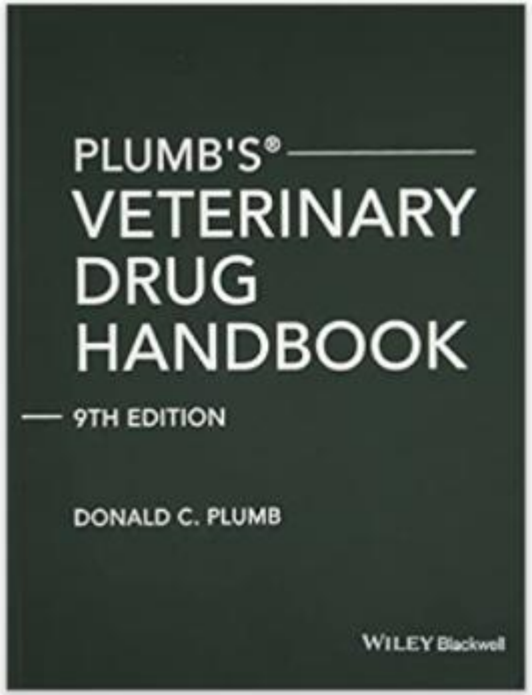
1. Place drop of mineral oil on microscope slide
2. Drop unknown external parasite onto mineral oil
3. Place cover slip on slide
4. Examine under microscope

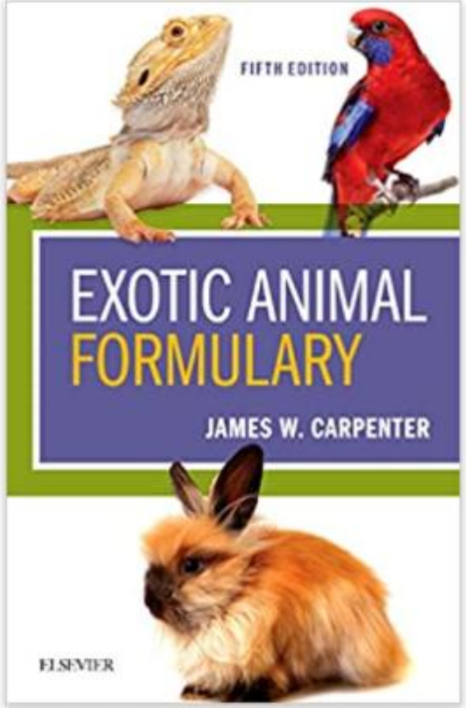
*You can also use the tape prep option

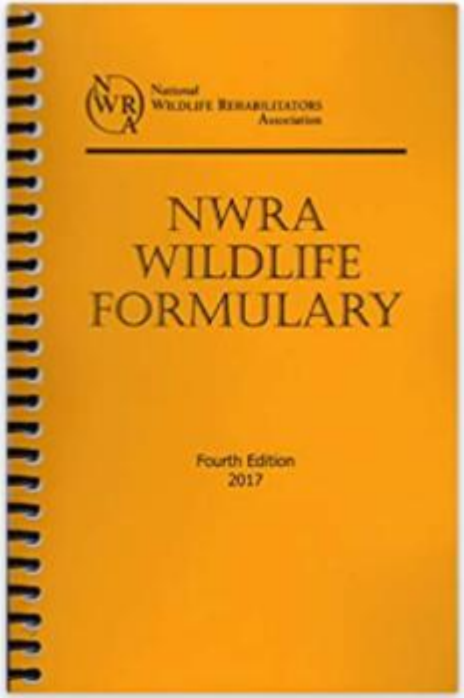


FORMULARIES

Always consult your veterinarian on drug dosages and drug use







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