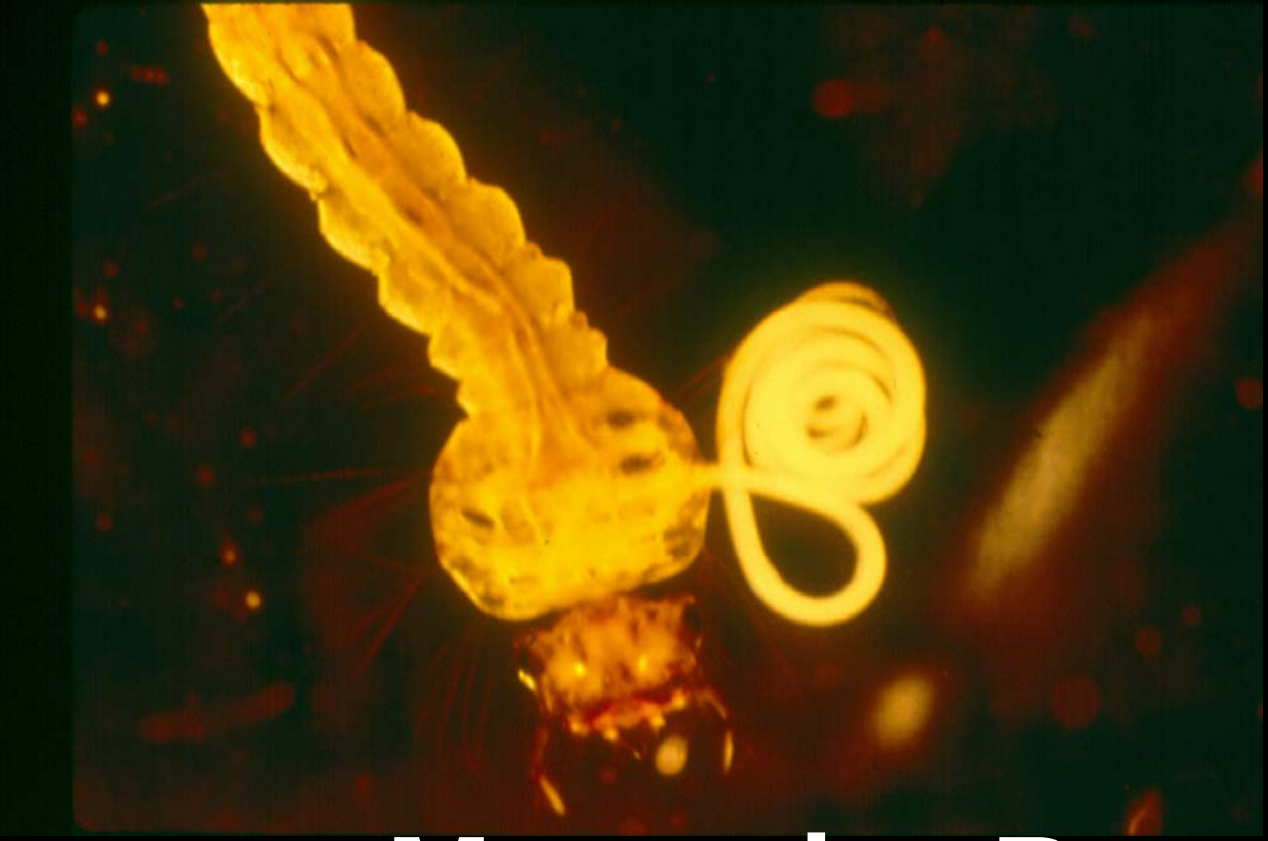


Mosquito Parasites

Mark S. Blackmore, PhD

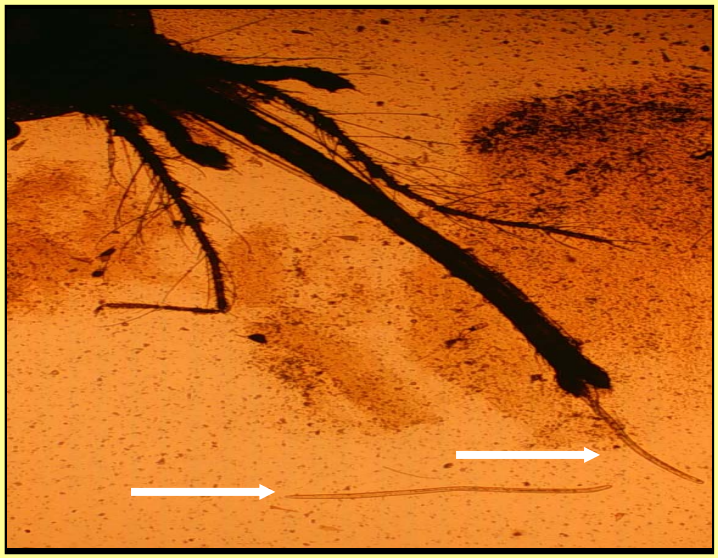
Department of Biology

Valdosta State University

Parasitism is one form of symbiosis

Relationship to host varies

- Parasites



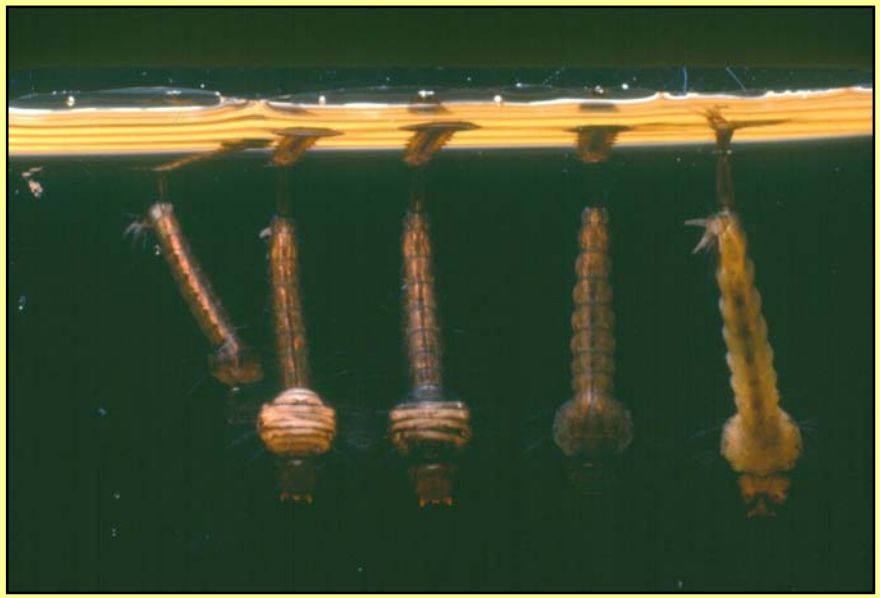
Host not killed

- Parasitoids

Host dies

Types of Parasites

- Endo- internal vs. Ecto- external
- Obligate vs. Facultative
- How many hosts?
  - Monoxenous
  - Oligoxenous
  - Polyxenous

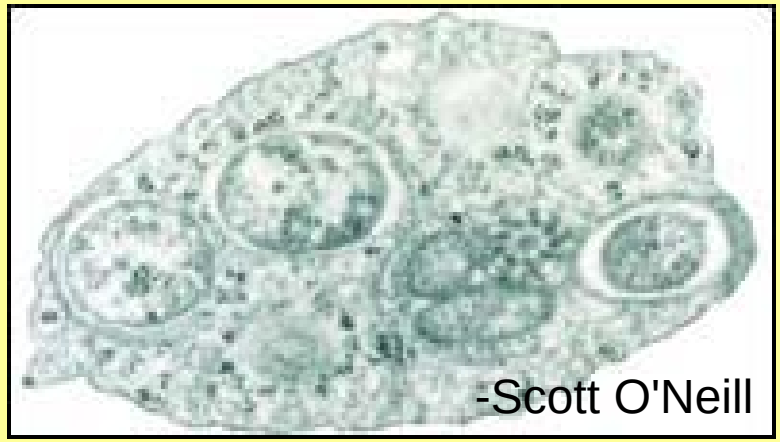


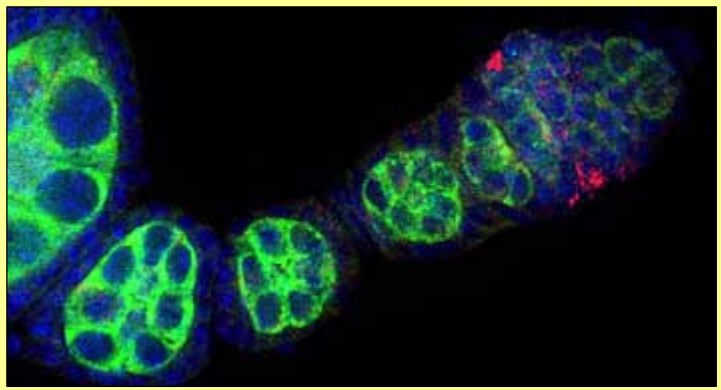
Mosquito Parasites/Parasitoids Include…

- Bacteria
- Protozoans
- Nematodes
- Mites
- Pseudoscorpions

Wolbachia pipientis

- Intracellular parasites
- Pass in female line
- Effects include…
  - Cytoplasmic incompatibility
  - Filarid nematode pathogencity



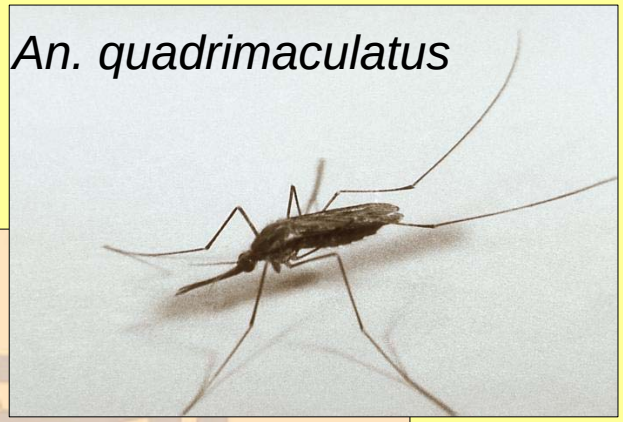


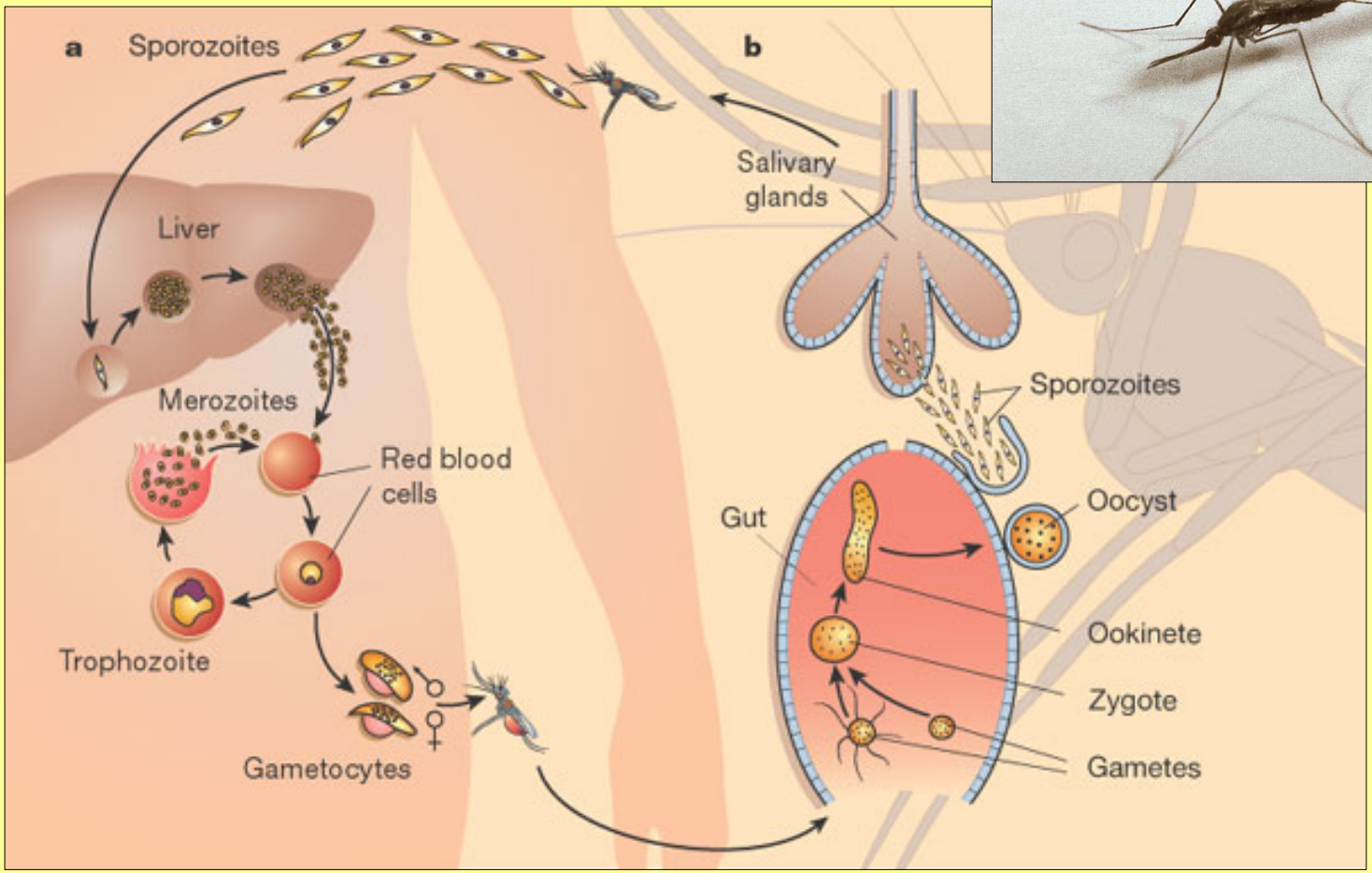
Apicomplexan Protozoans

- *Plasmodia spp.*
- *Ascogregarina spp.*

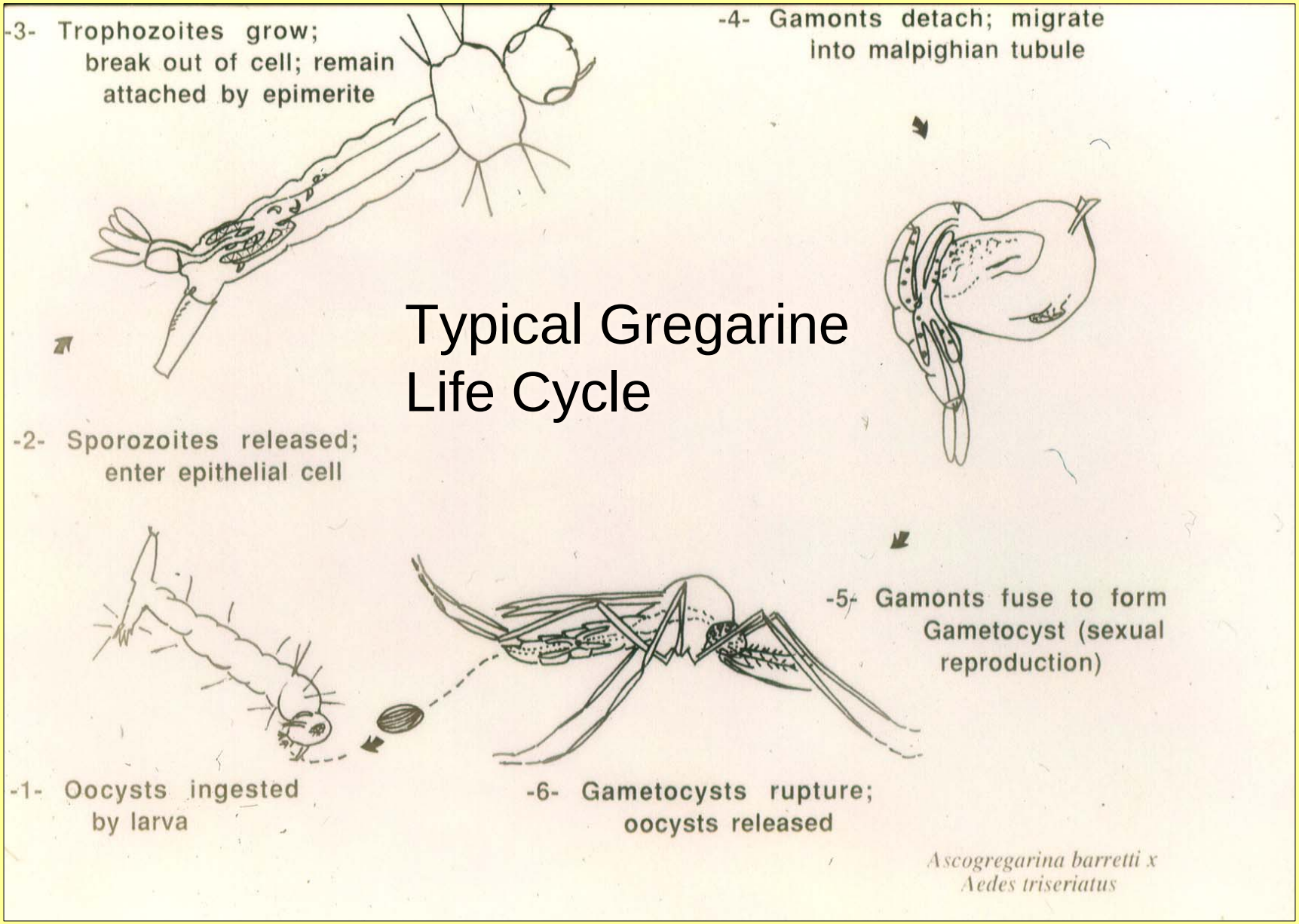
Malaria Life Cycle

- Obligate endoparasite
- Host-specific



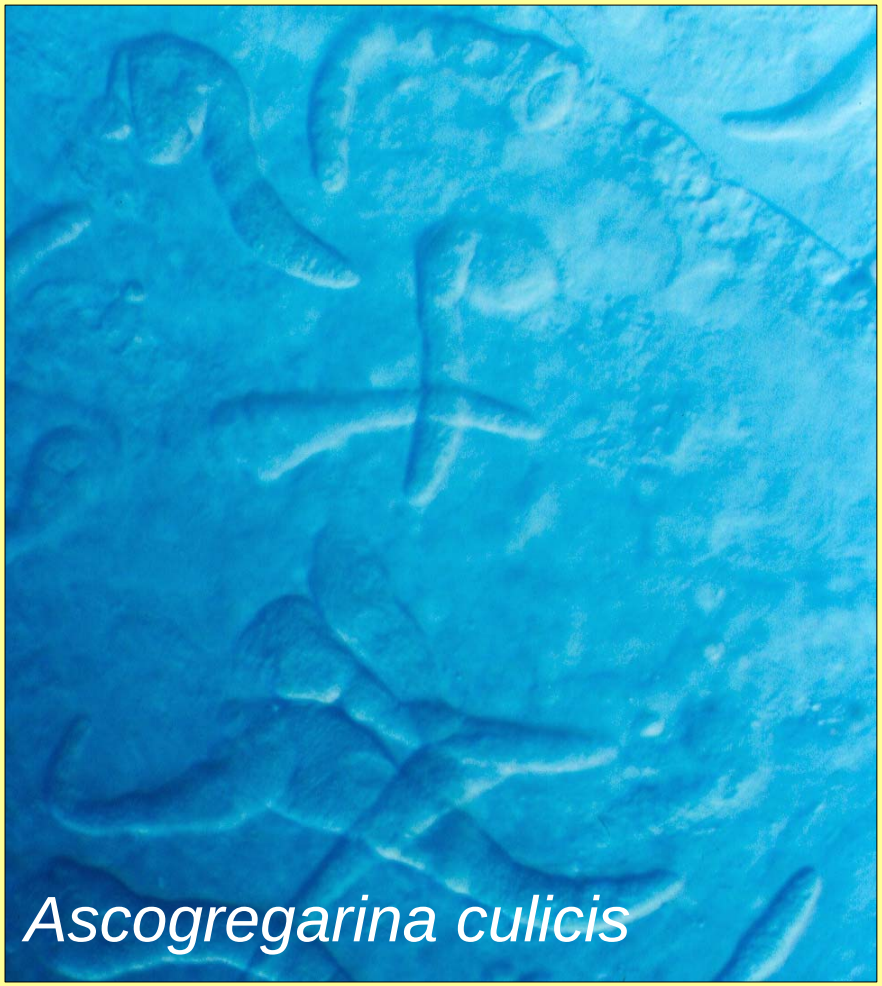


Typical Gregarine Life Cycle

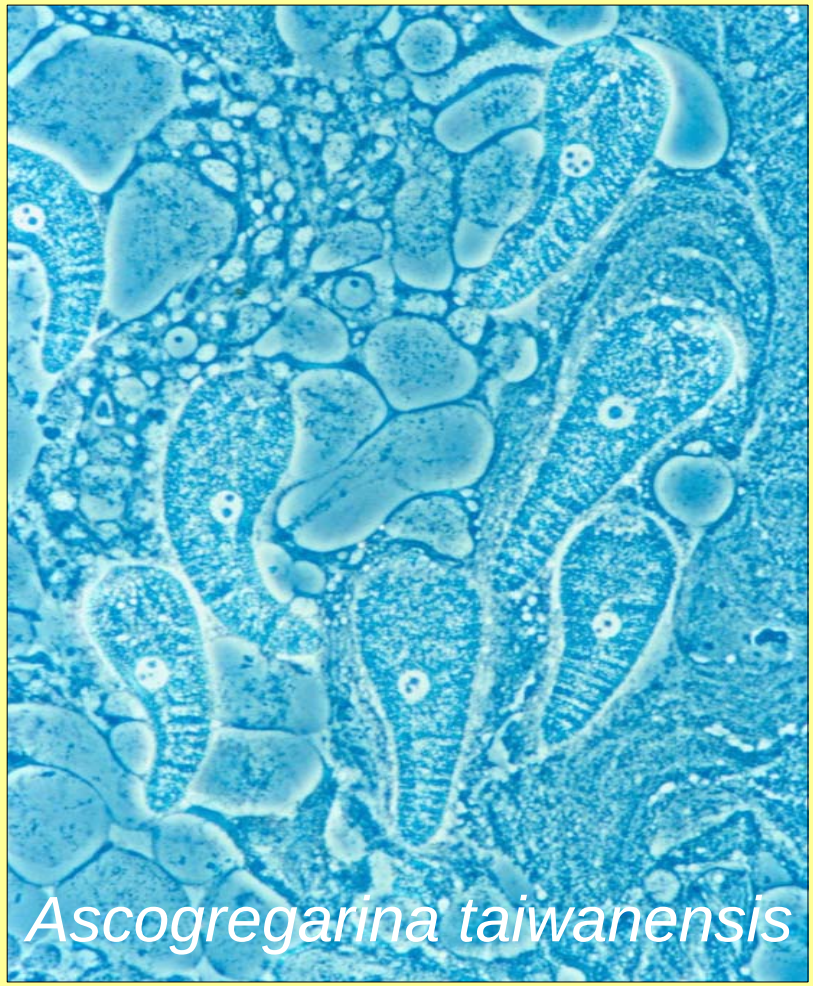


Host-specific

Aedes aegypti



Aedes albopictus



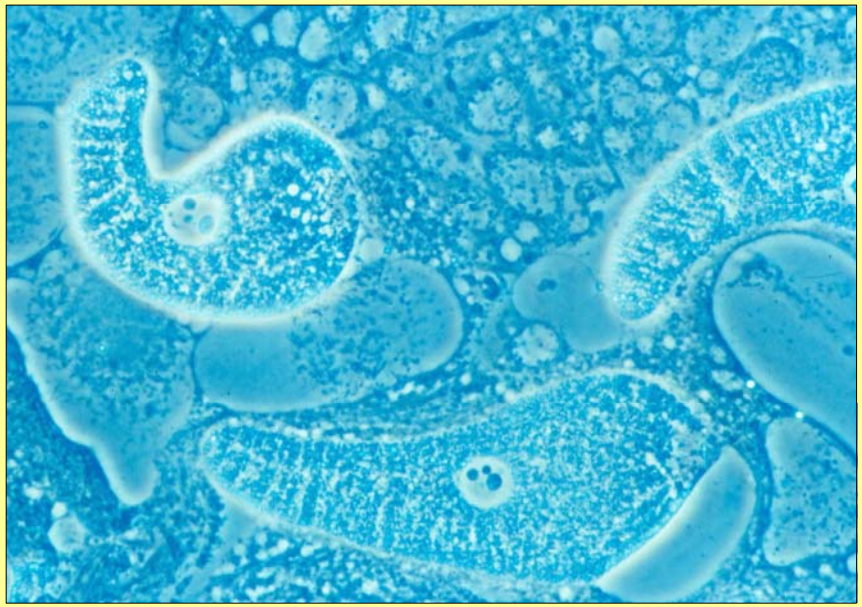
Effects on Hosts

- Minimal in usual host
- May be pathogenic in aberrant hosts
  - Slow growth
  - Mortality
  - Susceptibility to pesticides

Aedes aegypti vs. *Aedes albopictus*

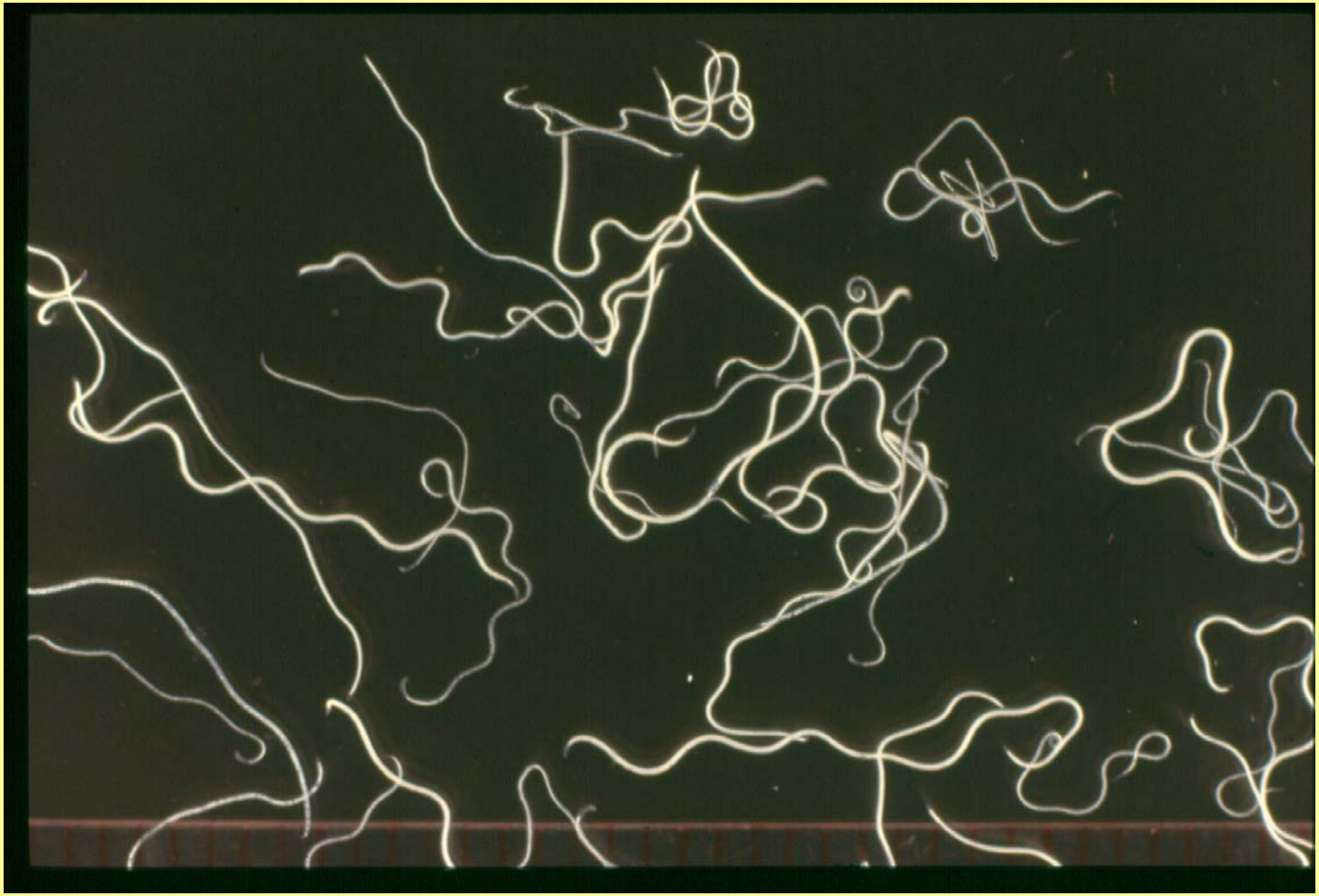
- Prevalence high*
  - 70% sites infested
  - >50% infected
  - Parasite load 1-486

  (means 33-50/host)



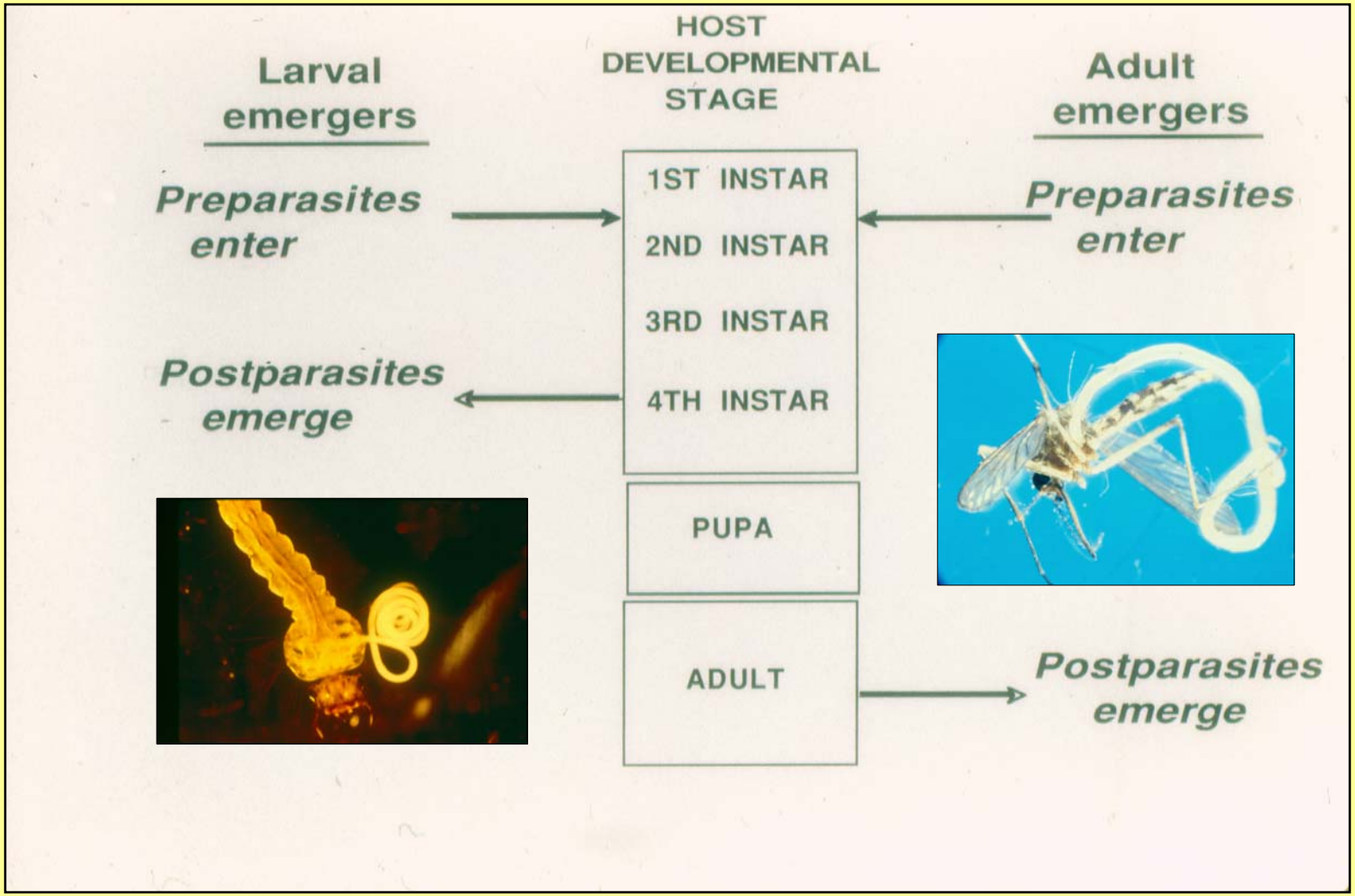
*Blackmore et al. *J. Med. Entomol*. 32(6) 847-852 1995

Mosquito-parasitic Nematodes



Mosquito-parasitic Mermithids in North America

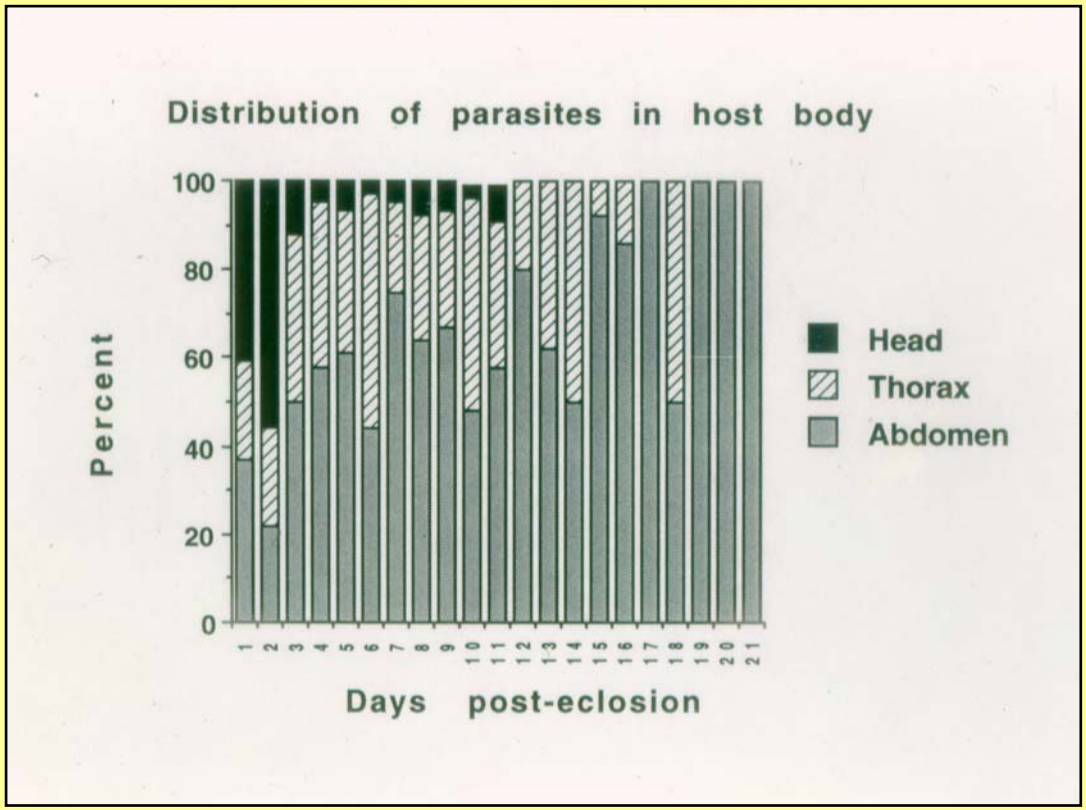
Life Cycles of Mosquito-parasitic Mermithidae



Getting “Home”

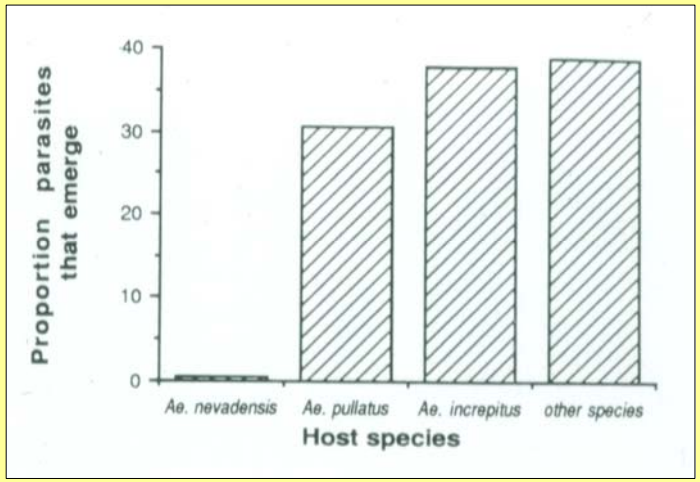
- Behavioral effects
- Emerge at oviposition sites

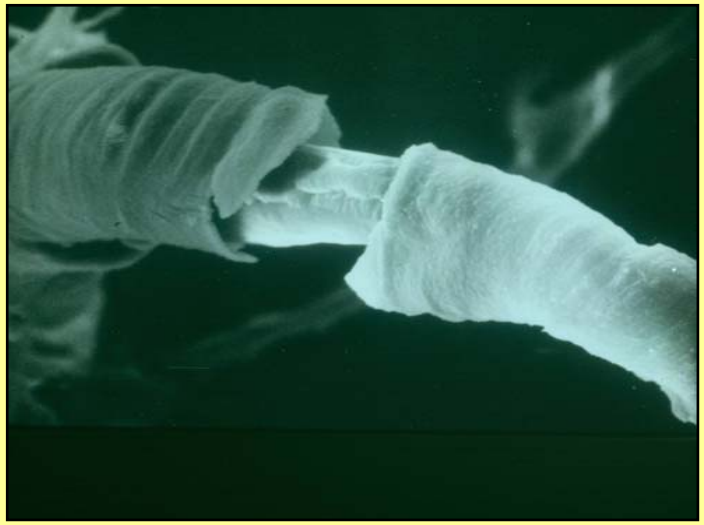
Migration Within Host



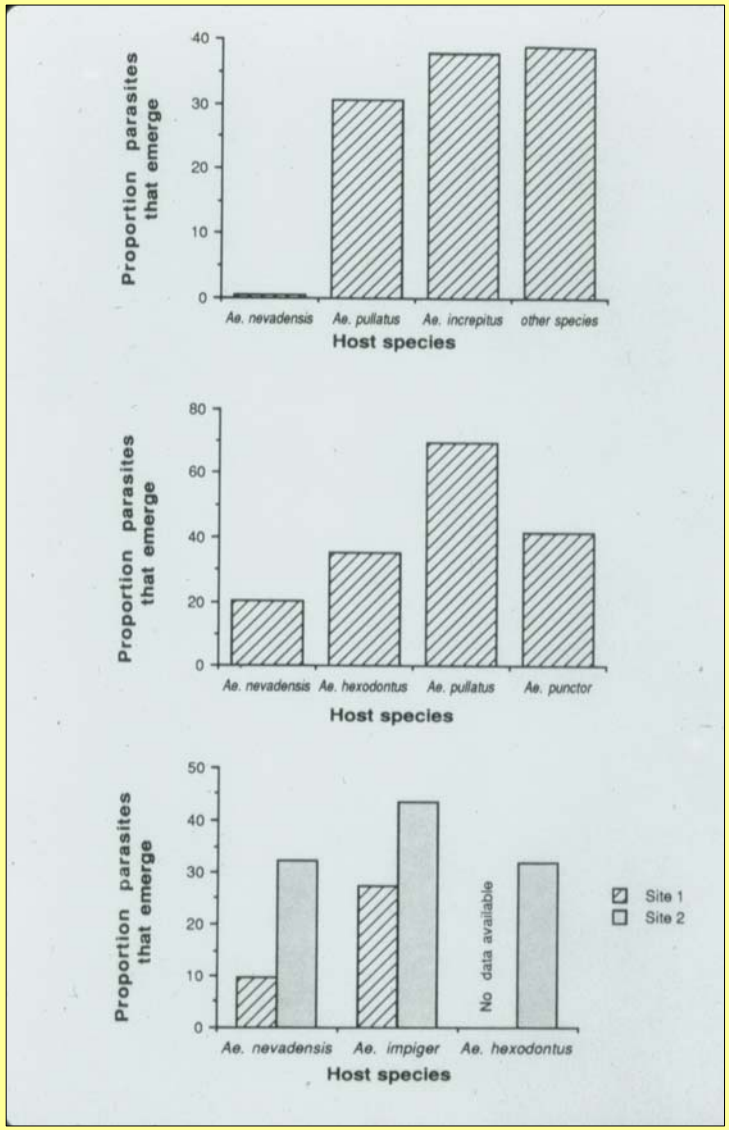
Immune Response to Parasites

- Interspecific variation
- Parasite load
- Efficacy



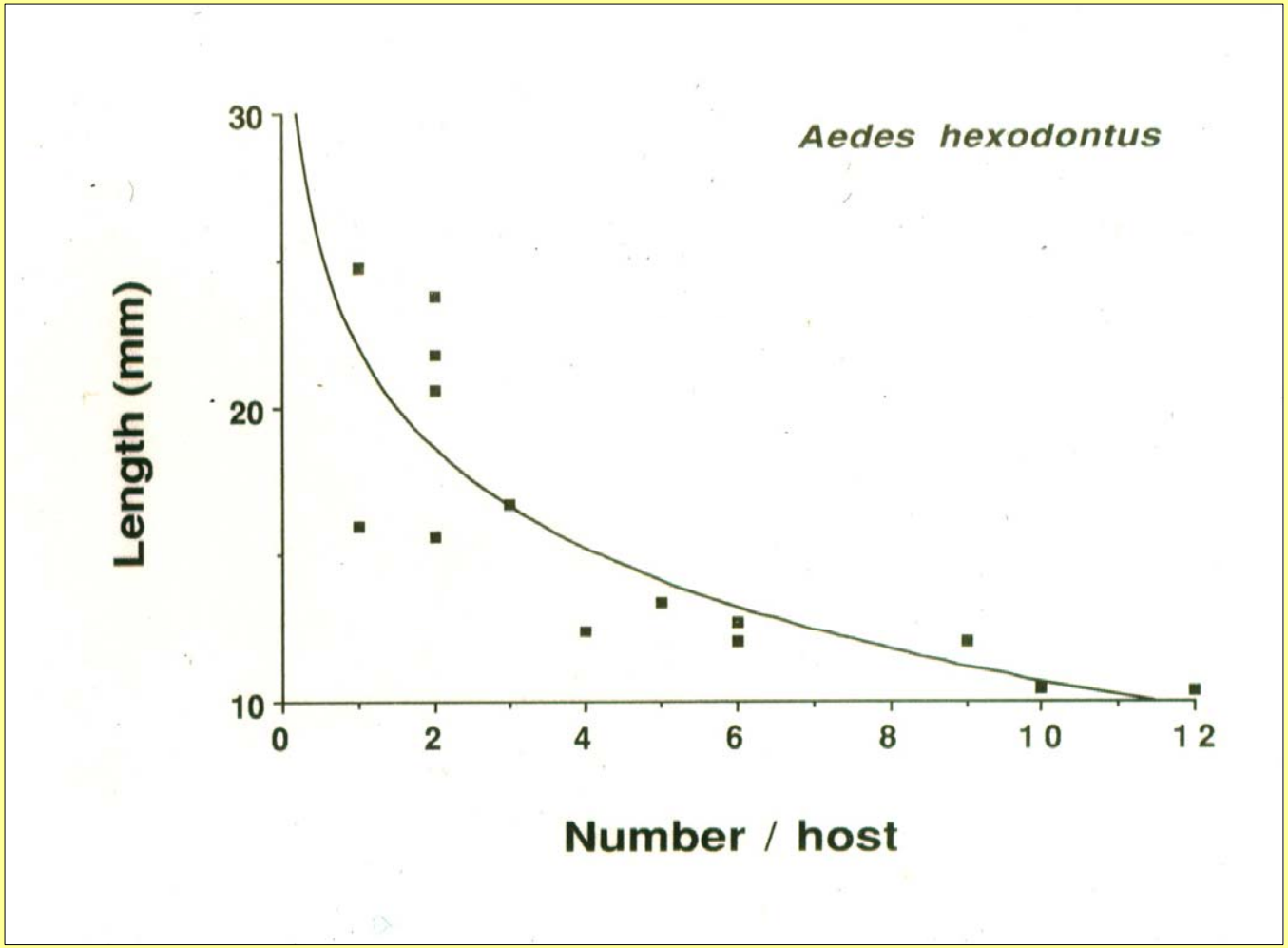


Host Choice Affects Survival

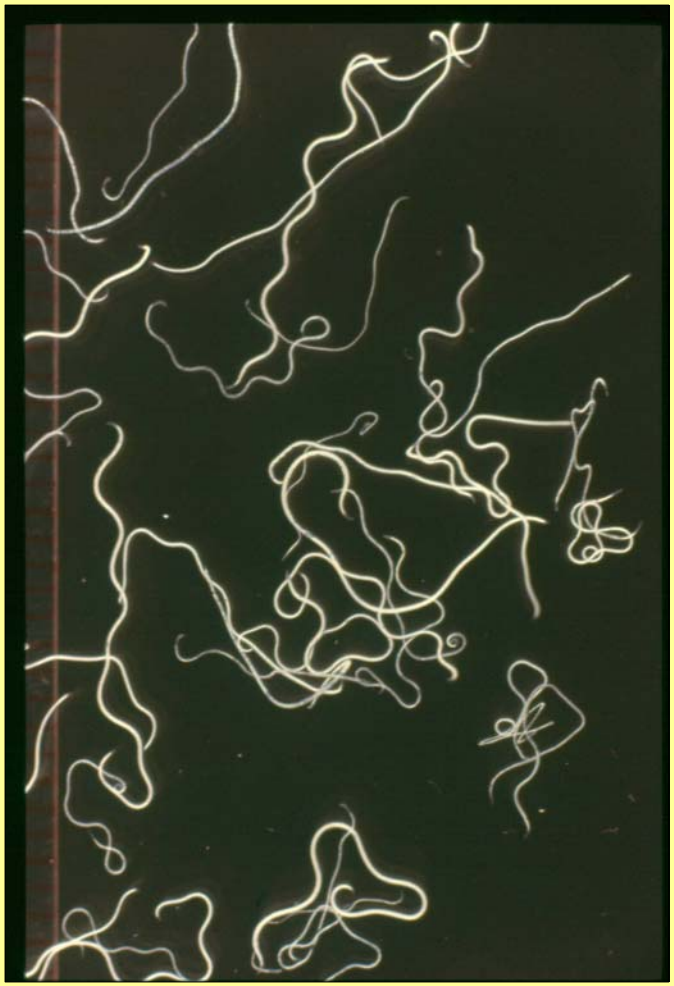


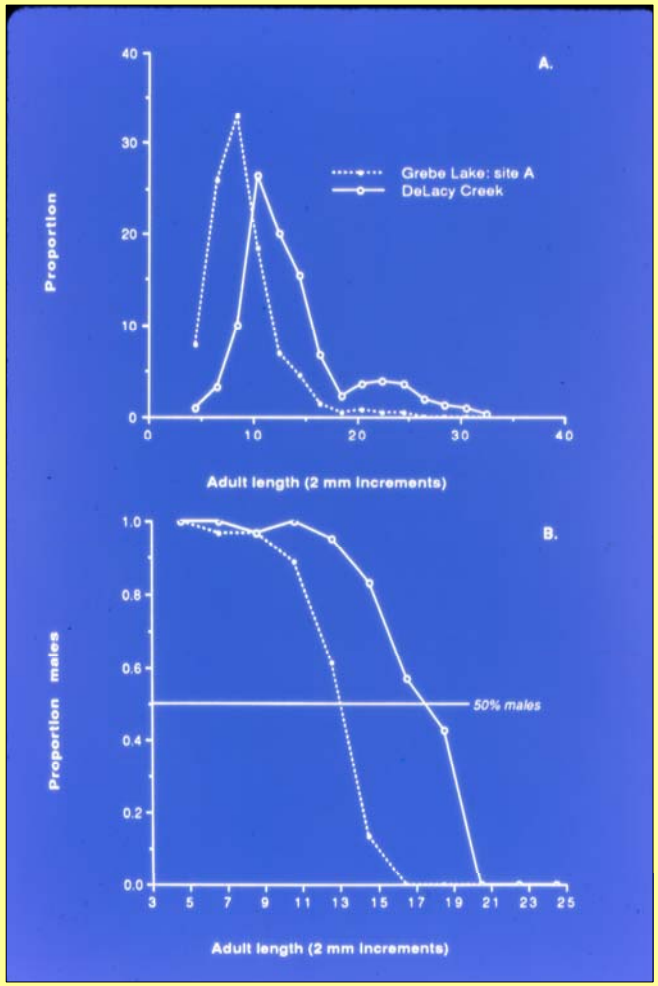

Weight · 500 Grams EPA Reg.No.403-
Treats 250 Sq. Meters
(Approx. 2,500 Sq. Feet)
A Natural Parasite For
Control Of Mosquito Larvae
FOR
EXPERIMENTAL
USE ONLY
SKEETER
DOOM.
Store
in a
Cool
Place
Ingredient Statement:
A mixed culture of not less than 500 eggs, preparasites, or mature worms, of the mosquito parasite Reesimermis nielseni per gram of moist sterile sand.
DOOM
PRODUCED & PACKAGED BY
FAIRFAX BIOLOGICAL LABORATORY inc.
ELECTRONIC RD. CLINTON CORNERS, N. Y. 12514

Host Effects on Parasites



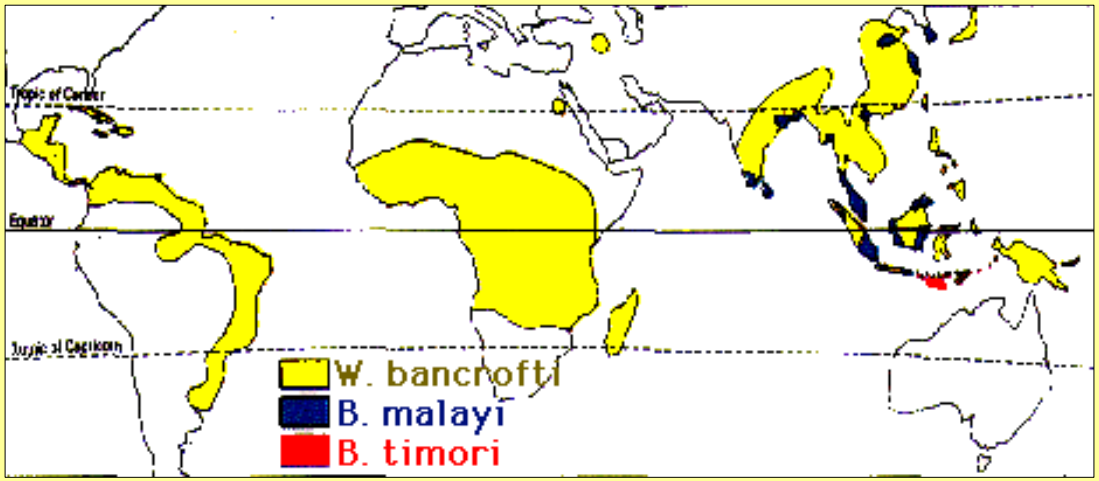
Effects on Nematode Fitness
ESD Sex-shift Point



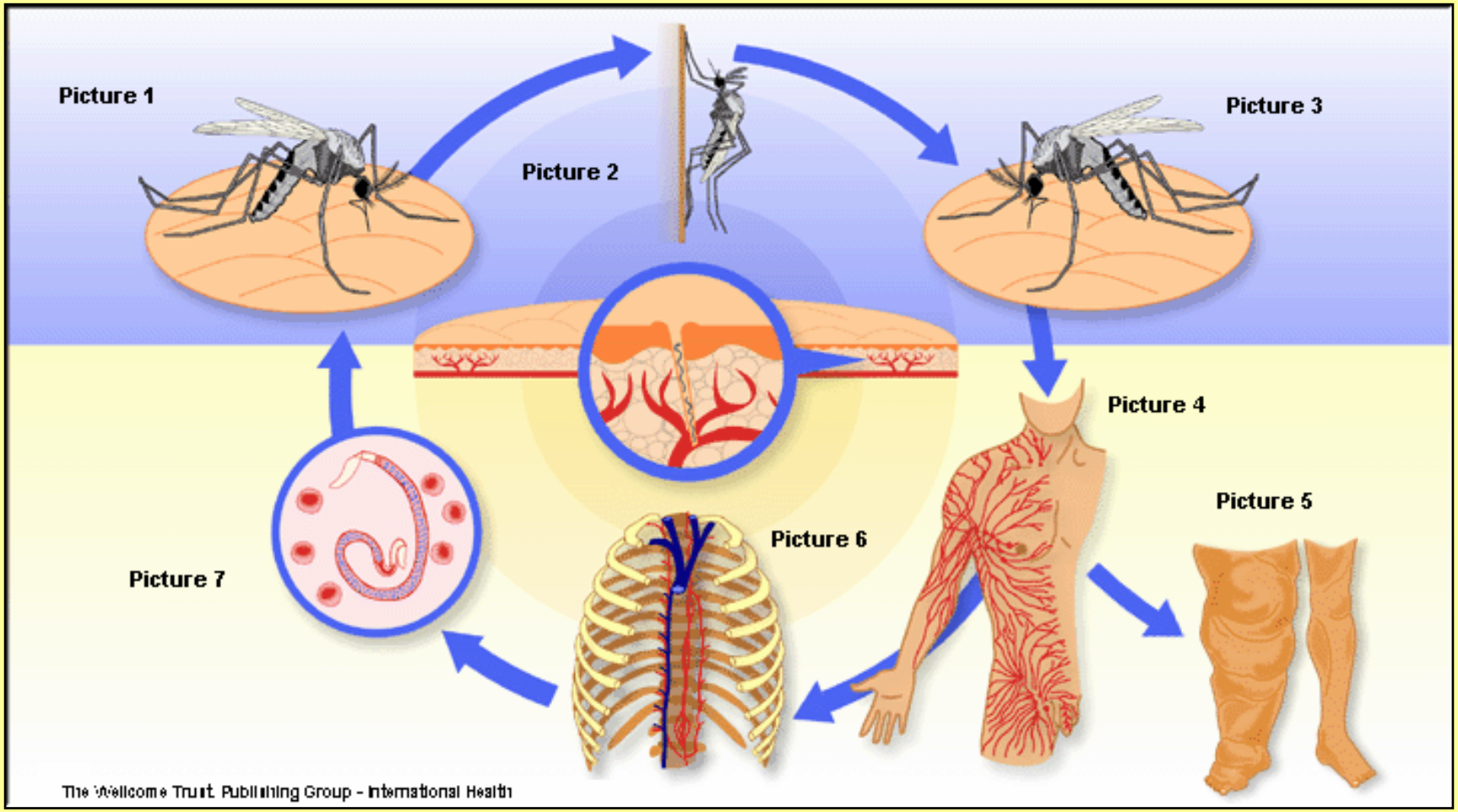


Filarial Nematodes

- *Wuchereria bancrofti*
- *Brugia malayi*
- *Brugia timori*

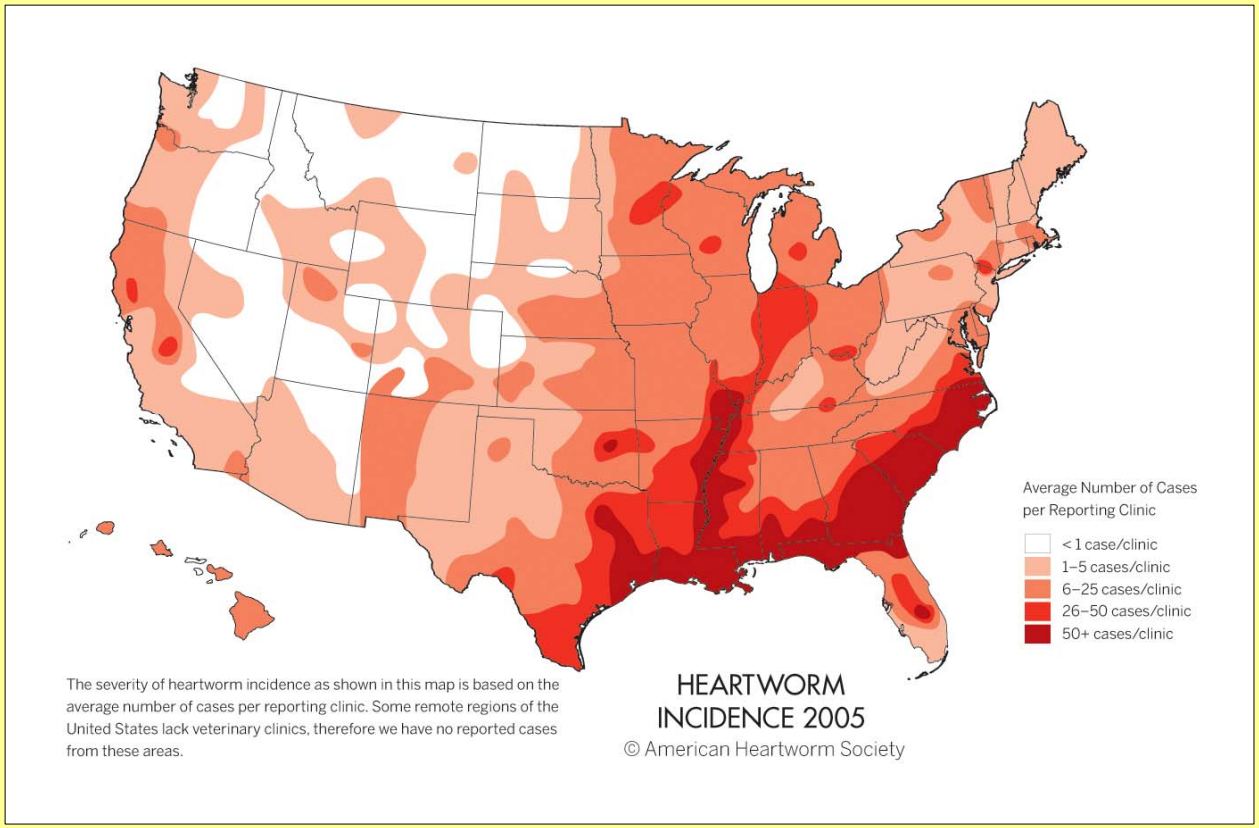


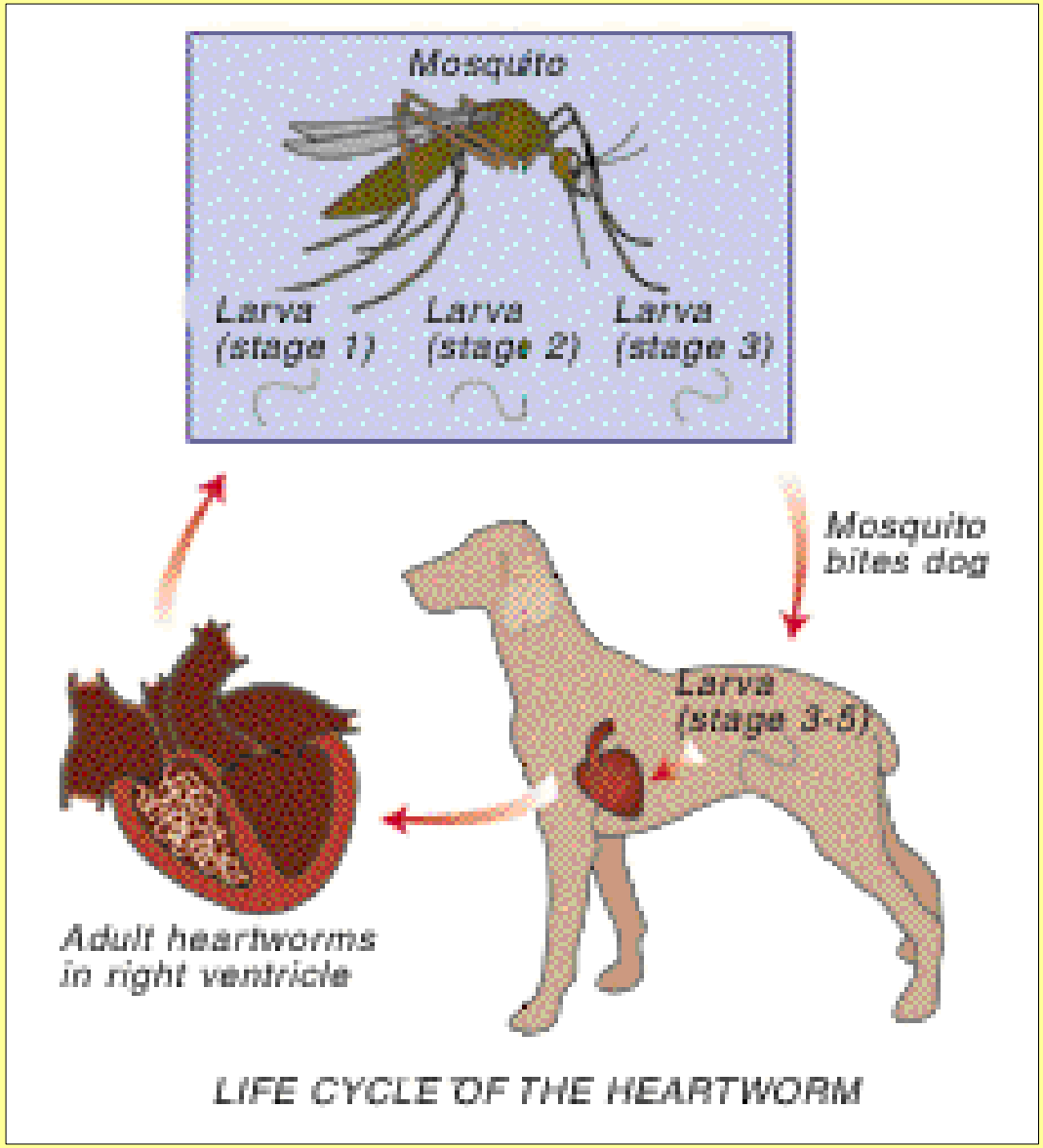
Lymphatic Filariasis



Canine Heartworm
Dirofilaria immitis

- Obligate parasite
- Host-specificity?
- Incidence





LIFE CYCLE OF THE HEARTWORM

Arrenurid Mites

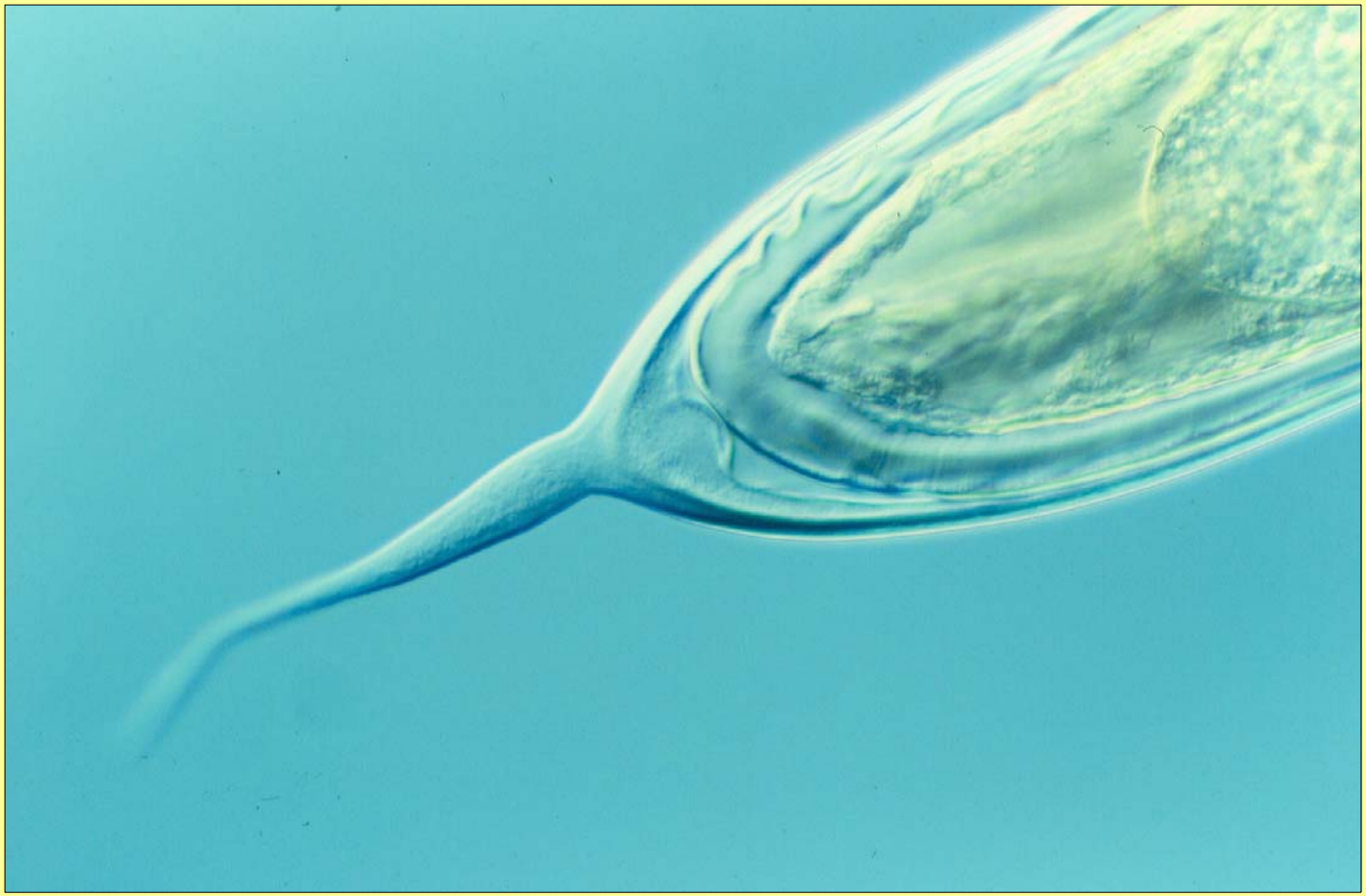
- Ectoparasites
- Common on *Coquillettidia perturbans* & *Anopheles* spp. in southern Georgia

Pseudoscorpions: Phoresy or Parasitism?

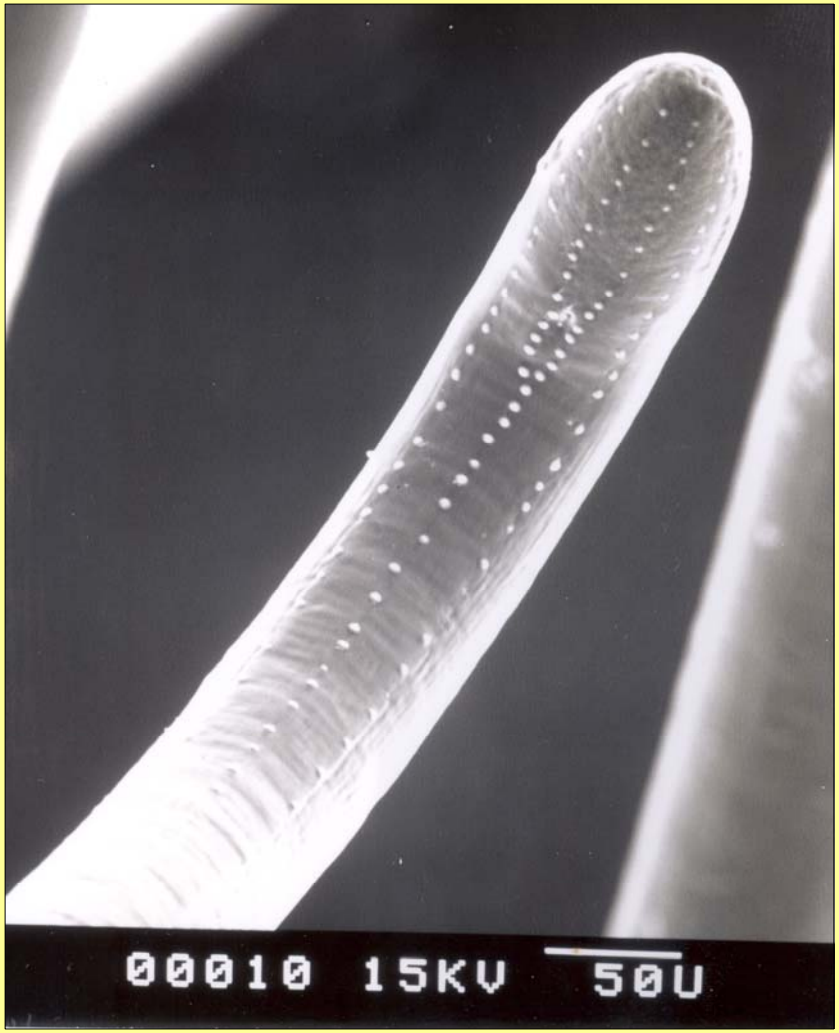
Mosquito Parasites

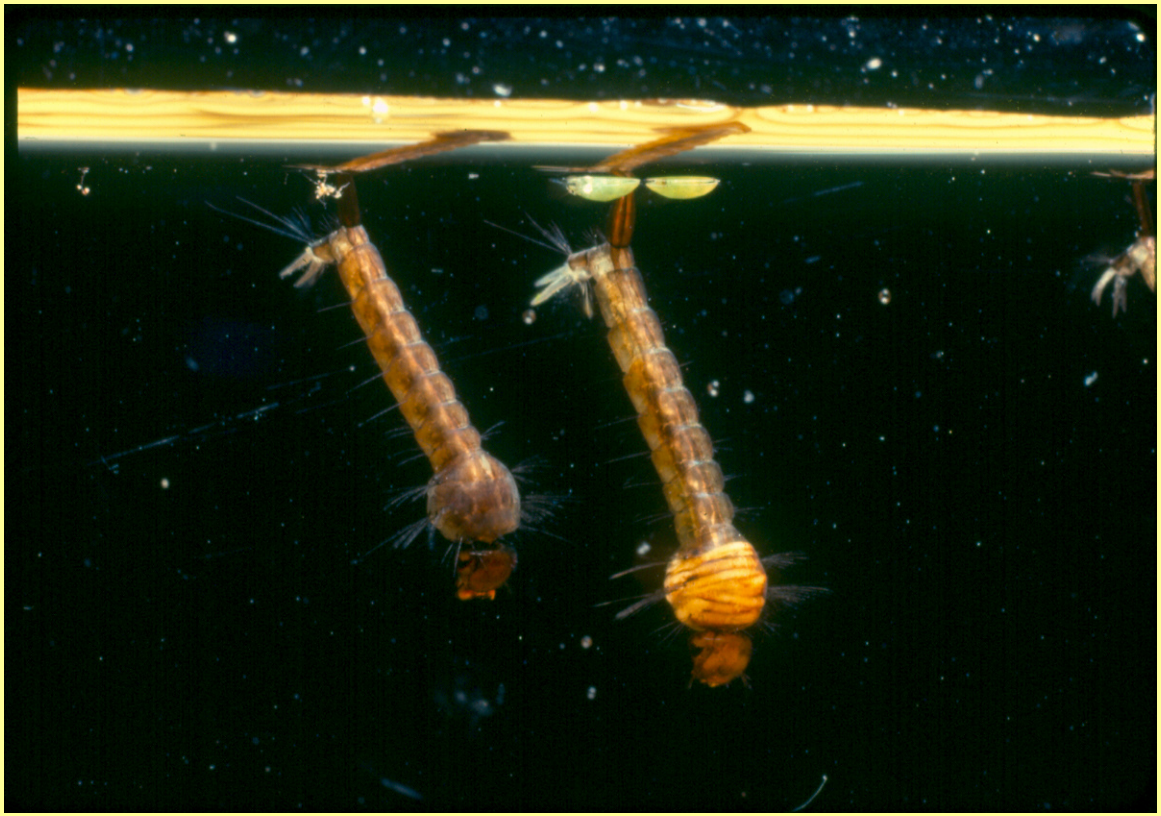
- Great fleas have little fleas upon their backs to bite 'em,
  And little fleas have lesser fleas, and so ad infinitum,
  And the great fleas themselves, in turn, have greater fleas to go on,
  While these again have greater still, and greater still, and so on.
- Augustus De Morgan, *A Budget of Paradoxes*

The End

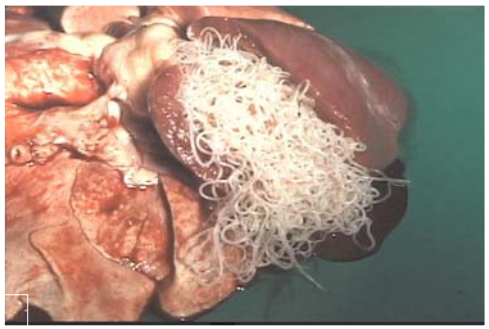


The End

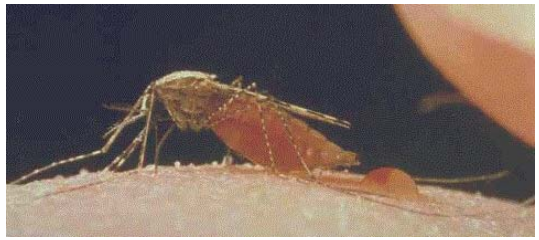


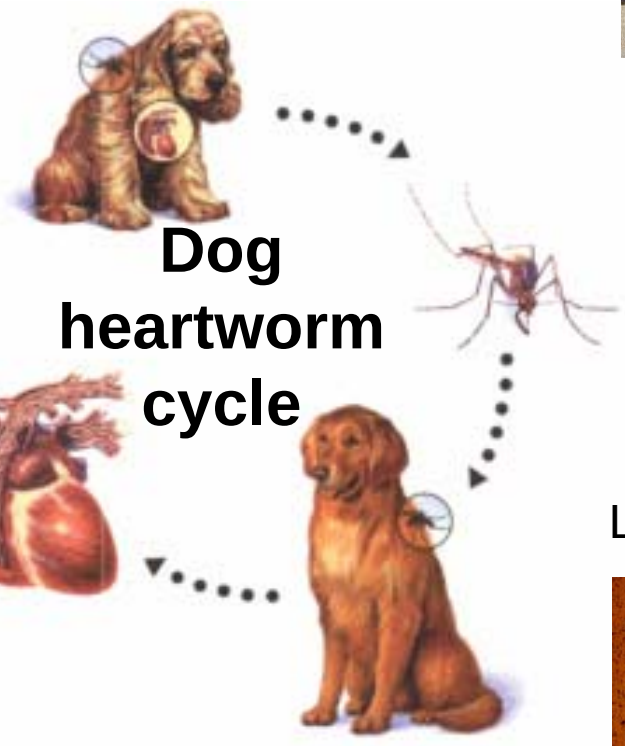


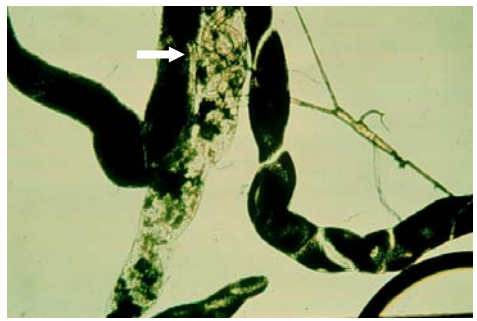
Adult worms



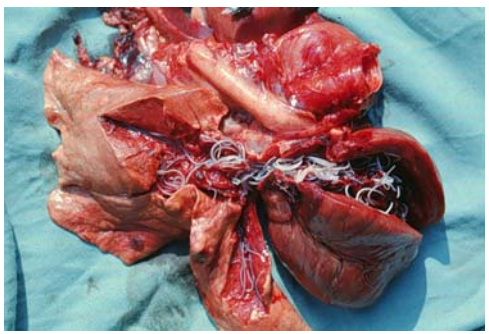
Microfilariae from blood

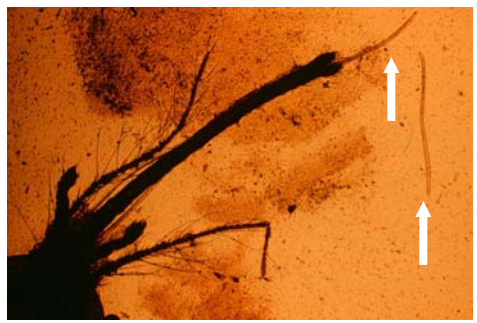






L3 move to salivary gland





Migrate to heart – develop to adult