

Classification of Parasites
BLY 459
First Lab Test (October 9, 2009)

If a taxonomic name is not in bold type, you will not be held responsible for it on the lab exam. Terms and common names that may be asked are also listed. I have attempted to be consistent with the taxonomic schemes in your text as well as to list all slides and live specimens that were displayed. In addition to highlighted taxa, be familiar with, material in lab handouts (especially proper nomenclature), lab display sheets, as well as material presented in lecture. Questions about vectors and locations within hosts will be asked. Be able to recognize healthy from infected tissue.

Phylum **Platyhelminthes** (Flatworms)

Class **Turbellaria**

Dugesia (=Planaria) Free-living, anatomy, X-section

Bdelloura horseshoe crab gills

Class **Monogenea**

Gyrodactylus, Neobenedenis, Ergocotyle gills of freshwater fish

Neopolystoma urinary bladder of turtles

Class **Trematoda** (Flukes)

Subclass **Digenea** Life-cycle stages: Recognize miracidia, sporocyst, redia, cercaria, metacercaria, adults & anatomy, model

Order ?? *Hirudinella ventricosa* wahoo stomach

Nasitrema nasal cavity of bottlenose dolphin

Order Strigeiformes

Family **Schistosomatidae**

Schistosoma japonicum adults, male & female, liver granuloma & healthy liver, ova, cercariae, no metacercariae, adults in mesenteric intestinal veins

Order Echinostomatiformes

Family Fasciolidae

Fasciola hepatica sheep & human liver, liver fluke

Order Plagiorchiiformes

Family Dicrocoeliidae

Dicrocoelium & Eurytrema *Cure for All Diseases* by Hulda Clark, Paragonimus westermani lung fluke, **crustaceans** are vectors

Order Opisthorchiformes

Family Opisthorchidae

Clonorchis (=Opisthorchis) sinensus Chinese liver fluke model

Class Cestoidea

Subclass **Eucestoda** (= tapeworms) anatomy: scolex, strobila, proglottid, model, stages of life-cycle

Order Proteocephalata

Proteocephalus scolex

Order Pseudophyllidea teleost fishes; **copepods** are 1st intermediate hosts

Family Diphyllbothriidae

Diphyllbothrium latum fish tapeworm, scolex, proglottids

Order Cyclophyllidea

Family Dilepididae

Dipylidium caninum dog tapeworm, scolex, vector is **flea**

Family Taeniidae

Taenia solium pork tapeworm, human, model, ova, scolex, cysticerus in and separated from muscle tissue causes cysticercosis

Taenia (= Taeniarhynchus) saginata beef tapeworm, model, proglottid

Taenia pisiformis ova, adult specimen

Echinococcus granulosus, adults in canines, hydatid sand forms in mammalian intermediate hosts causing hydatidosis

Echinococcus multilocularis, adult specimen

Order Trypanorhyncha

Adults from blacktip shark

Cysticerci from an amberjack and “redfish” served at dinner

Phylum **Acanthocephala** (= **Thorny-headed worms**) Recognize structures & life-cycle stages such as ova, male from female

Class Archiacanthocephala

Family Oligacanthorhynchidae

Macracanthorhynchus hirudinaceus pigs, adult specimens, ova, X-section of proboscis in host, **scarab beetles** are intermediate hosts

Family Rhadinorhynchidae

Leptorhynchoides in blue gill & gar (fish) from the Causeway; amphipods are intermediate hosts

Family Neoechinorhynchidae, longitudinal section

Neoechinorhynchus male and female specimens

Phylum **Nematoda** Structures & life-cycle stages,
 Class Enoplea (= Adenophorea; = Aphasmidia)
 Order Trichurida
 Family Trichinellidae
 Trichinella spiralis trichinosis, larvae in muscle, migrating larvae
 Family Trichuridae
 Trichuris trichiura human whipworm, adult, ova
 Class Rhabditea (= Secernentia, = Phasmidia) (RHABDO = rod, stick)
 Order Strongylida (STRONGYLOS = round)
 Family Ancylostomidea **hookworms**; male & female
 Ancylostoma duodenale human, filariform larvae
 A. caninum dogs; adult specimen
 Necator americanus, human, filariform larvae, head, bursa
 Order Rhabditida
 Family Strongyloididae
 Strongyloides stercoralis puppies, people w/ compromised
 immune systems, life-cycles free & parasitic
 Order Ascaridida
 Family **Ascaridae**
 Ascaris lumbricoides human gut, larva in lung, anatomy,
 male & female in cross-section, dissection
 Toxocara cati; visceral larva migrans specimens
 Order ??
 Adults from alligators, hammerhead sharks, & deer
 Order Oxyurida (OXY = sharp)
 Enterobius vermicularis human pinworm, eggs, adult male
 & female
 Order Spirurida; microfilariae in insect vectors
 Superfamily **Filaroidea**
 Family Onchocercidae
 Wucheria bancrofti elephantiasis; microfilaria in blood
 Onchocerca volvulus riverblindness, adults in nodule
 Dirofilaria immitis dog heartworm, microfilaria in blood,
 mosquito vector
 Family Dracunculidae, Guinea worm, **copepod** vector

Phylum **Arthropoda**

Subphylum **Crustacea**

Class **Copepoda** vectors for fish tapeworm & Guinea worm

Order Cyclopoida

Cyclops vector for **Dracunculus**, similar species serve as vectors for **D. latum**

Order Siphonostomatoida

Family Pennellidae

Cardiodectes medusaeus fish heart, parasitic castrator
Unknown species has its head buried in flesh of a spot

Family Lernaepodidae

Salmonicola infect fresh-water fish; bulla visible
Photo, copepod attached to shark eye

Class **Branchiura**

Argulus fish lice, ectoparasite

Class Cirripedia barnacles

Order Thoracica

Family Coronulidae whale barnacles

Family Poecilasmatidae **Octolasmis** on gills of blue crabs

Order **Rhizocephala**

Family **Sacculinidae** parasitic castrators of crabs, feminize males

Loxothylacus texanus blue crabs

Loxothylacus panopaei mud crabs

Heterosaccus californicus kelp crabs; morphology of male and female parasitized & unparasitized crabs

Class Malacostraca

Order **Amphipoda**

Family **Cyamidae** whale lice

Order **Isopoda**

Suborder Flabellifera

Family **Cymothoidae**, fish gills

Lironeca locally common

“Sharksucker” on shark dorsal fin

Surrogate tongue on ballyhoo

Suborder Epicaridea

Family **Bopyridae**

Unknown species on hermit crab & shrimp

Probopyrus pandalicola on grass shrimp

Order **Decapoda**

Family **Pinnotheridae** Pea crabs in oysters, mussels, and worm tubes