

## **7. INVERTEBRATE PARASITES**

"Only kings, editors, and people with tapeworm have the right to use the editorial 'we'."

--*Mark Twain*

### **MAJOR TAXA**

Ph. Nematoda (parasitic groups)  
    Ascarids (roundworms), whipworms,  
    hookworms, filarial worms, guinea worms  
Ph. Platyhelminthes (parasitic classes)  
    **Cl. Cestoda** (tapeworms)  
    Cl. Monogenea  
    **Cl. Trematoda** (digenean flukes)  
Ph. Annelida (parasitic subclass)  
    **Subcl. Hirudinea** (leeches)  
Ph. **Nematomorpha**  
Ph. **Acanthocephala**  
? **Myxozoa**

### **MAJOR THEMES**

Human ecology  
Invertebrates in history  
Mechanisms of attachment  
Body symmetry  
High fecundity  
Degenerate digestive systems  
Complex life cycles  
Tradeoff: replication vs. transmission  
Asexual vs. sexual replication  
Intermediate vs. definitive hosts  
Changes in host behavior  
Homoplasy of parasitism across phyla

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Recap: Worms, a story of bilateral symmetry, body elongation, muscle antagonism by hydrostatic skeletons, cephalization, and functional specialization of body cavities

### **OUTLINE**

- 1) Invertebrate parasites in human ecology: examples from several phyla
- 2) Parasitism as a whole-phylum characteristic
- 3) Common adaptations for a parasitic lifestyle
- 4) The role of intermediate and final hosts
- 5) Parasitic control of host behaviors

### **GOALS**

After studying from lecture notes and the associated reading, you should be able to:

- Describe the prevalence and importance of invertebrate parasites in human populations
- Describe common adaptations to parasitic lifestyles related to attachment, digestive systems, body symmetry, and fecundity among parasitic members of different phyla
- Explain why parasite replication and transmission may sometimes involve a tradeoff, and why this tradeoff can affect the severity (virulence) of parasite-caused diseases
- Describe differences in body plans, nutrition, and reproduction among parasitic taxa
- Describe relationships among leech nutrition, internal anatomy, and locomotion
- Describe variation in life-cycle complexity, and why nematomorph life cycles are unique
- Explain the roles of intermediate hosts and vectors in parasite transmission
- Describe effects of some parasites on host behavior, and benefits to the parasite
- Distinguish between a parasite and the disease it causes

### **REFERENCES**

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[http://www.biosci.ohio-state.edu/~parasite/life\\_cycles.html](http://www.biosci.ohio-state.edu/~parasite/life_cycles.html)