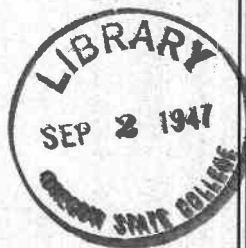


# Some Parasites of Oregon Wild Life

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# Some Parasites of Oregon Wild Life

by J. N. SHAW\*

## INTRODUCTION

NAMES of some of the important parasites of Oregon fish, wild birds, deer, and miscellaneous wild animals are listed in this bulletin. These parasites were collected during the years from 1925 to 1946, largely as a result of encouragement from the late Dr. Maurice C. Hall, then Chief of the Zoological Division, Bureau of Animal Industry, Washington, D. C. The names of the parasites and the hosts, together with a few pertinent facts, are being published now with the belief that such information will be of interest to sportsmen, biologists, and students interested in wild life. The list is not in any way complete. The photographs were made by Dr. O. H. Muth of the Department of Veterinary Medicine, Oregon State College. The parasites listed have been identified by members of the Zoological Division, Bureau of Animal Industry, Department of Agriculture, Washington, D. C. Unfortunately, the species have not been determined in all instances; for, undoubtedly, some new species are listed. The determination of species and their importance constitute an important field of endeavor for future parasitologists of Oregon.

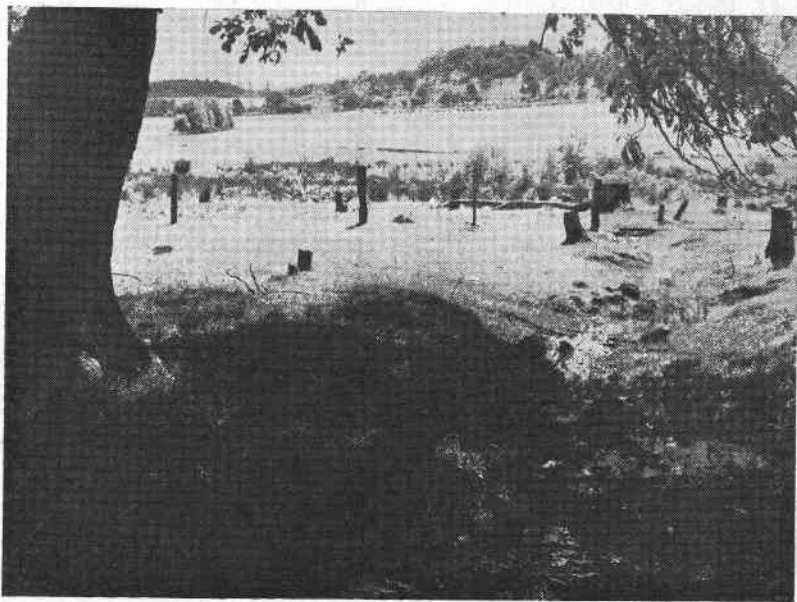


Figure 1. Oregon range where wild animals could become infested with parasites.

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## LIST OF WILD LIFE PARASITES

## PARASITES OF FISH

## CESTODES OR TAPEWORMS

Parasite	Found in
<i>Diphyllbothrium cordiceps</i> .....	Eastern brook trout
	Rainbow trout and silver salmon
<i>Diphyllbothrium</i> sp. ....	Whitefish
<i>Abothrium crassum</i> .....	Dolly varden trout
<i>Ligula intestinalis</i> .....	Chub
<i>Phyllobothrium</i> sp. ....	Ceca, intestine, steelhead
<i>Eubothrium</i> sp. ....	Ceca, Chinook salmon
<i>Proteocephalus</i> sp. ....	Cutthroat, rainbow trout
<i>Bothriocephalus cuspidatus</i> .....	Not recorded
<i>Caryophyllaeus</i> sp. ....	Not recorded

## TREMATODES OR FLUKES

<i>Alaria</i> sp. ....	Eastern brook trout
<i>Crepidostomum</i> sp. ....	Cutthroat trout
	Eastern brook trout
<i>Crepidostomum cooperi</i> .....	Rainbow trout
	Dolly Varden trout
<i>Crepidostomum laureatum</i> .....	Rainbow trout
<i>Aponurus</i> sp. ....	Dolly Varden trout
	Rainbow trout
<i>Brachyphallus crenatus</i> .....	Chinook salmon
<i>Podocotyle</i> sp. ....	Intestine, steelhead trout
	Stomach, cutthroat trout
<i>Podocotyle shawi</i> .....	Silver salmon
<i>Lecithaster</i> sp. ....	Chinook salmon
<i>Derogenes</i> sp. ....	Stomach, intestine, cutthroat trout
<i>Oligorchis longivaginosus</i> .....	Not recorded
<i>Lissorchis</i> .....	Not recorded
<i>Trogloitrema salmincola</i> (larval form) .....	Muscles, cutthroat trout

## NEMATODES OR THREADWORMS

<i>Philometra</i> sp. ....	Abdomen, rainbow trout
	Silverside salmon
	Cutthroat trout
<i>Eustrongylides</i> sp. ....	Muscles, cutthroat trout
<i>Cucullanus globosus</i> .....	Rainbow trout, brown trout
<i>Mermithid</i> .....	Stomach, rainbow trout
<i>Ascarophis hardwoodi</i> .....	Stomach, cutthroat trout
	Stomach, rainbow trout
	Intestine, cutthroat trout
<i>Dachnitis truttae</i> .....	Intestine, rainbow trout
	Intestine, Dolly Varden trout
<i>Rhaphidascaris</i> sp. ....	Chinook salmon
<i>Cucullanus truttae</i> .....	Steelhead trout, Chinook salmon, and cutthroat trout

Parasite	Found in
<i>Anisakis</i> sp. ....	Intestine, steelhead trout, marine animals, and birds
	Chinook salmon
<i>Philonema oncorhynchi</i> .....	Peritoneum, steelhead trout
<i>Contracaecum spiculigerum</i> .....	Stomach, steelhead
	Chinook salmon
<i>Capillaria</i> sp. ....	Cutthroat trout
<i>Anacanthocheilus rotundatus</i> .....	Muscles, lamprey

## ACANTHOCEPHALIDS OR THORNHEADS

<i>Neoechinorhynchus</i> sp. ....	Cutthroat trout
<i>Acanthocephalids</i> .....	Steelhead trout
<i>Rhadinorhynchus</i> sp. ....	Stomach, intestine, steelhead
<i>Tetrarhynchus</i> sp. ....	Steelhead trout

## PARASITIC CRUSTACEANS

<i>Lernaepoda bicauliculata</i> .....	Rainbow trout
	Cutthroat trout
<i>Lepeophtheirus salmonis</i> .....	Cutthroat trout
<i>Argulus</i> sp. ....	Gold fish, Chinook salmon

## PROTOZOA

<i>Henneguya salmincola</i> .....	Muscles, Chinook salmon
<i>Myxobolus squamae</i> .....	Skin, silver salmon, bass

## PARASITES OF DEER

## CESTODES OR TAPEWORMS

Parasite	Found in
<i>Cysticercus tenuicollis</i> .....	Omentum
<i>Thysanosoma actinioides</i> .....	Small intestine, bile ducts
<i>Cysticercus tarandi</i> .....	Muscles

## NEMATODES OR THREADWORMS

<i>Wehrdickmansia cervipedis</i> .....	Subcutaneous tissues
<i>Dictyocaulus viviparus</i> .....	Lung
<i>Oesophagostomum venulosum</i> .....	Large intestine
<i>Ostertagia circumcincta</i> .....	Stomach
<i>Chabertia ovina</i> .....	Large intestine

## EXTERNAL PARASITES

<i>Trichodectus parallelus</i> .....	On skin
<i>Liptoptena depressa</i> .....	On skin
<i>Cephenomyia</i> sp. ....	Head and throat
<i>Ixodes californicus</i> .....	On skin
<i>Dermacentor albipictus</i> .....	On skin
<i>Ornithodoros megnini</i> .....	On skin

## PARASITES OF WILD BIRDS

## CESTODES OR TAPEWORMS

Parasite	Found in
<i>Hymenolepis</i> sp. ....	Intestine, gull
<i>Choanotaenia</i> sp. ....	Pelican
<i>Fimbriaria fasciolaris</i> .....	Gull
	Merganser

## TREMATODES OR FLUKES

<i>Proalaria</i> sp. ....	Pelican
<i>Stephanoprara</i> sp. ....	Gull
<i>Apophallus denticus</i> .....	Gull

## NEMATODES OR THREADWORMS

<i>Serratospiculum</i> sp. ....	Falcon
<i>Aviculariella alcyon</i> .....	Kingfisher
<i>Contracaecum spiculigerum</i> .....	Pelican
<i>Echinuria</i> sp. ....	Gull

## EXTERNAL PARASITES

<i>Tetraphthalmus titan</i> .....	Oesophagus, pelican
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## PARASITES OF MISCELLANEOUS WILD ANIMALS

## TREMATODES OR FLUKES

Parasite	Found in
<i>Stichorchis subtriquetrus</i> .....	Beaver intestine
<i>Metagonimoides oregonensis</i> .....	Raccoon intestine
<i>Fascioloides magna</i> Bassi .....	Elk liver

## NEMATODES OR THREADWORMS

<i>Nematodirella longispiculata</i>	
<i>antilocaprae</i> .....	Antelope intestine
<i>Uncinaria lotoris</i> .....	Bobcat intestine

## EXTERNAL PARASITES

<i>Cuterbra</i> sp. ....	Mouse
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## NOTES OF INTEREST ON SOME PARASITES LISTED

1. *Dibothrium cordiceps* (Figure 2)

The larval forms of the *Dibothrium cordiceps* parasite were responsible for heavy losses in some of the best game fish in the high mountain lakes in 1929 and 1930. The life cycle has been worked out fairly well. The parasite is known to spend its mature life in the intestines of fish-eating birds.

2. *Ligula intestinalis*

The tapeworm, *Ligula intestinalis*, spends part of its life as a larva in fish intestines. This specimen, a larval form, was found in a chub.

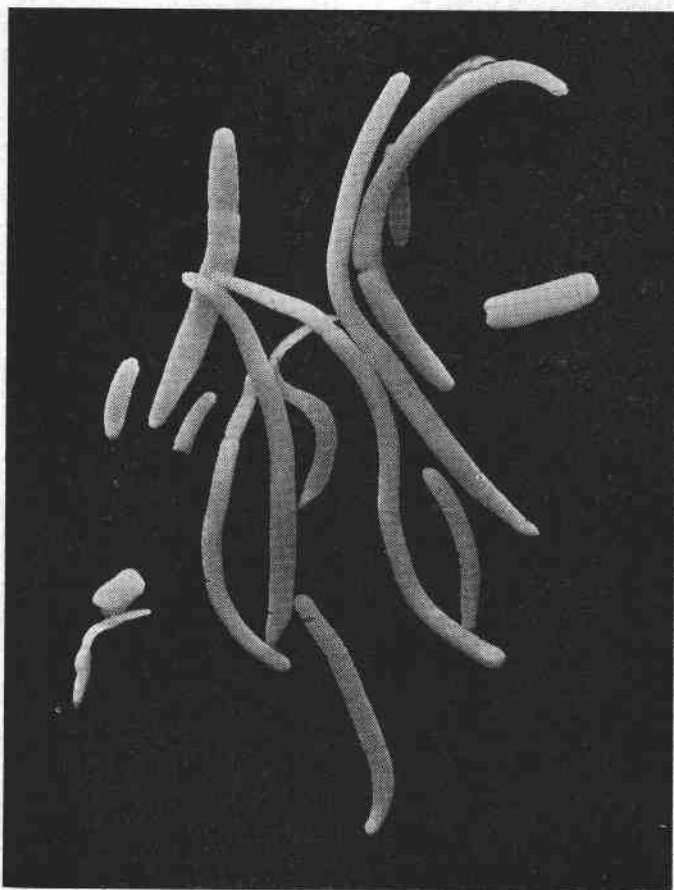


Figure 2. Larval Tapeworm from Elk Lake fish (3"X).

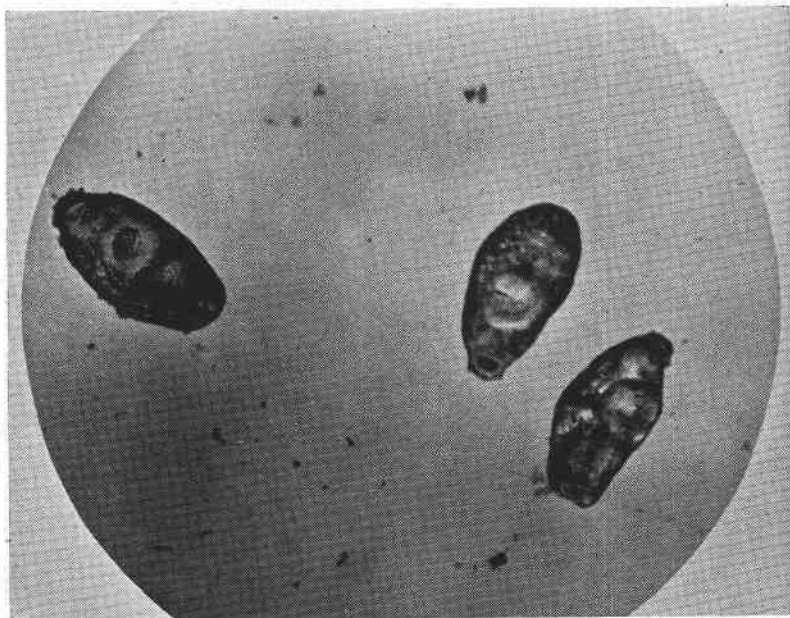


Figure 3. Fluke from rainbow trout of Diamond Lake (25 X).

### 3. *Proteocephalus*

Mature *Proteocephali* tapeworms were found in cutthroat and rainbow trout. In the ponds of one hatchery, they were especially numerous in brood fish and seemed to be responsible for losses. Treatment of some of these fish did not prove successful.

### 4. *Crepidostomum cooperi* and *Crepidostomum laureatum* (Figure 3)

Small flukes, *Crepidostomum cooperi* and *Crepidostomum laureatum*, were found in cutthroats, and Eastern brook and rainbow trout. It seems to have been causing trouble especially in rainbow trout.

### 5. *Trogloitrema salmincola* (Figure 4)

*Trogloitrema salmincola* is the so-called salmon-poisoning fluke.

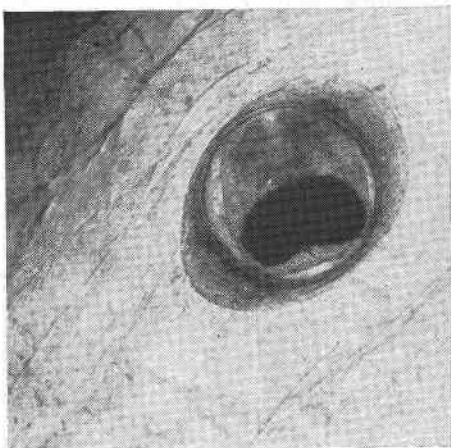


Figure 4. Salmon-poisoning fluke cyst in fish muscle (90 X).



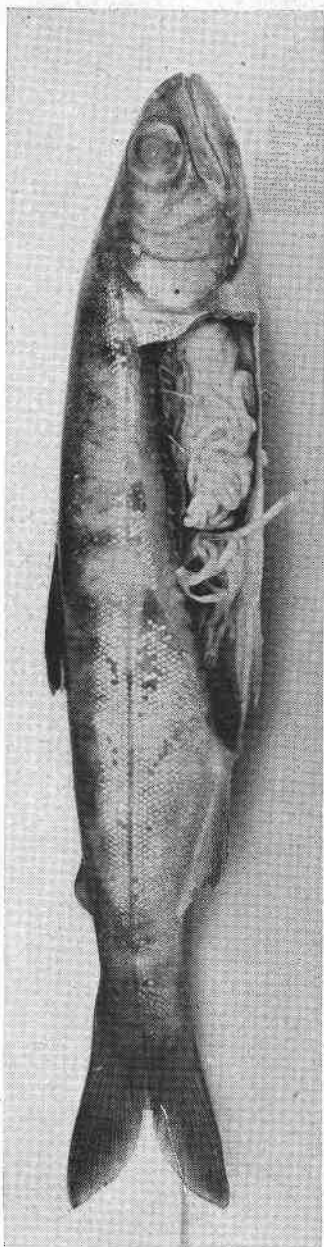


Figure 5. Parasites in abdomen of young silverside salmon (actual size).

Only larval forms are found in fish. These larva develop into small flukes in the intestine of a good many fish-eating mammals. Only members of the dog family suffer any ill effects. This parasite is found only in a certain area from northern California to southwestern Washington west of the Cascade Mountains. There is some evidence that the parasite causes damage in young hatchery fish. For further information about this parasite, see the discussions in the various publications by the Department of Veterinary Medicine, Oregon State College, which may be found in most libraries.

#### 6. *Philometra* sp. (Figure 5)

Young silverside salmon and cutthroat trout have been found thoroughly infested with the parasite *Philometra* sp. This parasite was apparently causing harm in only some instances.

#### 7. *Eustrongylides* (Figure 6)

*Eustrongylides* is a larval worm that was found infesting blebs or cysts in muscles of cutthroat trout taken from some of our coast streams and one southern Oregon lake.

#### 8. *Anisakis*, sp.

A parasite, *Anisakis*, sp., has been found in the intestine of steelhead trout and Chinook salmon. Yorke and Maplestone (4)\* state this is also a parasite of the intestine of marine animals and birds.

#### 9. *Philonema oncorhynchi*

The nematode, *Philonema oncorhynchi*, is a rather large worm and in recently caught steelheads is found in a tight coil on the surface of the organs of the abdominal cavity.

10. *Contracaecum spiculigerum* is a nematode found in the stomach and intestines of steelhead trout and Chinook salmon. A member of this same species was found in a pelican killed in central Oregon. Yorke and Maplestone (4) state that it is a parasite of fish-eating birds, fish-eating mammals, and fish.

\* Italicized numerals in parentheses refer to BIBLIOGRAPHY on page 16.



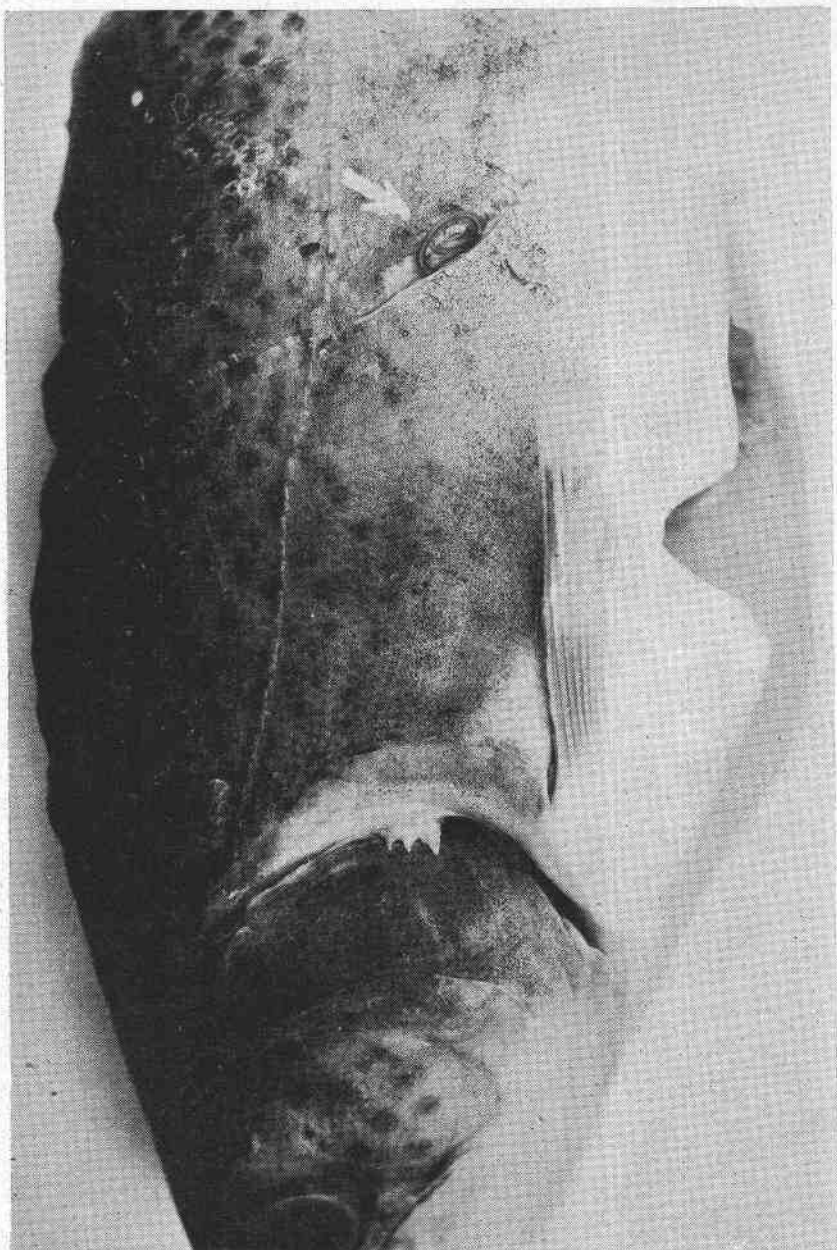


Figure 6. Parasites in muscles of cutthroat trout ( $2\frac{1}{2}$  X).

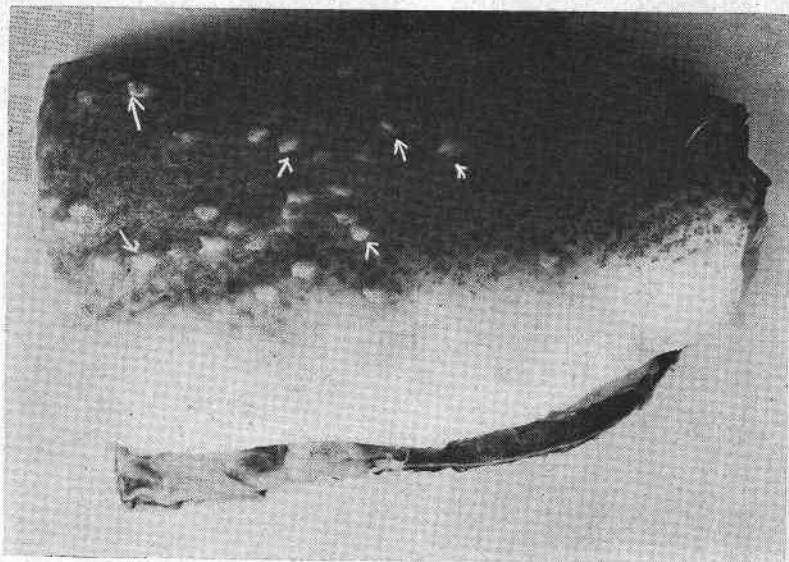


Figure 7. Parasites in skin of silverside salmon (2 X).

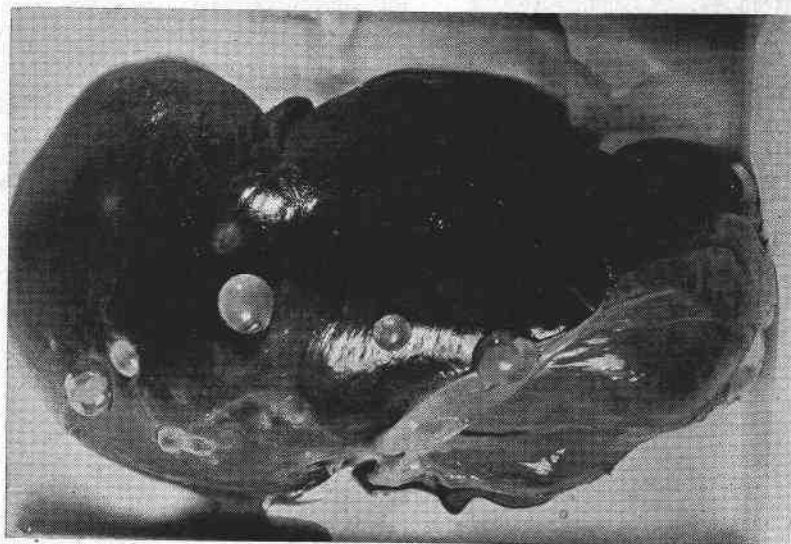


Figure 8. Tapeworm cysts in liver of deer.

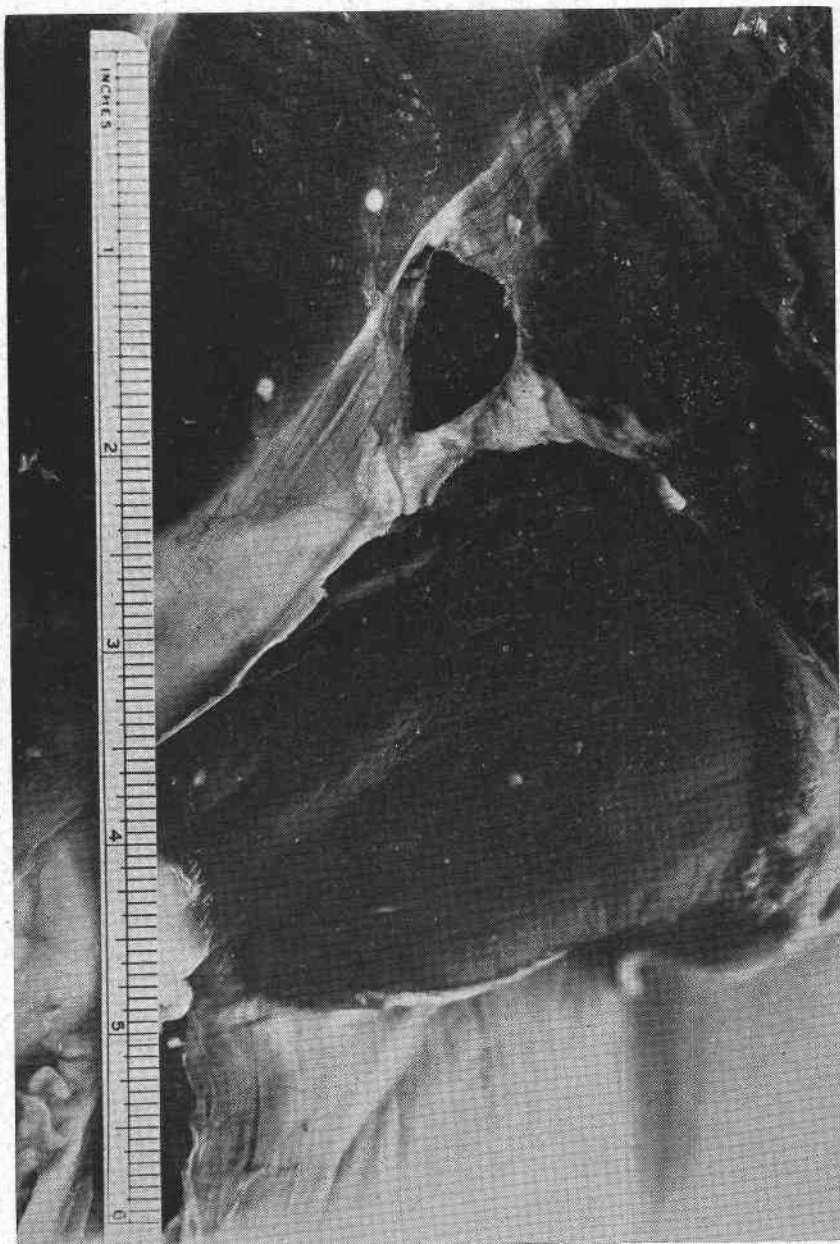


Figure 9. Tapeworm cysts in muscles of deer.

### 11. *Argulus* sp.

An external parasite, the *Argulus* sp. is commonly known as the fish louse. Fishermen claim a salmon with these fish lice or "sea lice" are bound to be fresh from the ocean. This species has been known to cause serious losses in goldfish.

12. *Myxobolus squamae* (Figure 7) are small microscopic parasites that cause unsightly pustules in the skin of silver salmon. Similar protozoans have been found in Chinook salmon and large mouth bass.

13. The *Tetraphthalmus titan* is a large louse parasite that inhabits the oesophagus of the pelican.

14. A larval tapeworm, the *Cysticercus tenuicollis* (Figure 8), is found in deer and other wild ruminants, as well as sheep and goats. These bladder worms appear like grape clusters in the abdomen of infested animals.

15. *Cysticercus tarandi* (Figure 9) is another tapeworm cyst that is found in the muscles of the Oregon coast deer. When these cysts were fed to a dog, mature tapeworms developed which were identified as *Taenia krabbei*. This tapeworm is the one dogs get in Alaska from eating reindeer meat containing this tapeworm cyst.

16. The long, thin worm, *Wehrdickmansia cervipedis*, is found under the skin in both coast and eastern Oregon deer. The life cycle of this parasite is not known. It has been found in horses in this state. It is thought to be spread through the bite of a small "gnat" or "midge."

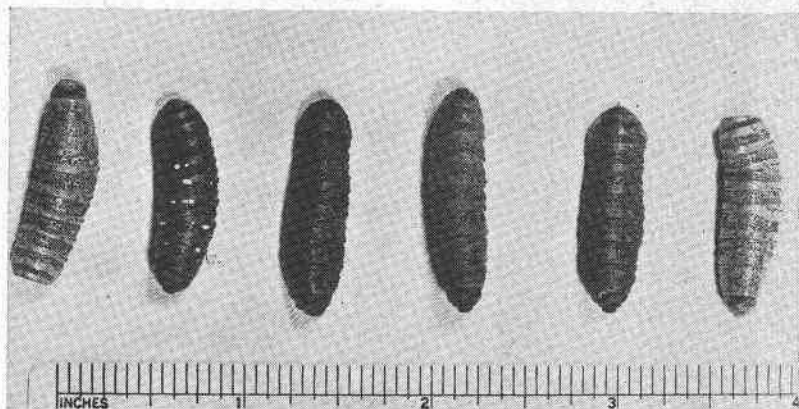


Figure 10. Fly larva from throat of deer.



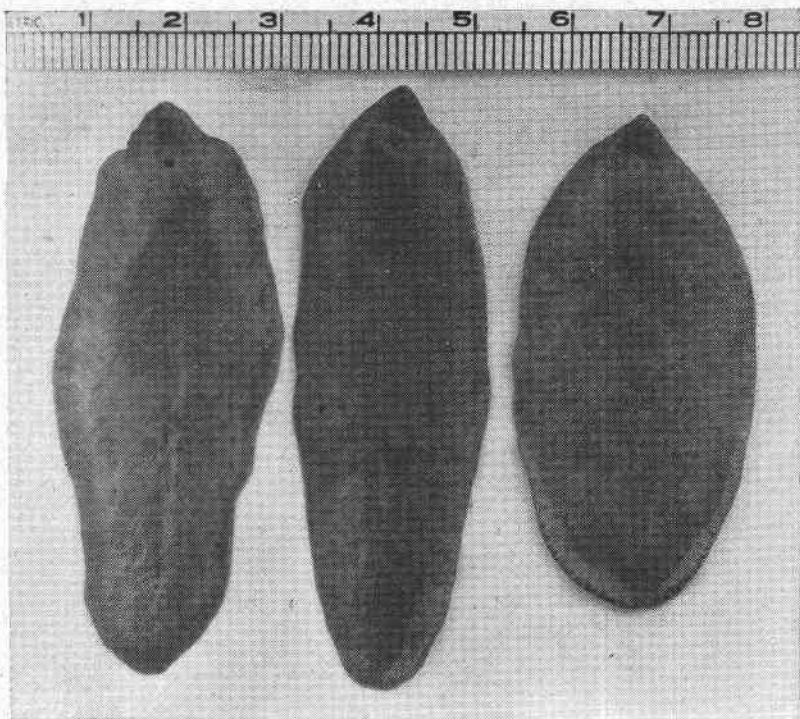


Figure 11. Large fluke from liver of elk (actual size).

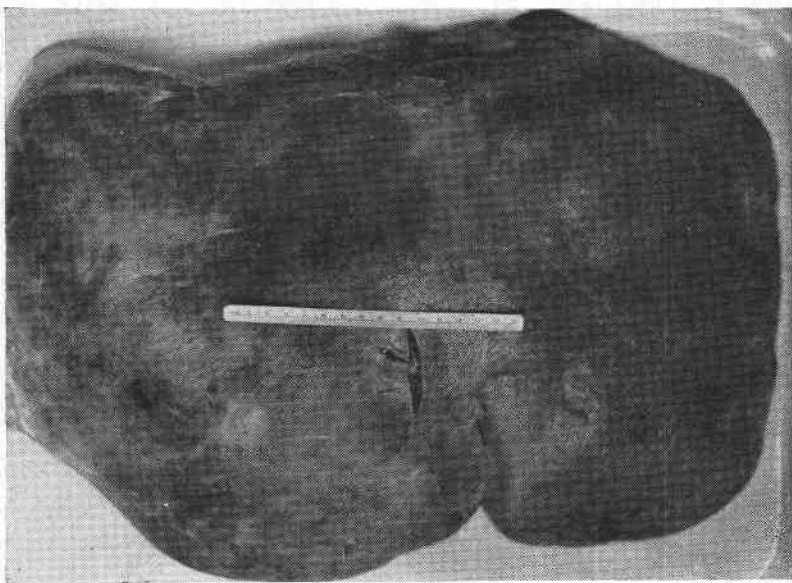


Figure 12. Elk liver infested with large fluke.  
[Size can be judged by comparing with 15-centimeter (6-inch) rule  
laid on liver above incision.]

17. *Ostertagia circumcincta* is a small stomach worm that causes so much trouble in sheep and goats. It has been found in the "towheads" or fawns that die of scours in our Oregon coast hills.

18. *Cephenomyia* sp. (Figure 10)

The fly larvae, *Cephenomyia* sp., is very common, especially in coast deer. It has been reported to be causing a great deal of damage. In all instances that have been investigated, however, other, more serious, causes of disease have been present.

19. *Fascioloides magna* (Bassi) (Figures 11 and 12)

This is the first time that the large liver fluke *Fascioloides magna* (Bassi) has been reported in Oregon. They are a common parasite in sheep in the southern states and have been found in deer on Vancouver Island.

20. *Cuterbra* sp. (Figure 13)

A fly larvae, *Cuterbra* sp., was found and was almost as large as the mouse from which it was removed. Herms (1) reports that the larval form of a similar species is capable of developing in the scrotum of squirrels of several species.

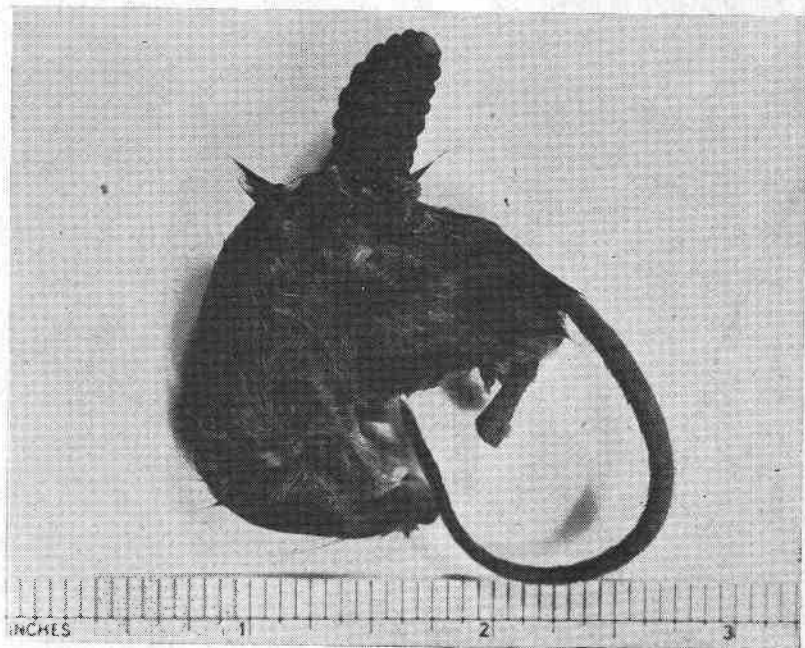


Figure 13. Fly larva in back of mouse.



**BIBLIOGRAPHY**

1. Herms, William B., *Medical and Veterinary Entomology*. Macmillan Company, 1923.
2. Monnig, H. O., *Veterinary Helminthology and Entomology*. Bailliere, Tindall, and Cox, 1934.
3. Ward, Henry B., and Whipple, George C., *Fresh-Water Biology*. Stanhope Press, 1918.
4. Yorke, Warrington, and Maplestone, P. A., *The Nematode Parasites of Vertebrates*. J. & A. Churchill, 1926.