

THE HELMINTHS FROM A HEAVILY PARASITIZED FOX SQUIRREL, SCIURIS NIGER

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Usually tree squirrels harbor relatively few helminths per individual but as shown by Rausch and Tiner (1948), the variety of parasites which may be encountered in these hosts is considerable. Generally the fox squirrels which the senior author has examined from this community have been negative for helminths, however, an adult female, which was shot near Ashland on September 27, 1943, was an exception.

One immature specimen of *Macracanthorhynchus hirudinaceus* (Pallas, 1781) was found in the body cavity. It was attached to the inside left flank, and the tissues about the site of attachment were necrotic.

Two female *Rictularia*, possibly *R. onychomis* Chuckler, 1939 were removed from the small intestine. The tails of these ♀♀ were shorter than those described by Chuckler. In view of the questionable specific diagnosis the following brief description is given. Length, 40 mm.; combs and spines, prevulvar 29 and 31; postvulvar 31 and 32. Vulva 0.15 mm. cephalic to end of esophagus; esophagus 4.9 mm. long; nerve ring at 0.39 mm. from cephalic extremity. Stoma 0.087 mm. deep and 0.09 mm. wide; tail 0.25 mm. long. Eggs 39 μ by 24 μ .

Eight *Moniliformis clarki* (Ward, 1917) were taken from the small intestine. One of these, a female specimen, was 35.5 cm. long and weighed (wet) 2.2 grams.

Twelve tapeworms were found in the same habitat as the thornyheads. These appear to represent a new species which is described as follows:

Choanotaenia sciuricola n. sp.

The strobilae measured up to 30 cm. when fully relaxed and before fixation. After preparation for microscopic examination a specimen measured 25.5 cm. long and 2.64 mm. wide. The scolex is 0.26 mm. long and 0.32 mm. wide at the level of the unarmed suckers which are 112 by 78 μ . The rostellum is 71.9 μ wide and 184.3 μ long. Twenty-two rostellar hooks are arranged in a single crown. They are very slender and 38 μ long; the handle being 24 μ and the blade 14 μ long.

The long distinct neck is 0.123 mm. wide. The segments are at first wider than long, but the mature segments are about as wide as long. They measure about 1.6 by 1.9 mm. The genital pores are irregularly alternate and are located near the cephalic margin of the proglottid. The cirrus pouch is small and slender measuring 150 to 130 μ by 31 to 38 μ . It extends mesad, in extreme cases, as far as the excretory vessel but usually falls short of that structure. Only one pair of excretory ducts, apparently the ventral pair, could be distinguished either in sectioned or entire material. The cirrus is unarmed. The vas deferens serves as a seminal vesicle. The testes, which are confined to the caudal portion of the proglottid are 29 to 41 μ in diameter. In 49 segments the number of tests varied from 27 to 37, mean 31.1, standard deviation 2.2. One segment, not considered in the above mean, contained 43 testes. The ovary is small, indistinctly bilobed and placed about the middle of the proglottid. The vagina runs caudal to the cirrus pouch and the coiled vas deferens. Near the middle of its course is an enlargement which serves as a seminal receptacle. The uterus extends cephalad of the ovary at first. It is thin walled and soon breaks down.

The gravid proglottids are much longer than wide. The eggs are scattered singly throughout the areolar parenchyma. The embryonic hooks are 18.5 μ long, the embryo is 54.7 μ in diameter and the eggs are 59 by 68.5 μ .

Locality: Ashland, Ohio; September 27, 1943.

Host: *Sciurus niger*.

Habitat: Intestine.

Specimens: Type U. S. National Museum, Helm. Col. No. 46406. Additional material in the author's collections.

Comparisons: *Choanotaenia sciuricola* agrees with the generic diagnosis given by Fuhrman (1932) except for the absence of the dorsal pair of excretory vessels. Therefore, this tapeworm is referred tentatively to the above genus although similar worms from rodents have been referred heretofore to other genera of questionable validity.

Choanotaenia is a large genus, but fortunately 39 of the species are easily distinguished from *C. sciuricola* by the number of the hooks on the rostellum. The remainder are compared below. *C. iola* Lincicome, 1939; *C. scolopacis* Joyeux

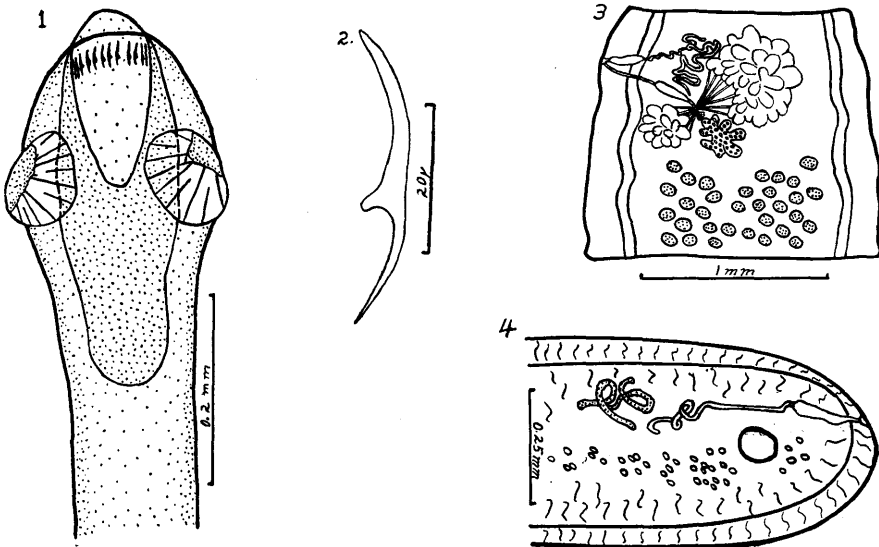


FIG. 1. Scolex of *Choanotaenia sciuricola*. FIG. 2. Hook from rostellum of *C. sciuricola*. FIG. 3. Mature segment of *C. sciuricola*. FIG. 4. Cross section at level of cirrus pouch.

and Baer, 1939; *C. meliphagidarum* Johnston, 1911; *C. taylori* Johnston, 1912; and *C. unicononata* (Fuhrman, 1908) all have fewer than 26 testes. On the other hand *C. marchali* (Mola, 1907) and *C. tringae* Joyeux and Baer, 1937 have more numerous testes (50 to 60). In *C. magnihamata* Burt, 1940 the handle of the rostellar hooks is only one-half as long as the blade. The hooks of *C. macracantha* (Fuhrman, 1907) are extraordinarily long (110 to 148 μ).

C. sciuricola resembles *Prochoanotaenia peromysci* Erickson, 1938 more closely than other forms described heretofore. The rostellar hooks are longer in *Choanotaenia sciuricola* (38 μ against 32 μ) although the scolices are about the same size. The strobilae of the present species are much larger, and the testes are more numerous. On the other hand the cirrus pouch is much smaller in *C. sciuricola*.

Discussion: Unfortunately the senior author has not recorded the results of every fox squirrel which he has examined, consequently, the incidence of parasitism in the animals examined cannot be given exactly, but only one out of 8 to 12 squirrels was found infected with any helminth.

The occurrence of *Macracanthorhynchus hirundinaceus* in a fox squirrel from Ashland County seems peculiar since the parasite is rare in swine raised in this area.

However, the parasite has been reported previously from this host by Rausch and Tiner (1948).

The same writers report finding a *Rictularia* sp. in two of 94 fox squirrels examined by them and Katz found the same parasite in one of 16 fox squirrels which he examined. All were from western Ohio.

Rausch and Tiner (1948) state that *Moniliformis clarki* is uncommon in mid-western sciurids, but Chandler (1947) reports it from other areas. Contrary to Rausch and Tiner, this parasite may be common in the fox squirrels of Ashland County, since hunters have brought this large worm to us for identification on several occasions. However, in animals which have been completely examined for helminths, we have found it only once.

Two squirrels were shot at the edge of the same corn field on September 27. One, an adult female, was heavily parasitized, and weighed 740 grams; the other, an immature female, weighed 710 grams, although obviously much smaller. The tail of the immature, unparasitized female was two inches shorter than that organ in the adult. When the 23 helminths had been collected from the adult female, they weighed in the fresh state just 30 grams. Therefore, the adult squirrel, though of larger body, weighed no more than the helminth-free, young female.

The adult female was shot at 4:30 P.M., the immature at 5:00 P.M. At 8:00 P.M., after both squirrels had been dressed and examined, it was noted that rigor mortis was pronounced in the carcass of the young animal, but that of the adult was still flabby. Since helminths parasitic in domestic animals upset the carbohydrate metabolism of their hosts, this observation may possibly be of some significance.

SUMMARY

Four species of helminths were found in a fox squirrel, *Sciurus niger*, shot near Ashland, Ohio. One of these, *Choanotaenia sciuricola*, represents a new species.

LITERATURE CITED

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