

THE FIRST DISCOVERY OF FREE-LIVING LARVAE OF THE EAR TICK, *OTOBIOUS MEGNINI* (DUGES), IN BRITISH COLUMBIA

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ABSTRACT

In the south Okanagan Valley a cave in a rock face was investigated after a visiting dog became infested with the ear tick, *Otobius megnini* (Duges). Larvae of the ear tick were found in abundance, on the floor and dropping from the ceiling. The cave is a shelter and resting place for a protected band of bighorn sheep which is known to be heavily infested. Near the opening of the cave were larvae of the winter tick, *Dermacentor albipictus* Packard, and a nymph and an adult female of the wood tick, *D. andersoni* Stiles.

The ear tick, *Otobius megnini* (Duges), 1884, was described from specimens collected in Mexico. Subsequent records show it to be parasitic on larger wild mammals and domestic animals in most of the United States, southeastern British Columbia, Mexico, Peru, Chile, Bolivia, and northern Argentina (Rich, 1957). In addition to this natural distribution, it has been introduced into, and has become established in Hawaii, India, and South Africa. This tick infests only the ear canals of its host, entering as a larva and emerging as a fed nymph. The minute, white, six-legged larvae are extremely active, and are readily mistaken for mites by casual observers. The final moult occurs off the host, and the adult is free-living and non-feeding.

A nymph removed from the ear of a house cat at Ewing's Landing on Okanagan Lake in 1941, was the first ear tick recorded in British Columbia (Gregson, 1956). Subsequently nymphs were collected rather generally from the ears of mountain goats, mountain sheep, elk, mule and white-tailed deer, domestic cattle and dogs in that portion of the province south of the 52nd parallel and east of the 121st meridian (Rich, 1957, and subsequent records). Since 1955 at least 16 cattle are known to have died as a direct result of ear tick infestations

(Rich, 1957, and subsequent records). Despite diligent searching, free-living adults, and until March 29, 1968, free-living larvae had not been found.

The life history in British Columbia is not completely known. Despite extensive searching only a single autumn record of engorged larvae has been made from a mule deer shot at Blackpines, October 24, 1951. From much less extensive spring sampling, numerous records of engorged larvae have been made from mule deer shot during February to early May, inclusive, in the Adams Lake, Ewing's Landing, Lumby and Short's Creek areas. These records may be variously interpreted as indicating either that (a) some overlapping of generations occurs, (b) hatching occurs in the fall with some infestations occurring, but the majority of larvae overwintering for host infestation in the spring, or (c) overwintering occurs largely as eggs with hatching in very early spring. Laboratory studies have shown that the larvae are attracted to warm-blooded animals.

Free-living larvae were discovered in the South Okanagan Valley as follows: Dr. Hauston, of Penticton, informed S. Cannings² that in early 1968 he had found a cave in the Vaseux Lake area to be "alive" with fleas, and a Corgi dog that had been in the vicinity of the cave had been subsequently infested with ear ticks. Cannings, with J. D. Gregson, explored the cave on March 29, 1968, but could not find fleas. Upon leaving the

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cave, Gregson was annoyed by many "biting" sensations in his hair. As he had been bareheaded, but had been careful not to touch his head against the cave roof, he suspected that the cause of the bites had dropped from the roof on to his head. However, nothing could be found in his hair. Later, in early evening, he felt "biting" sensations on his forehead, and a minute, white "mite" was found. Examination under magnification proved the "mite" to be a larval ear tick. As it appeared probable that this larva, and the ear tick infestation of the Corgi, may have originated at the cave, the cave was re-examined on April 4, 1968.

The cave is in a vertical rock-face with a southwesterly exposure, about one mile south of Gallagher Lake and directly east of Inkaneeep Provincial Park. The cave is approached up a talus slope of the type usual to interior British Columbia, with an almost vertical lip of rock between the talus and cave. This feature makes the cave almost inaccessible to large mammals other than mountain sheep and goats, and agile humans. The cave is known locally as a shelter and resting place for mountain sheep of the Vaseux Lake band, which is known to be heavily infested with ear ticks (Gregson, 1956, and other records). The cave is approximately 40 feet wide at the opening and about 20 feet deep, with the roof sloping almost to the floor at the rear.

Larval winter ticks, *Dermacentor*

albipictus Packard, and a nymphal and a female wood tick, *D. andersoni* Stiles, were collected at the top of the talus. The approach talus and the cave provided ample evidence of mountain sheep. Larval ear ticks were abundant on the floor and roof of the cave. A small cotton sheet spread on the floor yielded numerous larvae each time it was turned over. The party knotted white handkerchiefs on their heads before entering, and were careful not to touch the roof. Numerous larvae appeared on the handkerchiefs within a few minutes after entering. To confirm that these dropped from the roof, a rubber water bottle filled with warm water and covered with black silk cloth was held about 4 to 6 inches from the roof for one minute intervals, and up to 10 larvae per interval were recovered from the cloth. A piece of white nylon voile was spread on the floor with small pieces of dry ice beneath it, but this did not yield any greater number of larvae than an equal area of the white cotton sheet. No adult ear ticks or shed nymphal skins were found.

This sequence of events indicates that the ear tick larvae had been active in this cave for several months prior to the April 4 visit. A warm-blooded animal resting in the cave during this period would have become heavily infested. It is of interest that three of British Columbia's most important tick species were collected in one place, which is also a favoured locale for mountain sheep.

References

- Gregson, J. D. 1956. The Ixodoidea of Canada. Canada Dept. Agric. Pub. No. 930.
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