

## **CASE REPORTS OF BOT FLY MYIASIS IN PIKAS (*Ochotona princeps*) 1**

Authors: BAIRD, CRAIG R., and SMITH, DONALD H.

Source: Journal of Wildlife Diseases, 15(4) : 553-555

Published By: Wildlife Disease Association

URL: <https://doi.org/10.7589/0090-3558-15.4.553>

---

The BioOne Digital Library (<https://bioone.org/>) provides worldwide distribution for more than 580 journals and eBooks from BioOne's community of over 150 nonprofit societies, research institutions, and university presses in the biological, ecological, and environmental sciences. The BioOne Digital Library encompasses the flagship aggregation BioOne Complete (<https://bioone.org/subscribe>), the BioOne Complete Archive (<https://bioone.org/archive>), and the BioOne eBooks program offerings ESA eBook Collection (<https://bioone.org/esa-ebooks>) and CSIRO Publishing BioSelect Collection (<https://bioone.org/csiro-ebooks>).

Your use of this PDF, the BioOne Digital Library, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](http://www.bioone.org/terms-of-use).

Usage of BioOne Digital Library content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne is an innovative nonprofit that sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

## CASE REPORTS OF BOT FLY MYIASIS IN PIKAS (*Ochotona princeps*)<sup>□</sup>

CRAIG R. BAIRD<sup>□</sup> and DONALD H. SMITH<sup>□</sup>

**Abstract:** Six cases of bot fly (*Cuterebra* spp.) myiasis in pikas (*Ochotona princeps*) are reported from Oregon and Montana. These are the first known cases of *Cuterebra* parasitism of pikas.

### INTRODUCTION

Although many species of small mammals are parasitized by *Cuterebra* spp., bot fly parasitism has not been reported previously in the pika (*Ochotona princeps*), a small lagomorph of the northern Rocky Mountain area. Recently, several *Cuterebra* larvae taken from pikas have been discovered in university and personal insect collections. Records from the Rocky Mountain Laboratory (W.L. Jellison, pers. comm., April 1978) revealed additional collections of *Cuterebra* from pikas, although the larvae were not available for examination.

Six cases of *Cuterebra* myiasis have been found, five in Montana and one in Oregon. Parasitized pikas were collected in June 1932, July 1944, August 1950, September 1955, August 1974, and September 1974. Three cases involve single third stage larvae and three cases were double larvae infections.

### CASE REPORTS

Site of warbles on the host was recorded in two cases; two larvae were located dorsally over the scapulas and one was ventral near the sternum. Measurements of the four third stage larvae ranged from 14.5 mm length, 10.5 mm width to 16.5

mm length and 12.5 mm width. Multiple-pointed cuticular spines were present on all larvae (4) examined. Larvae were not available for examination in three cases, and the warble site on the host was not recorded in four cases. Three larvae are now deposited in the museum at the Department of Entomology, University of Idaho and one larva is in the Department of Entomology museum at Oregon State University.

### DISCUSSION

There is one questionable record of pikas being parasitized by *Cuterebra*. Haga<sup>8</sup> reported *Cuterebra reporina* from pikas in Japan. This is unlikely since the genus *Cuterebra* is known only from North and South America. *Ochotona* in Asia are parasitized by other bot flies: *Oestromyia* spp. which is probably what Haga observed, and *Hypoderma* spp.<sup>10</sup> An extensive series of larvae from *Ochotona* in Manchuria sent by Dr. Loukashkin to the Rocky Mountain Laboratory were determined as *Oestromyia* spp. (Jellison, pers. comm., April 1978).

Since the larval taxonomy is poorly defined, the only positive means of species identification is to rear mature

<sup>□</sup> Published with the approval of the Director of the University of Idaho Agricultural Experiment Station as Research Paper No. 78613.

<sup>□</sup> Department of Entomology, University of Idaho, Moscow, Idaho 83843, USA.

<sup>□</sup> Department of Zoology, University of Montana, Missoula, Montana 59801, USA. Current address: Rt. 1, Box 84A1, Stony Creek, Virginia, 23882, USA.

larvae to adults. The larvae reported here can only be determined to genus.

The collection dates are within those months when most *Cuterebra* infections occur (June-September). However, the multiple-pointed spines found on all larvae taken from pikas are surprising. Third instar *Cuterebra* normally found on rodents have cuticular spines with 2 to 10 points,<sup>4</sup> whereas the corresponding spines on bot fly larvae from rabbits have single points.<sup>1,2</sup> Since pikas are lagomorphs, they should be parasitized by *Cuterebra* species infecting rabbits. However, because these larvae have multiple-pointed spines, we believe they are rodent bot fly larvae.

The cuticular spine structure and the posterior spiracular arrangement of the larvae from pikas and larvae from chipmunks (*Eutamias*) in the same area of Montana are very similar. Therefore, the species parasitizing chipmunks in that area may be the same species found in pikas.

*Cuterebra* larvae show partial host specificity to one host species or to a

group of closely related species.<sup>1,2,3,6,12</sup>

Cross infections between congeneric species such as *Peromyscus maniculatus* and *P. leucopus* often are successful, while infections across generic lines, even within the same family, usually fail.<sup>6,7,12</sup> Infections of rodents with lagomorph bot fly larvae or vice versa, are even less likely to succeed.<sup>1,2,3,6,9,11</sup>

*Cuterebra* larvae occasionally are found in a variety of animals including dogs, cats, cattle, deer, and man. These incidental infections are most often caused by rabbit bot fly larvae, rarely by rodent-infecting species.<sup>9</sup> Larval development in unusual hosts is usually unsuccessful, resulting in larval or host mortality, exaggerated pathology, larval wandering in the host and slow larval development.<sup>3,5,6</sup>

Because so little is known about host-parasite relationships, we speculate that the *Cuterebra* larvae found in pikas were accidental or unusual situations and do not represent a normal host-parasite relationship.

#### Acknowledgements

We wish to thank Dr. William Jellison for contributing information and for reviewing the manuscript. Dr. Jack Lattin, Oregon State University, and Dr. J. M. Kinsella, University of Montana, provided valuable specimens for study. We would also like to thank Drs. K. J. Capelle, Brigham City, Utah, E. P. Catts, University of Delaware, R. E. Gingrich, and C. L. Graham, USDA, for reviewing the manuscript and offering suggestions.

#### LITERATURE CITED

1. BAIRD, C.R. 1971. Development of *Cuterebra jellisoni* (Diptera: Cuterebridae) in six species of rabbits and rodents. J. Med. Ent. 8: 615-622.
2. ———. 1972. Development of *Cuterebra ruficrus* (Diptera: Cuterebridae) in six species of rabbits and rodents with a morphological comparison of *C. ruficrus* and *C. jellisoni* third instars. J. Med. Ent. 9: 81-85.
3. ———. 1979. Incidence of infection and host specificity of *Cuterebra tenebrosa* in bushy-tailed wood rats (*Neotoma cinerea*) from central Washington. Manuscript accepted for publication. J. Parasit.
4. ———, and C.L. GRAHAM. 1973. *Cuterebra tenebrosa*: Description of immature stages and a redescription of the adult (Diptera: Cuterebridae). Can. Ent. 105: 1281-1293.

5. CAPELLE, K.J. 1970. Studies on the life history and development of *Cuterebra polita* (Diptera: Cuterebridae) in four species of wild rodents. J. Med. Ent. 7: 320-327.
6. CATTS, E.P. 1965. Host-parasite interrelationships in rodent bot fly infections. Trans. 30th N. Am. Wildl. and Nat. Res. Conf. 30: 184-196.
7. GINGRICH, R.E. and C.C. BARRETT. 1976. Natural and acquired resistance in rodent hosts to myiasis by *Cuterebra fontinella* (Diptera: Cuterebridae) J. Med. Ent. 13: 61-65.
8. HAGA, R. 1960. Observations on the ecology of the Japanese pika. J. Mammal. 41: 200-212.
9. JACOBSEN, H.A., B.S. MCGINNES, and E.P. CATTS. 1978. Bot fly myiasis of the cottontail rabbit, *Sylvilagus floridanus mallurus* in Virginia with some biology of the parasite, *Cuterebra buccata*. J. Wildl. Dis. 14: 56-66.
10. LOUKASHKIN, S.A. 1940. On the pikas of North Manchuria. J. Mammal. 21: 402-405.
11. RADOVSKY, F.J. and E.P. CATTS. 1960. Observations on the biology of *Cuterebra latifrons* Coquillett (Diptera: Cuterebridae). J. Kans. Ent. Soc. 33: 31-36.
12. SMITH, D.H. 1977. The natural history and development of *Cuterebra approximata* (Diptera: Cuterebridae) in its natural host, *Peromyscus maniculatus* (Rodentia: Cricetidae), in western Montana. J. Med. Ent. 14: 137-145.

*Received for publication 23 January 1979*

---