

## *Myiasis (botfly) in rabbits*

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Warning: this file contains pictures, which may be distressing to some people.

Myiasis caused by larvae of the *Cuterebra* sp. flies is found only in the USA. It is most commonly observed during the hot humid summer months and during fall, and affects mainly younger animals. *Cuterebra* sp. flies are large, hairy, and characterized by the absence of a functional mouth. Their life span is short, and aimed only at the reproduction of the species. The larvae of several species of the *Cuterebra* sp. flies can infest rabbits and other lagomorphs. They include *Cuterebra buccata*, *C. cuniculi*, *C. lepvora*, *C. abdominalis*, *C. jelloni*, *C. ruficrus*, and *C. lepusculi*. The parasitic larvae of these flies can infest human beings and other animals as well, including dogs, foxes, cats, and minks.



cedarcreek.umn.edu/insects/newslides/029102002001apl.jpg

**Botfly *Cuterebra* sp. and maggot**

Unlike with fly-strike, a *Cuterebra* sp. larva strike is not linked to poor hygiene. Indeed, the eggs are not deposited on skin soiled with urine or excrement, but near the entrance to a rabbit burrow, other lagomorph nests, or near an outdoor rabbit hutch. House rabbits can also be struck by botfly larvae, when a fly enters a home, and deposits eggs in the rabbit's living environment. When the botfly larva emerges from the egg, it will migrate onto a (wild) rabbit, cottontail, or hare. It enters the body of its host through the skin (breaks in the skin or any natural openings), after which it penetrates the mucosa. The larva will migrate further in the body, using the trachea and the abdominal cavity to move to a subcutaneous location. There it will develop a 2 to 3 cm long furunculoid cystic structure, with a fistula (respiratory hole) at the surface of the skin, and swelling of the subcutaneous tissues.

Depending on the species of botfly, the cysts will develop in different parts of the rabbit's body. Larvae of *C. buccata* can infest the entire abdominal region (especially the inguinal area, abdomen or shoulders), whereas larvae



of *C. horripilum* have mainly been observed in the cervical region. When the larva reaches the stage of pupation, it disengages from the cyst and falls off.

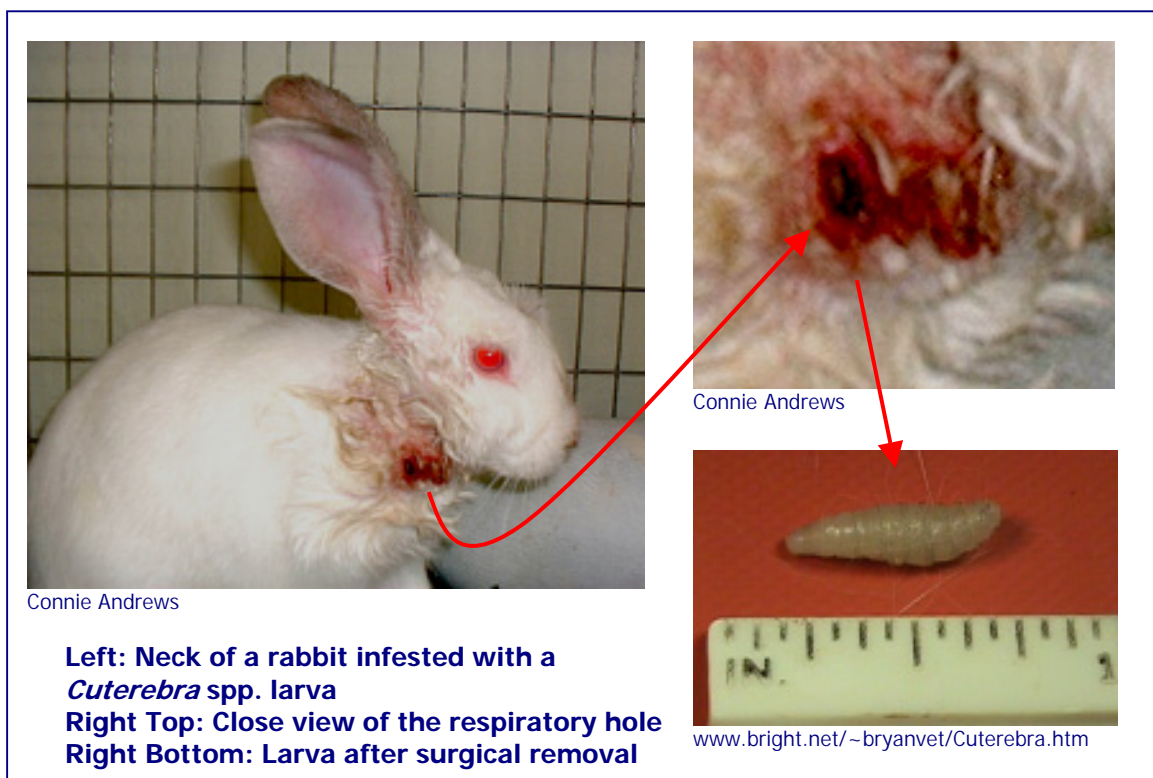
### Symptoms

The clinical signs are generally sufficient for a proper diagnosis.

The early stages of myiasis are sub-clinical. With time however, a rabbit becomes depressed, anorectic, dehydrated and weak, loses weight, and may go into shock if the infection is severe. At this stage the infection becomes discernible, with a visible fistula in the skin, accompanied by a lump or a cystic structure. The lesion is painful, and causes great distress to the rabbit.

Progressively the skin around the hole becomes moist, and the surrounding hair matted, leading to the development of secondary bacterial or fungal infections.

There is potential for aberrant migration of the larvae into the nasal cavity and sinuses, or the eyes. Migration into the trachea has also been observed, leading to the formation of laryngeal edema, blocking the air supply to the lungs, and sometimes accompanied by concurrent accumulation of mucus, and swelling of the esophagus. Migration into the brain, via the ear canal is a further potential danger. Once in the brain, it will cause severe and irreversible neurological damage.



### Treatment

The skin is prepared as for a surgical procedure, with the hair delicately clipped around the infected area, and the skin disinfected with an antiseptic solution. After enlargement of the breathing hole, the larva is carefully removed with the aid of forceps, without damaging or crushing it, in order to prevent skin irritation, and especially in order to prevent the occurrence of a (fatal) anaphylactic reaction. After removal of the larvae the cavity is cleaned with a sterile saline solution, an antiseptic solution, and an insecticide solution.

If necrotic tissue is present, the cavity should be carefully debrided. If an abscess has formed in the cavity, surgical excision of the tissues is necessary, followed by topical and systemic antibiotic therapy.

Aberrant migrated larvae, located deep under the skin or in vital organs, are removed surgically, under anesthesia.

The administration of non-steroidal analgesics (pain medication) is necessary (e.g. meloxicam, carprofen) after the procedure. If the affected rabbit stops eating, it should be hand-fed, in order to avoid fatal hepatic lipidosis.

If a rabbit is heavily infested with botfly larvae, euthanasia should be considered.

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### Further Information

1. Baird CR. Biology of *Cuterebra lepusculi* Townsend (Diptera: Cuterebridae) in cottontail rabbits in Idaho. J Wildl Dis. 1983 Jul;19(3):214-8.
2. Jacobson HA, McGinnes BS, Catts EP. Bot fly myiasis of the cottontail rabbit, *Sylvilagus floridanus mallurus* in Virginia with some biology of the parasite, *Cuterebra buccata*. J Wildl Dis. 1978 Jan;14(1):56-66.
3. Schumann H, Schuster R, Lange J. The warble fly *Oestromyia leporina* (Diptera, Hypodermatidae) as a parasite of the wild rabbit (*Oryctolagus cuniculus*). Angew Parasitol. 1985 Mar;26(1):51-52.
4. Weisbroth SH, Wang R, Sacher S. *Cuterebra buccata*: immune response in myiasis of domestic rabbits. Exp Parasitol. 1973 Aug;34(1):22-31.

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