



Common name

moose fly,
scabby hocks

Scientific name

a muscoid fly,
Haematobosca alcis

What's Bugging Wild Critters?

Fact sheet # 30:
Moose Flies

Significance

As their common name implies, moose flies are specific to moose. They are blood-feeding flies that live most of their life on the hind end of a moose where they can be associated with large open wounds that ooze blood and tissue fluids. However, moose generally seem to be unconcerned about this.

What? Where? How?

Moose flies are small dark fuzzy flies about the size of a house fly, which happens to be one of their close relatives. Both flies are in the family Muscidae and are closely related to other biting flies like horn flies (*Haematobia irritans*) and stable flies (*Stomoxys calcitrans*), and non-biting flies like face flies (*Musca autumnalis*), all of which are associated with cattle.

Moose flies occur wherever moose live in North America. They were described originally from moose in Minnesota but since then have been found from Newfoundland to Alaska in the north and Michigan to Wyoming in the south. They are not found in Europe or Asia.

Moose flies occur in large numbers and sometimes cover the rump and back legs of individual moose, particularly adult moose. They maintain a very close relationship with an individual moose and although they rise up in dense hordes whenever the moose moves, the flies follow and quickly re-settle. Similarly, when moose enter water or cross a stream, they are accompanied by a swarm of moose flies waiting to get back on.

Moose Flies

(*Haematobosca alcis*)

in Alberta

Adult flies are most common during the summer, generally from June until the first frost in September, with peak numbers in late July and August. Thus, hunters do not see these flies during the fall recreational hunting seasons.

Unlike most other biting insects, male and female moose flies both feed on blood and tissue fluids. Feeding occurs primarily on the back legs of the moose, just above the hock (as in the accompanying photos). The feeding sites are readily visible as red open sores on the legs of affected moose. There is some question about whether moose flies initiate the feeding site or whether they enlarge bite sites made by horse flies (Tabanidae). But moose fly mouthparts certainly are capable of creating a bite site. Regardless of how the wounds start, moose flies gather at the edge of the feeding sites in circular patterns facing towards the centre, much like petals on a daisy.

As a result of constant feeding by large numbers of flies, the feeding sites do not scab over and can expand into large wet open weeping sores on the back legs of the moose. Interestingly, they seldom become infected with bacteria, suggesting the flies may produce antibiotics that keep the wounds clean. The lesions occur throughout late July and into September but quickly heal once the flies are gone (after the first frost).



Moose flies in Alberta

(*Haematobosca alcis*)

Transmission Cycle

Males and females live together on the same moose and it seems the flies stay on the moose all day and all night, through rain or sunshine or any weather in between. The only time they leave is when the moose makes a quick movement or is immersed in water, or when the females leave to lay their eggs.

Adult females instinctively cue in on gases released when moose defecate. They quickly fly down to the fresh faecal pellets where within 30 seconds, they start to inject eggs into the cracks on the fresh pellets before the surface hardens. The female releases one egg at a time. Someone actually timed all this and it takes about 6 seconds to lay one egg and she does this for about 3 minutes. So as not to lose track of a good thing, the female then flies off and looks for the moose by using chemical and temperature clues.

Once the eggs hatch, the larvae (= maggots) feed in the faecal pellet. Mature larvae burrow into the ground to pupate and eventually an adult fly emerges. Depending on weather, it seems there are at least two and usually three generations of flies each summer. Each generation takes 30 to 40 days from egg to adult. Larvae of the final generation overwinter as pupae and a new season begins when adult flies emerge from the ground in early summer. Also, as the vegetation hardens throughout the summer, faecal pellets produced in late summer and fall are not suitable for the development of moose flies.

Distribution in Alberta

It is likely that moose flies occur throughout the range of moose within Alberta. However, they are most common during the late summer months when moose are relatively secretive and not observed closely by people. Thus documented evidence of these flies is scarce. However, the increasing use of remote-activated cameras on game trails has given us a new look at moose flies! Some of the photos in this fact sheet were kindly provided to Fish and Wildlife by trail-cam operators who wondered what was happening with the moose in their pictures.

Importance for Wildlife Management

Moose generally are forgiving animals and seem to be quite oblivious to the hordes of flies on their backsides. Perhaps the constant presence of the flies day and night for months on end result in general acceptance of the pests. The lesions on the legs look quite nasty but do not appear to fester nor do they persist once the flies are gone. Moose killed during the hunting seasons in October and November seldom have evidence of the flies.



C. Nickel, Edmonton



Wildlife diseases in Alberta: <http://srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/>

Moose flies in Alberta

(*Haematobosca alcis*)

Public Significance

Moose flies do not feed on humans and are not associated with any human health concern. Nor are they interested in our pets or livestock.

Prevention/Control

There are no preventative or control measures to reduce the number of moose flies; nor are any warranted.



G. Frederiksen, Grande Prairie AB



D. Poppen, Athabasca



R. Miskosky, Rochester AB

Summary

Moose flies are an intriguing component of the natural biodiversity of the province. They are closely associated with moose during summer months but do not cause significant damage.

Additional Information

Alaska Dept. of Game and Fish, Field guide to common wildlife diseases and parasites in Alaska
www.wc.adfg.state.ak.us

Lankester, M.W. and W.M. Samuel. 2007. *Pests, parasites, and diseases*. In: Ecology and management of the North American moose. 2nd edition. Wildlife Management Institute.