



FACT SHEET

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“Hair Loss Syndrome” caused by exotic lice

“Hair loss syndrome”(HLS) of black-tailed deer was first described in Washington in 1995. The condition is caused by a heavy infestation with a Eurasian louse of poorly defined taxonomic status in the genus *Damalinia (Cervicola) sp.* The normal hosts of this louse are non-native deer and antelope, which are not seriously affected by the lice.



In contrast, when black-tailed deer become infested, they tend to develop a hypersensitivity (severe allergic) reaction to the lice, which causes irritation of the skin and excessive grooming by the deer. Eventually, this excessive grooming leads to loss of the guard hairs, leaving yellow or white patches along the sides (Figures 1 and 2). Infestations are heaviest during late winter and early spring, and many affected deer, especially fawns, die during this time. The geographical distribution of HLS has steadily expanded since its first appearance and now affects black-tailed deer throughout their range in western Washington and western Oregon. This species of lice has been found on elk in Washington, but does not result in the severe hair loss seen in deer. To date, the presence of this louse has not been documented in mule deer or white-tailed deer in Washington east of the Cascade Range.

Beginning in 2000, WDFW began to receive sporadic reports of deer from the Yakima area of south-central Washington with clinical signs similar to HLS. These reports were of deer occurring in the black-tailed/mule deer intergrade zone in the eastern foothills of Cascade Range, and were the first reports of apparent HLS in eastern Washington. Reports of more severely affected deer were received in 2004. In March 2005, lice were collected from four affected deer and identified as *Bovicola tibialis*, yet another exotic old world species with fallow deer as the normal host.

During the early spring of 2006, WDFW received numerous reports of dead deer, especially fawns, in the Yakima area with hair loss. The geographical extent of reports received in 2006 had expanded greatly compared to previous years and included occurrences of the condition in phenotypically “pure” mule deer. Aerial surveys and harvest statistics suggest that the deer population in Yakima and Kittitas counties has declined by about 50% since the arrival of the lice. It is unknown if *Bovicola tibialis* infestations are the sole reason for the drop in deer numbers, but they are suspected to be a factor. Since 2008, WDFW has received reports of a condition resembling HLS in both mule deer and white-tailed deer throughout eastern Washington. At this time the cause and significance of these reports is not known.

Neither species of the exotic lice described above affect humans or domestic animals.

In captive settings, deer have been successfully cleared of lice infestations with the use of medication. However, in free-ranging situations, there is no practical method for delivering effective doses of medication to large populations of wild deer.



Figures 1 and 2. Black-tailed fawn and mule deer doe with “hair loss syndrome” caused by the exotic lice *Damalinia (Cervicola) sp.*, and *Bovicola tibialis*, respectively.

Other hair loss conditions seen in deer, elk, and moose

Normal molt: Deer, elk, and moose normally shed their hair (“molt”) twice per year. In the spring they shed their winter coat, and in the late summer they shed their summer coat. The distribution of hair loss is usually patchy, and the deer tend to look “scruffy” until the molt is completed (Figures 3 and 4). Normal molt can be distinguished from disease conditions of the skin by the presence of a normal appearing coat beneath the molting hair.



Figures 3 and 4. White-tailed doe and mule deer buck undergoing normal seasonal molt during the spring and late summer, respectively.

Winter Ticks: Winter ticks (*Dermacentor albipictus*) commonly cause hair loss in deer, elk, and moose. As indicated by the name of the tick, this condition is most often seen in the winter when adults of this species of tick typically feed on animals. Hair loss is usually limited to the neck and shoulder regions where the animals cannot reach to remove the ticks by grooming (Figures 4 and 5). The engorged ticks fall off in the early spring and animals usually grow their hair back. Occasionally, especially in moose, tick burdens can become very heavy and hair loss occurs all over the body. In severe cases, moose can die from heavy winter tick infestations.



Figures 4 and 5. A bull moose and a cow elk with hair loss due to winter tick infestations.

Mange: Rarely, an individual deer, elk, or moose will develop severe mange caused by microscopic mange mites, usually in the genus *Demodex*. When this occurs, it is usually an indication that the animal's immune system is not functioning properly. It is not uncommon to find that these animals are suffering from a variety of other maladies in addition to mange. Sporadic cases can occur at any time of the year. Severe mange is characterized by hair loss over most of the body, as well as thickening, wrinkling, and darkening of the skin, which often exudes a foul odor (Figures 7 and 8).



Figures 7 and 8. A white-tailed doe and a young elk with severe mange infestations.

Photos by Nancy Curry, Briggs Hall, Dave Kuehn, Scott McCorquodale, Paul Wik, and Mark James.