



## Horses Are Not Hazardous to Conservation Land

**MYTH: Horses introduce non-native plants and propagate nuisance weed seeds along trails.**

**FACT:** According to current research, horses do not introduce non-native plants along trails. Dr. Stith T. Gower of the Department of Forest Ecology and Management at the University of Wisconsin, Madison concluded that the ratio of non-native plants to native species on trails “did not differ between trails open and closed to horses” at three study sites.

Gower’s finding is consistent with those of Mary Benninger-Truax et al. who found no documentation that horses are major source of exotic species. She determined that horses that were not allowed to graze in an area with exotics and had controlled diets did not spread weed seed along the trails.

**MYTH: Horses can transmit foot-and-mouth disease and Mad Cow disease.**

**FACT:** Foot-and-mouth disease (FME) affects only cloven-footed ruminants—such as sheep, cattle, and goats. Neither of these diseases affects horses. The U.S. has had no cases of FME since 1929. Horses that are imported to the U.S. from countries with outbreaks of FME are quarantined for three days and sponged with vinegar to kill any potential virus that may have been transported on their hooves. During epidemics abroad, such as the one that occurred in 2001, the federal government may also prohibit imports of horses and all other animals from countries where FME cases exist.

The U.S. Department of Agriculture reported one case of Bovine Spongiform Encephalopathy (BSE), commonly called “Mad Cow disease,” in 2003. This single case occurred in a Washington state dairy cow born in Canada prior to the US prohibitions on risky feeding behaviors. There is no evidence that horses were in any way involved in this case. BSE is currently believed to occur by feeding infected ruminant protein to other ruminants; this practice is prohibited in the US.

**MYTH: Horses spread Eastern Equine Encephalitis.**

**FACT:** Contact with horses does not pose a risk of contracting Eastern equine encephalitis (EEE) to humans or other animals. While EEE is a viral disease that can affect humans, horses, and birds, horses are “dead-end” hosts for the virus. In other words, horses can get EEE from an infected mosquito, but they cannot infect other animals, humans, or mosquitoes.

EEE is transmitted to humans only through mosquito bites. There are approximately five cases of human EEE infection per year in the U.S.

**MYTH: Horses spread E. coli, Salmonella, Cryptosporidium, Giardia, and other waterborne diseases.**

**FACT:** According to Johnson et al., scientific studies confirm that adult horse intestines do not contain significant quantities of E. coli 0157:H7, Salmonella, Cryptosporidium, or Giardia, which are the organisms of most concern in the water-borne spread of disease. In other words, horses are not responsible for the spread of waterborne diseases.

**MYTH: Horses emit greenhouse gases.**

**FACT:** Horses are not a significant source of methane gas, the gas of concern in greenhouse/global warming issues. “The primary source of methane release in livestock production is ruminant animals,” according to the ARS Air Quality National program (as cited by the USDA Agricultural Research Service).

**MYTH: Horseback riding on trails cause erosion.**

**FACT:** According to Professor Gordon E. Brown Jr. of Stanford University’s School of Earth Sciences, the primary causes of erosion are natural and far surpass any impact of trail use by horses.

In a five-year study, Summer concluded that horse traffic was not the dominant process causing erosion on trails. Trail degradation was a function of landform, climatic and catastrophic events, and geomorphic processes. Limited data suggested that foot traffic produced effects similar to horse traffic in exposing the trail to the effects of geomorphic process or climatic events.

Williams and Conway-Durver concur that factors other than user type are more closely linked to trail degradation. Lightly used trails may grow over and require more maintenance, whereas moderate horse activity may help to maintain a multiple-use trail.

**MYTH: Horses on trails disturb wildlife.**

**FACT:** Horses are prey animals and, as such, do not disturb other wild prey animals, such as birds or deer, that might inhabit the conservation land. Conversely, dogs and humans are predator animals, and cause alarm among prey animals.

In an extensive review of recreation effects on birds, Bennett and Zuelke concluded that disturbance from recreation has temporary effects on behavior and movement of birds. Direct approaches caused greater disturbance than tangential approaches. For example, the rapid movement of joggers was more disturbing than slower hikers; children and photographers were especially disturbing; and passing or stopping vehicles were less disturbing than human foot traffic. Horses and riders did not disturb birds.

Sporadic human use can disturb wildlife. However, "many animals are less afraid of horseback riders than hikers. Riders seldom dismount to touch flora or fauna. Riders can be a dedicated and energetic volunteer and advocacy group....Horses are useful for patrols, supplying trail maintenance, and doing surveys. Horse traffic can be used to maintain firebreaks and seldom-used trails" (Williams).

**MYTH: Horses on trails adversely affect water supplies.**

**FACT:** According to studies by the National Animal Health Monitoring System, the University of Colorado, and UC Davis-Tulare, horses on trails are not detrimental to water quality.

While horses do defecate on trails, they do not readily urinate on trails (Gosselin). Horses stretch their bodies out in an awkward position to urinate, often standing on the front edges of their hooves in a splayed posture. This stance places them in a vulnerable position if attacked by a predator. Sixty million years of evolution and survival means that this is an activity not undertaken lightly by the horse. Most horses prefer the safety and security of their stall or paddock to undertake this function (UC Davis Book of Horses 1996). Because of this unique behavior, it is easy for a rider to spur a horse out of a stream bed to avoid urination in a water body.

No studies implicate equines in groundwater contamination. According to UC Davis Manure Management Specialist Meyer, horses eliminate primarily in their pastures and paddocks. Furthermore, any manure left in a loose heap in deposits on trails loses its nitrogen rapidly. According to Quinn, it is "inconceivable that trail horses making dispersed deposits could possibly impact ground water. Most contamination of this sort occurs from areas associated with feedlots where thousands of commercially harvested animals are confined at one time, or from excessive fertilization added to soils."

**REFERENCES**

- Bennett, KA and E. Zuelke . 1999. The effects of recreation on birds: a literature review. Delaware Natural Heritage Program, Smyrna, DE 1977.
- Benninger-Truax, Mary, John L. Vankat and Robert L. Schaefer. 1992. Trail corridors as habitat and conduits for movement of plant species in Rocky Mountain National Park, Colorado, USA. *Landscape Ecology*, 6(4): 269-278.
- Brown, Gordon E., Jr. 1998. Public testimony before the Midpeninsula Regional Open Space District.
- Eastern Equine Encephalitis Fact Sheet, Centers for Disease Control and Prevention (<http://www.cdc.gov/ncidod/dvbid/Arbor/eeefact.htm>).
- Gosselin, Dr. L. and Dr. L. Wolford, 2001. Personal communication with Adda Quinn.
- Gower, Stith T. 2007. Do Horses Spread Non-Native Plants on Trails? Blood-Horse Publications.
- Johnson, E., Atwill, E. R., Filkins, M. E., and Kalush, J. 1997. The prevalence of shedding of *Cryptosporidium* and *Giardia* spp. based on a single fecal sample collection from each of 91 horses used for backcountry recreation. *Journal of Veterinary Diagnostic Investigation*. 9: 56-60.
- Meyer, Dr. Deanne. 1997. "Horses spend most of their time in pastures or paddocks where the majority of their excrement is deposited, collected and managed. Horse manure is about 70-80% liquid and 20-30% solids." Personal communication with Adda Quinn.
- New Hampshire Department of Agriculture and USDA. 1990. Good Neighbor Guide for Horse-Keeping: Manure Management.
- Quinn, Adda. Environmental Aspects of Horses on Trails. (<http://www.americantrails.org/resources/wildlife/horseenvironment.html>).
- Schoenian, S. 2005. Mad Cow and Foot-and-Mouth. Western Maryland Research & Education Center, Maryland Cooperative Extension ([http://www.sheepandgoat.com/articles/bse\\_fmd.html](http://www.sheepandgoat.com/articles/bse_fmd.html)).
- Summer, RM. 1996. Geomorphic Impacts of horse traffic on montane landforms 41(2): 126-128.
- Summer, RM. 1980. Impacts of horse traffic on trails in RMNP. *J. Soil and Water Cons.* 35(2): 85-87.
- Williams, B. and L. Conway-Durver. 1998. "Horse Trails in Ecological Reserves" presented at Clemson University Horse Trails Symposium.