

Are Wild Horses Really Wild?

By Deb Baumann (as published in The Equestrian News, June 2006)

Are America's wild horses truly "wild" or are they merely "feral"...

For those who believe that only indigenous species have a place on our public lands, the distinction is critical. Core to the conflict is the debate over "wild" (i.e. native) verses "feral" (i.e. an alien species which escaped confinement).

For too long, wild horses have been decried as "non-native" species. Thanks to testimony given before Congress by Jay F. Kirkpatrick, Ph.D. and Patricia M. Fazio, Ph.D, we have new scientific evidence and understanding upon which to base our defense of wild horses and burros' right to range America's wild lands.

According to Kirkpatrick and Fazio, modern horses (*Equus caballus*), should be considered North American native wildlife. Evidence documents the dispersal of *Equus* from North America to Eurasia approximately 2-3 million years ago. Additional migrations to Asia and return migrations back to North America occurred over time. Between 13,000 and 11,000 years ago, *Equus caballus* disappeared from North America. In 1493, on Columbus' second voyage to the Americas, Spanish horses were brought back to North America. They thrived in the old stomping grounds their species was born in and their immediate ancestors had called HOME.

Critics of wild horses assert that the species introduced by the Spanish was different from that which disappeared 13,000 to 11,000 years before. However, the relatively new field of molecular biology has recently found that the modern horse is **genetically equivalent** to the most recent *Equus* species in North America prior to extinction.

According to Kirkpatrick and Fazio, "The molecular biology evidence is incontrovertible and indisputable. The fact that horses were domesticated before they were reintroduced matters little from a biological viewpoint. They are the same species that originated here."

The key element in describing an animal as a **native species** is (1) **where it originated**; and (2) **whether or not it co-evolved with its habitat**. Clearly, ***Equus caballus* did both**, here in North America.

Designations of *non-native, feral, or exotic* are used as an excuse to remove animals which have no commercial value to ranchers or hunters. A rose by any other name may smell as sweet, but calling this rose "feral" instead of "wild" condemns a **true native species** to second-class status, and worse.

Native status for wild horses would place these animals, under law, within a new category for management considerations. They deserve the same respect and protections given other native wildlife.

That's good news for the horses, but it's also **great news for the land itself**.

Many of the other native grazing species (elk, deer, bison, wild sheep) have all but disappeared from the American landscape. **Evolving over millions of years in harmony with the native flora and fauna, such species play a critical role in ecosystem balance**. Now that the others are mostly gone, it falls upon our hardy, resilient bands of wild horses to perform a valuable role keeping grass and other brush under control, which in turn reduces danger from wildfires as well as providing a necessary service in the natural order and balance of America's wild ecosystems.



Statement for the 109th Congress (1st Session) in support of H.R. 297
A Bill in the House of Representatives
House Committee on Resources
Introduced January 25, 2005

To restore the prohibition on the commercial sale and slaughter of wild free-roaming horses and burros.

Wild Horses as Native North American Wildlife

By Jay F. Kirkpatrick, Ph.D. and Patricia M. Fazio, Ph.D.

Are wild horses truly "wild," as an indigenous species in North America, or are they "feral" weeds – barnyard escapees, far removed genetically from their prehistoric ancestors? The question at hand is, therefore, whether or not modern horses, *Equus caballus*, should be considered native wildlife.

The genus *Equus*, which includes modern horses, zebras, and asses, is the only surviving genus in a once diverse family of horses that included 27 genera. The precise date of origin for the genus *Equus* is unknown, but evidence documents the dispersal of *Equus* from North America to Eurasia approximately 2-3 million years ago and a possible origin at about 3.4-3.9 million years ago. Following this original emigration, several extinctions occurred in North America, with additional migrations to Asia (presumably across the Bering Land Bridge), and return migrations back to North America, over time. The last North American extinction occurred between 13,000 and 11,000 years ago.¹ Had it not been for previous westward migration, over the land bridge, into northwestern Russia (Siberia) and Asia, the horse would have faced complete extinction. However, *Equus* survived and spread to all continents of the globe, except Australia and Antarctica.

In 1493, on Columbus' second voyage to the Americas, Spanish horses, representing *E. caballus*, were brought back to North America, first in the Virgin Islands, and, in 1519, they were reintroduced on the continent, in modern-day Mexico, from where they radiated throughout the American Great Plains, after escape from their owners.²

Critics of the idea that the North American wild horse is a native animal, using only paleontological data, assert that the species, *E. caballus* (or the cabaloid horse), which was introduced in 1519, was a different species from that which disappeared 13,000 to 11,000 years before. Herein lies the crux of the debate. However, the relatively new (27-year-old) field of molecular biology, using mitochondrial-DNA analysis, has recently found that the modern or caballine horse, *E. caballus*, is genetically equivalent to *E. lambei*, a horse, according to fossil records, that represented the most recent *Equus* species in North America prior to extinction. Not only is *E. caballus* genetically equivalent to *E. lambei*, but no evidence exists for the origin of *E. caballus* anywhere except North America.³

According to the work of Uppsala University researcher Ann Forstén, of the Department of Evolutionary Biology, the date of origin, based on mutation rates for mitochondrial-DNA, for *E. caballus*, is set at approximately 1.7 million years ago in North America. Now the debate becomes one of whether the older paleontological fossil data or the modern molecular biology data more accurately provide a picture of horse evolution. The older taxonomic methodologies looked at physical form for classifying animals and plants, relying on visual observations of physical characteristics. While earlier taxonomists tried to deal with the subjectivity of choosing characters they felt would adequately describe, and thus group, genera and species, these observations were lacking in precision. Reclassifications are now taking place, based on the power and objectivity of molecular biology. If one considers primate evolution, for example, the molecular biologists have provided us with a completely different evolutionary pathway for humans, and they have described entirely different relationships with other primates. None of this would have been possible prior to the methodologies now available through mitochondrial-DNA analysis.

Carles Vilà, also of the Department of Evolutionary Biology at Uppsala University, has corroborated Forstén's work. Vilà et al have shown that the origin of domestic horse lineages was extremely widespread, over time and geography, and supports the existence of the cabaloid horse in North American before its disappearance.⁴

Finally, the work of Hofreiter et al, 5 examining the genetics of the so-called *E. lambei* from the permafrost of Alaska, found that the variation was within that of modern horses, which translates into *E. lambei* actually being *E. caballus*, genetically. The molecular biology evidence is incontrovertible and indisputable. The fact that horses were domesticated before they were reintroduced matters little from a biological viewpoint. They are the same species that originated here, and whether or not they were domesticated is quite irrelevant. Domestication altered little biology, and we can see that in the phenomenon called "going wild," where wild horses revert to ancient behavioral patterns. James Dean Feist dubbed this "social conservation" in his paper on behavior patterns and communication in the Pryor Mountain wild horses. The reemergence of primitive behaviors, resembling those of the plains zebra, indicated to him the shallowness of domestication in horses.⁶

The issue of feralization and the use of the word "feral" is a human construct that has little biological meaning except in transitory behavior, usually forced on the animal in some manner. Consider this parallel. *E. Przewalski* (Mongolian wild horse) disappeared from Mongolia a hundred years ago. It has survived since then in zoos. That is not domestication in the classic sense, but it is captivity, with keepers providing food and veterinarians providing health care. Then they were released a few years back and now repopulate their native range in Mongolia. Are they a reintroduced native species or not? And what is the difference between them and *E. caballus* in North America, except for the time frame and degree of captivity?

The key element in describing an animal as a native species is (1) where it originated; and (2) whether or not it co-evolved with its habitat. Clearly, *E. caballus* did both, here in North America. There might be arguments about "breeds," but there are no scientific grounds for arguments about "species." The non-native, feral, and exotic designations given by agencies are not merely reflections of their failure to understand modern science, but also a reflection of their desire to preserve old ways of thinking to keep alive the conflict between a species (wild horses) with no economic value anymore (by law) and the economic value of commercial livestock. Native status for wild horses would place these animals, under law, within a new category for management considerations. As a form of wildlife, embedded with wildness, ancient behavioral patterns, and the morphology and biology of a sensitive prey species, they may finally be released from the "livestock-gone-loose" appellation.

Jay F. Kirkpatrick, Director, The Science and Conservation Center, Billings, Montana, holds a Ph.D. in reproductive physiology from the College of Veterinary Medicine at Cornell University. Patricia M. Fazio is currently a freelance environmental writer and editor residing in Cody, Wyoming and holds a B.S. in animal husbandry/biology from Cornell University, and M.S. in environmental history from the University of Wyoming, and a Ph.D. in environmental history from Texas A&M University, College Station.

- 1 "Horse Evolution" by Kathleen Hunt from www.onthenet.com.au/~stear/horse_evolution.htm; Bruce J. MacFadden, *Fossil Horses: Systematics, Paleobiology, and Evolution of the Family Equidae* (New York: Cambridge University Press, 1992), p. 205.
- 2 Patricia Mabee Fazio, "The Fight to Save a Memory: Creation of the Pryor Mountain Wild Horse Range (1968) and Evolving Federal Wild Horse Protection through 1971," doctoral dissertation, Texas A&M University, College Station, 1995, p. 21.
- 3 Ann Forstén, 1992. Mitochondrial-DNA timetable and the evolution of *Equus*: Comparison of molecular and paleontological evidence. *Ann. Zool. Fennici* 28: 301-309.
- 4 Carles Vilà, Jennifer A. Leonard, Anders Götherström, Stefan Marklund, Kaj Sandberg, Kerstin Lidén, Robert K. Wayne, Hans Ellegren. 2001. Widespread origins of domestic horse lineages. *Science* 291: 474-477.
- 5 Hofreiter, Michael; Serre, David; Poinar, Hendrik N.; Kuch, Melanie; Pääbo, Svante. 2001. Ancient DNA. *Nature Reviews Genetics*. 2(5), 353-359.
- 6 James Dean Feist and Dale R. McCullough. 1976. Behavior patterns and communication in feral horses. *Z. Tierpsychol.* 41: 367.