

Wild horses in Theodore Roosevelt National Park have mixed ancestry

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Three common pelage types presented in the Theodore Roosevelt National Park horses. Credit: NPS / Thom Buras

Feral horses living in Theodore Roosevelt National Park in the Badlands of North Dakota likely had multiple origins, but have since become inbred, according to Igor Ovchinnikov of the University of North Dakota, and colleagues, in a study published August 1 in the open-access journal *PLOS ONE*.

While the origins of the horse herd at Theodore Roosevelt National Park are uncertain, historians suspect that the original group was a mix of [horses](#) from Native American horse traders and free-range horses maintained on the Badlands for ranching. To determine whether these origin assumptions were correct, in the current study, researchers collected hair samples from 196 horses in the [park](#) and looked at two types of genetic markers that can indicate where the horses came from.

The researchers found that for one type of marker, some horses in the herd matched with the American Paint horse, a breed of mixed origins. Other horses had no close match, and instead had sequences with similarities to horses living in Siberia and East Asia, which is likely due to mixing of maternal lineages prior to the establishment of modern breeds. The analysis also shows that the herd is highly inbred and has less genetic diversity than other feral horse herds and domesticated breeds.

While the existing genetic data available for horses are insufficient to determine the exact origins of the horses roaming Theodore Roosevelt National Park, the findings can be used for future herd management strategies. Regardless of the ancestry of lineages, the researchers suggest that future herd management should focus on adding new members to the group to improve the genetic health of the herd.

Ovchinnikov summarizes: "Mitochondrial and nuclear DNA relationships demonstrated the distinctive nature of [feral horses](#) in Theodore Roosevelt National Park. Maintenance of the [herd](#) as a

breeding population will require adaptive management efforts focused on improving genetic diversity."

More information: Ovchinnikov IV, Dahms T, Herauf B, McCann B, Juras R, Castaneda C, et al. (2018) Genetic diversity and origin of the feral horses in Theodore Roosevelt National Park. *PLoS ONE* 13(8): e0200795. doi.org/10.1371/journal.pone.0200795

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