

## Emerging Tools to Control Feral Horse Populations in the Western USA

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**ABSTRACT:** The U.S. Geological Survey (USGS) has been conducting research to support the Bureau of Land Management (BLM) Wild Horse and Burro Program since 1996 and is currently engaged in testing additional tools to curb high population growth of feral horses. Horses are protected by the Wild and Free-Roaming Horses and Burros Act of 1971 and are managed to maintain populations at appropriate management level (AML). With no natural predators, many populations double in 4-5 years. Population size is controlled primarily with “gathers” in which horses are rounded up and made available for adoption by the public. This is a costly enterprise in which animals are housed in holding facilities while they await potential adoption and many horses are never adopted. Today ~48,000 horses remain in holding facilities across the USA, and facilities are now full. There are approximately 72,000 horses on public lands across the west, which is almost 3 times range wide AML. Horses have profound impacts on habitat and other wildlife, and the situation is becoming critical on western landscapes. With holding facilities at capacity, BLM is forced to leave excess animals on public lands, leading to rangeland degradation and impacts to sage grouse and other wildlife. Solutions are needed quickly to address exponential population growth of horses. USGS partnered with Oklahoma State University (OSU) and Colorado State University (CSU), respectively, to conduct studies testing the efficacy of intrauterine devices (IUD) for horses, and gelding a proportion of males in a population. The IUD study was conducted on 20 domestic mares that were housed with stallions at OSU. Fifteen mares retained IUDs for the 18-month duration of the trial before IUDs were removed. Mares who received progesterone at the time of IUD insertion retained their IUDs, and no mares with an IUD became pregnant. Next we will test IUDs in free-roaming mares. In the gelding study with CSU, there were no differences in individual behavior or movement rates between gelded and non-gelded harem stallions or bachelors after the first breeding season. Gelded harem stallions did not lose their mares at a higher rate than intact stallions, and mares joined gelded harem stallions as often as they joined intact stallions. Preliminary results indicate little if any change to social structure or individual behavior of stallions or mares compared to controls. We will determine after the summer 2019 birthing season if gelding males affects population growth rate. USGS proposed a field study to determine behavior and population growth reduction of sterilizing mares but the study was litigated and postponed. Modeling by USGS indicates sterilization is the most effective and promising tool to reduce herds to AML and would potentially save BLM >\$1 billion annually in direct operational costs. The environmental cost to habitat and other wildlife associated with keeping excess horses on the range, as well as direct economic costs, have not yet been calculated for comparison.

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