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# Fertility Control Options for Management of Free-roaming Horse Populations (Abstract)

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**ABSTRACT:** The management of free-roaming horses (*Equus ferus*) and burros (*E. asinus*) in the United States has been referred to as a “wicked problem” because, although there are population control options, societal values will ultimately determine what is acceptable and what is not. In the United States, free-roaming equids are managed by different types of organizations and agencies, and the landscapes that these animals inhabit vary widely in terms of access, size, topography, climate, natural resources, flora, and fauna. This landscape diversity, coupled with contemporary socioeconomic and political environments, means that adaptive management practices are needed to regulate these free-roaming populations. The Bureau of Land Management (BLM) currently manages free-roaming equids on 177 herd management areas in the United States by applying fertility control measures *in situ* and/or removing horses, which are either adopted by private individuals or sent to long-term holding facilities. The BLM off-range population currently includes >50,000 animals and costs approximately \$50 million USD per year to maintain; on-range equid numbers were estimated in March 2022 to be approximately 82,384. On-range populations can grow at 15-20% annually, and current estimates far exceed the designated appropriate management level of 26,715. To reduce population recruitment, managers need better information about effective, long-lasting, or permanent fertility control measures. Because mares breed only once a year, fertility control studies take years to complete. Some contraceptive approaches have been studied for decades, and results from various trials can collectively inform future research directions and actions. Employing one or more fertility control tools in concert with removals offers the best potential for success. Active, iterative, cooperative, and thoughtful management practices can protect free-roaming horses while simultaneously protecting the habitat. Herein, we review contraceptive vaccines, intrauterine devices, and surgical sterilization options for controlling fertility of free-roaming horses. This review provides managers with a “fertility control toolbox” and guides future research.

**KEY WORDS:** castration, *Equus asinus*, *Equus ferus*, feral burros, feral horses, fertility control, field implementation, immunocontraception, intrauterine devices, ovariectomy

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