Mountain Sheep, Mule Deer, and Burros in the Brush:

Flourishing Wild Burros Impact Habitats and Native Big Game

by Vernon C. Bleich and Nancy G. Andrew

Donkeys, feral asses, and wild burros: these are all common names used for the same exotic animals that are the legacy of the prospectors that flocked to the southwestern United States during the mid-1800s. Nearly 20 species of exotic ungulates, or hoofed-mammals, exist in free-ranging, or feral, populations in North America. Burros are, by far, the most successful of those non-native mammals.

Burros are the descendants of the African wild ass (*Equus asinus*), a creature native to Somalia and Ethiopia in northeastern Africa. They are physiologically well-adapted to the hot, arid environment of northeastern Africa, and burros have fared well in the deserts of the southwestern United States. Burros belong to the order Perissodactyla and the family Equidae, which include modern day horses and their ancestors. The Perissodactyla are ungulates that walk on an odd-number of toes, unlike the Artiodactyla, which are hoofed mammals that have even numbers of toes, such as deer and mountain sheep. Among the Equidae: horses, burros, and their close relatives walk on a single hoof; other Perissodactyls, such as rhinoceroses, walk on 3 toes.

Burros were first domesticated about 6,000 years ago, and were introduced to North America by Spanish explorers, likely in the mid-1500s. It was not until the latter half of the 19th century, however, that these exotic ungulates dispersed widely throughout the deserts of Arizona, Nevada, and California. Burros were the favored pack animals of desert prospectors hoping to "strike it rich." As the mining boom of the 1800s subsided, and railroads pushed westward across the Mojave and Sonoran deserts, the utility of these pack animals declined. As a result, many were abandoned by their owners and established free-living, or feral, populations. It is the offspring of those liberated animals that inhabit many desert mountain ranges today, and that are of concern to biologists working to conserve native wildlife.

In 1971, Public Law 92-195 was passed by the United States Congress. That legislation, known as the "Wild Free-Roaming Horse and Burro Act," provided unprecedented protection to feral horses and burros. Indeed, that legislation made it illegal to capture, brand, harass, or kill free-ranging horses or burros without proper authorization. Until passage of PL 92-195, shooting had been the primary means by which burros had been controlled. Without that source of mortality, populations of burros became larger, and their distribution increased. As a result, concern for possible impacts to native, large mammals, such as mountain sheep and desert mule deer, intensified.

Like most legislation that mandates new programs, allocated funds were inadequate to provide for the management of feral burros. During the 1970s, the Bureau of Land Management prepared the California Desert Plan. That multi-million dollar effort recognized the newfound legal status of feral horses and burros, as defined by Public law 92-195, and acknowledged the desirability of restricting populations of those exotic equids to specific parts of the California desert. The California Desert Plan identified a number of Herd Management Areas (HMAs) for burros, and specified the number of animals to be maintained in each of those HMAs. Unfortunately, funding

Wild burros (below) using artificial water sources called guzzlers, designed for use by desert mule deer (left) and other native wildlife. Photos taken by remotely triggered "Trailmaster" cameras set up by Leon Lesicka in the Cargo Muchacho Mountains of Imperial County. Wild burros (previous page); photo by Suzi Shizuko Leavens, Outdoor California Photo Contest Entry.

for implementation of the California Desert Plan has not been adequate to allow those management objectives to be met. As a result, many populations of burros have continued to increase in size, and burros have not been restricted to the specified HMAs.

Some well-known and successful examples of efforts to manage populations of burros have been implemented in California. These include efforts in Death Valley National Park, and at China Lake Naval Weapons Center. As a result of the California Desert Protection Act, passed in 1994, hundreds of burros also have been removed from Mojave National Preserve, in the eastern Mojave Desert. Attempts to manage numbers in the HMAs established by the California Desert Protection act have been less successful, largely because funding for those programs has been inadequate, and has limited the numbers of animals that can be processed each year. Because free-ranging burros can no longer be managed by lethal methods, animals removed from desert habitats must be "adopted" (a long and complicated process) by members of the public interested in maintaining them in captivity.

Impacts to Mountain Sheep

The potential impacts of uncontrolled populations of burros to desert habitats and, especially, to populations of mountain sheep in the southwestern United States have long been recognized. Following the most detailed analysis of potential conflicts yet undertaken, the late Rick Seegmiller (an authority on the ecological relationships of exotic burros and native mountain sheep) concluded that mountain sheep are too valuable and too limited in distribution to accept the risks of coexistence with exotic burros. Seegmiller recommended the removal of those exotic equids from areas inhabited by mountain sheep, as well as areas to which mountain sheep might be translocated in the future. Seegmiller reported that, in general, burros used habitats that were less steep than those used by mountain sheep. Nevertheless, he felt that mountain sheep could become restricted in distribution to the steepest, most rugged terrain where impacts to vegetation would be less than on more gentle slopes used heavily by burros. It is our experience in southeastern California, however, that burros have successfully exploited forage and, recently, water sources in terrain that many biologists formerly felt was habitable only by mountain sheep.

Impacts to Desert Mule Deer

Another native species, with which habitat overlap with free-ranging burros is much greater than for mountain sheep, is the desert mule deer. These large, native ungulates are well-adapted to living in desert washes and the gently rolling intermountain areas of the Sonoran Desert in southeastern California, areas that are used heavily by burros. The impacts of burros to forage resources used by mule deer have not been described in detail, but are expected to be similar to, if not exceed, impacts to forage used by mountain sheep. Similarly, dietary overlap between burros and mule deer has not been quantified thoroughly, but burros unquestionably have the potential to reduce availability of forage preferred by native mule deer. Whether or not "competition" for forage from burros would impact mule deer populations is uncertain, but the potential exists for such to occur.

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Wild burros in Death Valley, California. Photo by Ron Jurek.

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In southeastern California, water is an extremely limited resource for exotic and native ungulates. During a recent drought, burros began to exploit water sources that formerly they had not used. One method of controlling the distribution of burros in the past has been to fence them off of water sources. During a recent period of drought, the authors designed and tested a new-style fence that was effective in allowing native deer and sheep to access water sources, but that prevented use of those water sources by burros. This fence design is lightweight, unobtrusive, and highly effective. Although the fence has been installed at numerous water sources outside of newly designated wilderness areas, construction of such fences inside of "wilderness" established by the California Desert Protection Act has been restricted severely. Nonetheless, wildlife managers from the California Department of Fish and Game and interested sportsmen-conservationists will persist in their efforts to limit the distribution of burros through the use of such fences, at least until populations of those feral equids are more successfully controlled by responsible federal agencies.

There are several large-scale planning efforts currently underway in the deserts of southeastern California. Ultimately, those plans will define land use and conservation strategies for the majority of Sonoran and Mojave desert habitats in the state. Included in those plans will be the intent to manage burros in localized areas and in a meaningful way, so as to minimize impacts to native species of wildlife. Such plans, no matter how well-intentioned, will be successful only if funding is adequate to allow full implementation. Concerned citizens must do their part to ensure that those planning efforts result in meaningful contributions to conservation. Contacting your Congressional representatives, and asking them to ensure that management of feral burros receives their highest priority for adequate funding, is a logical way to ensure that impacts of these exotic ungulates to native mountain sheep and mule deer will be minimized.

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