Wild Horse and Burro Population Census

National Academy of Sciences Sets Census Standards
BLM Nevada conducts direct counts of wild horse and burros herds using methods recommended by the National Academy of Sciences (NAS) Committee on Wild Free-Roaming Horses and Burros to estimate herd size, distribution, composition and rate of increase, as required in BLM Manual 4710 (11/23/88). The NAS Committee reported that it did not appear annual censuses are necessary; rather a census every 2 or 3 years can provide information necessary "to maintain annual appraisals of herd size in order to know when to carry out herd reduction…". The purpose of census is to make determinations whether and where wild horses and burros are in excess of the appropriate management level (AML) on public lands. The census data also serve as a baseline for habitat monitoring and measurement of progress toward objectives.

Accuracy of Aerial Counts Verified
The NAS techniques have been verified as accurate through independent scientific review. Most recently, results were verified in a 1991 article published in The Journal of Wildlife Management 55(4):641-648. This study found that aerial counts consistently detected a large proportion of the wild horses (85-105 percent) but recommended that the high sightability probabilities reported should not be applied in areas with rugged terrain or dense woodlands. The study further found that replicate-index removal estimates (Eberhardt and Siniff et al, 1982) provided little evidence of progressively higher sighting probabilities that would inflate growth rate estimates, and concluded that aerial counts could be used to obtain reliable estimates of population growth rates for horses in more open terrain.

BLM Nevada Amends Census Policy
BLM Nevada recently amended its policy to require population census 12-18 months prior to scheduled captures and removals and to encourage census 4-6 months after gathers are completed. Post-gather census may be especially important for herd management areas (HMA) in big, open country in which horses and burros tend to move outside the HMA boundary during the gather and back in once gather operations are complete.

New Census Techniques Being Studied
Census methods recommended by the NAS will continue to be used until new technologies for counting wild animal populations are developed. The Bureau, in cooperation with the United States Geological Survey (USGS) Biological Resources Division (BRD) and Colorado State University, is currently conducting census research and testing new approaches for population estimation. Those results are not yet final. When new census techniques are approved, they will be included in the Bureau's census handbook.

Southern Nevada is Exception to the Rule
One exception to the direct population count method is for the Las Vegas Field Office. The LVFO applies a sightability factor of 50 percent (0.5) to the number of burros

directly counted (via aerial counts) to account for observer error resulting from the rugged terrain and vegetation landscape of the Mojave Desert ecosystem. This sightability factor is based results for burros from the Lincoln-Peterson mark-resight studies conducted by BLM Arizona for the Black Mountains/Mojave Desert ecosystem since 1995. In the mark-resight studies, the area is flown twice. During the initial flight, all the animals seen are marked with a paint ball. The area is then reflown. The results indicate sighting only about 48-52 percent of the paint-marked animals, yielding a sightability factor of 50 percent.

The Lincoln-Peterson mark-resight method is based on the 1982 Final Report BLM Contract No. AA851-CTO-52 completed by Siniff et al with the University of Minnesota, Department of Ecology and Behavioral Biology, which found that census flights using the direct count technique on areas with more difficult terrain and vegetation counted anywhere from 40-70 percent of the true population using a variety of different aircraft types. In this type of terrain, replicate counts using the Lincoln-Peterson mark-recapture method give the most accurate results.