Evolving Wild Horse Herd Control

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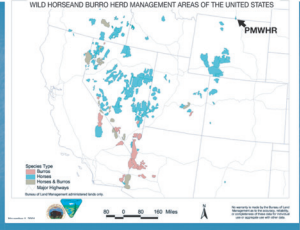
The Pryor Mountain Wild Horse Range (PMWHR)

Created in 1968 by Secretarial Order which directed management of the wild horses within a balanced program, considering all public values, and without impairment to the land's productivity.



LOCATION

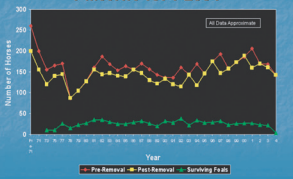
The range, located in south-central Montana, covers about 39,000 acres and is jointly managed by the Bureau of Land Management, Forest Service and the National Park Service.

It is one of 207 managed wild horse and burro herd areas within the U.S.

HERD SIZE

The Pryor herd has averaged about 160 horses over the past decade, with numbers ranging from 118 to 206 animals.

Herd Size PMWHR 1971-2004



HERD CONTROL

Methods of population control have evolved dramatically over this period.

The goal has predominately been to stabilize herd size to within an ecologically acceptable level.

TYPES OF HERD CONTROL

- **1971-1994 Wrangler Removals** age specific, under 9 years, both sexes
- **1997-2001 Helicopter Removals** age specific, under 5 years, both sexes
- **2001-2004 Fertility Control** age specific, younger and older mares
- **1999-2004 Increasing Natural Predation** age specific, foals and yearlings, both sexes

WRANGLER REMOVALS

Historically, wranglers on horseback gathered and confined most of the herd in a holding facility. Gather efforts continued for several weeks over treacherous terrain. Holding the horses allowed for the selection of both removed and subsequently released animals.

Annual gather efforts, from 1971 to 1994, removed 415 head from the herd.

HELICOPTER REMOVALS

In 1997, the use of helicopters replaced Wrangler efforts and greatly improved the efficiency and safety of population control. Removal efforts were reduced to 3 days of activity.

Gathers in 1997, 2001, and 3003 removed 100 horses from the herd.

AGE-SPECIFIC FERTILITY CONTROL

In 2001, fertility control was introduced with age-specific use of the immunocontraceptive vaccine Porcine Zonae Pellucida (PZP). To date, a total of 44 younger and older mares have received a one year vaccine.

Yearling and 2-year old mares, and mares 14-years and older are boostered annually. Remote field-delivery of the vaccine has reduced population control to a very non-intrusive level with minimal resource impact.

This limited application, in concert with existing levels of natural mortality, stabilized herd size by 2003.

MOUNTAIN LION PREDATION

More recently, natural mortality in the form of mountain lion and black bear predation, has increased to a level where other forms of artificial control have not been necessary.

During the winter of 2004, almost 70% of the yearlings were lost from the herd. During the summer of 2004, over 85% of the foals were lost. 2005 impacts are as yet unknown.

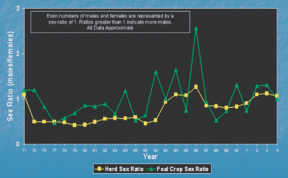
These recent impacts have resulted in a negative growth rate (-12%) for the herd this past year.

HERD CONTROL IMPACTS ON HERD DEMOGRAPHICS

- Growth Rate was stabilized in 1998, reduced to zero in 2003, and became negative in 2004.
- Sex Ratio deliberately skewed towards females during years of wrangler gathers, and became more balanced under recent helicopter gather efforts and predation impacts.

Herd Growth Rate - PMWHR 1971-2004

Herd Sex Ratio PMWHR 1971-2004

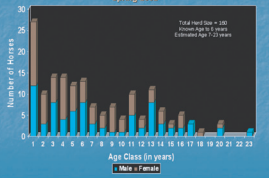


HERD AGE STRUCTURE

- **2002 Structure shows bimodality typical of recurring age-specific selective removals. Also shows impacts of recent removal of 1-4 year olds during 2001 gather.**
- **2005 Structure shows recent impacts of predators with reduced numbers of young horses (yearling and 2 year olds) within the herd.**

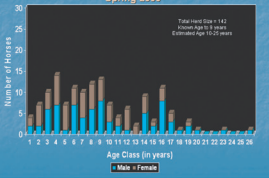
Herd Age Structure

Minimal Predation/Post 2001 Gather
Spring 2002



Herd Age Structure

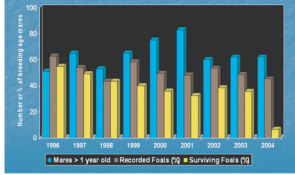
Significant Predation
Spring 2005



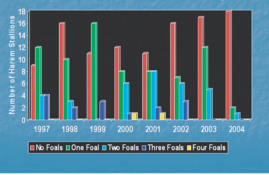
FOAL PRODUCTION

- **The number of breeding age mares peaked in 2001 while herd foaling rates averaged about 50% from 1996 to 2004. Foal survival started dropping in 1999 and then fell substantially in 2004 due to increased predation.**
- **The majority of harem stallions produce one or less surviving foals annually. Maximum numbers of foals per harem stallion coincided with high numbers of breeding age mares and larger harems (2000-2001).**

Herd Foaling Rate

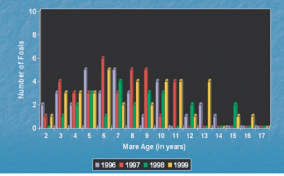


Harem Stallion Contribution

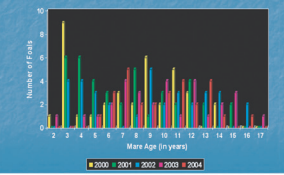


- **Mares 3 to 13 years of age are the primary foal producers in the herd.**
- **Foal production by younger mares increased at the onset of increasing predation impacts (2000-2001).**
- **Foal production by younger mares was then curtailed in 2003-2004 with the use of fertility control.**

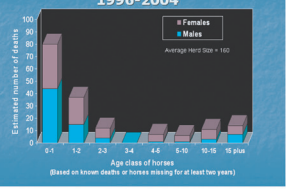
Foal Production by Mares 1996-1999



Foal Production by Mares 2000-2004



NATURAL MORTALITY

- **Carcass recovery in the last decade suggests that survival is high within the core breeding age classes (3-15 years).**
- **High mortality within the foal and yearling age classes is indicative of predation impacts. Horses typically do not live beyond 18-20 years of age in this herd.**

Natural Mortality 1996-2004