**IBMP Briefing Statement**

**Agency:** **Yellowstone National Park**
**Issue:** **Bison Population Status**
**Date:** **August 7, 2008**

**Background:**

- Since the Record of Decision was signed for the Interagency Bison Management Plan (IBMP) in 2000, monitoring of bison and brucellosis has provided information that informs decision makers and the IBMP adaptive management process.

**Current Status:**

- Abundance: ~3,000 bison were counted in July 2008, including 2,500 animals that survived winter 2007-08 and 500 new calves.
- Distribution: ~1,500 bison currently on both the central and northern breeding areas, down from 2,600 during summer 2007 in the central interior, and down from 2,100 during summer 2007 in the northern breeding area.
- Age structure: 70% adults, 12% yearlings, and 18% calves.
- Sex ratio: Overall male to female ratio ~50:50, but decreasing in the northern breeding herd and increasing in the central breeding herd.
- Survival: Adult female bison = 91% excluding brucellosis risk management and hunting removals (83% with these removals included).
- Pregnancy: 90% for sero-negative bison; 70% for sero-positive bison.
- Birthing: Synchronous, with the peak between April 25 and May 25 (80% of births).
- Migration: Northern bison follow the Lamar and Yellowstone rivers down gradient toward the Gardiner basin. Central herd movements vary, with 50% moving west to the Madison Valley, 31% moving directly to the northern range, 8% moving west and then later to the northern range, and 11% remaining in the central interior.
- Movements: Peak migration into the Gardiner basin occurs in February, while peak migration into the Madison Valley occurs in late April. Early winter arrivals into the Gardiner basin have been central breeders, with northern and central range breeders mixing later in the winter.
- Dispersal: Emigration from the central into the northern breeding herd has increased since the 1990s.
- Genetics: New science indicates there may be 2-3 genetic subdivisions within the overall bison population. Yellowstone NP is providing funding to scientists at the University of Montana to assess genetic implications from IBMP management.
- Brucellosis: Population seroprevalence was 45% in winter 2007-08 (1600 bison sampled). Exposure increases from 11-13% in calves to >50% in bison $\geq$2 years old.

**IBMP Implications:**

- Assumptions: Some predictions in the FEIS for the IBMP underestimated population growth rates, migration tendencies, vital rates, and removals by risk management procedures (Table 1).
- Short term: After expected baseline natural mortality (~300) and hunting (~200) is considered, fewer than 200 bison could be removed for brucellosis risk management during winter 2008-09 before reaching the IBMP conservation threshold of 2,300 bison.
- Long term: Under prevailing conditions, the bison population should be expected to continue to grow at a realized ~12% per year. Adaptive management adjustments to the IBMP are key to reducing population growth rate and stabilizing the population near 3,700, as described in the IBMP FEIS

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Table 1. Assumptions and realizations for the Interagency Bison Management Plan (IBMP) during 2000 and 2008.

| Assumption | IBMP 2000 | 2008 Status |
|---|---|---|
| Removals | 7% or ~250 bison per year | 0-40% or up to 1,700 per year |
| Abundance and distribution | Numbers stabilize at ~3,700<br>* ¾ central interior<br>* ¼ northern range | Numbers approach 5,000 and vary widely<br>* ½ northern range<br>* ½ central interior |
| Movements | Northern herd to Gardiner basin;<br>Central herd to West Yellowstone | Northern herd to Gardiner basin;<br>Central herd to both boundaries |
| Population structure | 1 male : 1 female | 1 male : 1 female overall (northern herd decreasing; central herd increasing) |
| Vital rates | 73 adults : 11 yearlings : 16 calves<br>Pregnancy 50 %<br>Birthing 50 %<br>Survival unknown | 70 adults : 12 yearlings : 18 calves<br>Pregnancy 70-90 %<br>Birthing 90%<br>Survival 91% |