

IBMP Briefing Statement

Agency: Yellowstone National Park
Issue: Adaptive Management Criteria in the federal and state IBMP Records of Decision
Date: August 28, 2008

Background: The Joint Management Plan of the federal and state Records of Decision (ROD) for the IBMP (2000) included primary management activities to reduce the risk of brucellosis transmission from bison to cattle and incrementally increase habitat for free-ranging bison outside the park in the winter when cattle were not present. We collated these under the 9 objectives for the IBMP listed in the FEIS (pp. 42-45) that was adopted in the federal and state RODs, with comments.

- **(Risk Management) Protection of Livestock from Brucellosis:** (*Federal ROD pages 23, 24, 28*) – The agencies will capture and test bison attempting to leave the park that no longer respond to hazing. Seropositive bison will be sent to slaughter and a limited number of seronegative bison (≤ 100) could be released into Zone 2. Captured seronegative calves and yearlings would be vaccinated with a safe vaccine. Seronegative, pregnant bison will receive a radio-telemetry collar and vaginal radio telemetry implant.
- **Observations:** These testing and vaccination guidelines were developed prior to the implementation of hunting as an effective management tool for limiting bison numbers and distribution outside the park. Testing and vaccination are not desired prior to state and treaty harvests because we do not want hunters selectively harvesting seronegative animals, removing vaccinates from the population, or being exposed to vaccine in bison meat during the 45-day withdrawal period after vaccination. Also, the goal of reducing brucellosis transmission risk from bison to livestock can be best achieved by combining boundary capture and remote delivery vaccination of all female bison, including adults. Previously, the IBMP agencies agreed not to fit seronegative, pregnant bison outside the western boundary of YELL with telemetry devices.
- **Bison Tolerance (in IBMP Zone 2):** (*Federal ROD pages 23, 26, 28*) – The maximum number of bison tolerated in Zone 2 in Montana at any given time will be 100 bison in the northern boundary area and 100 bison in the western boundary area. Bison leaving Zone 2 for Zone 3 will be subject to lethal removal.
- **Observations:** Bison are migratory animals and, since 2000, between 3% (2000-01) and 76% (2007-08) of the total population has migrated beyond the park boundary into the West Yellowstone and Gardiner basins between November-May. The National Research Council (1998) and monitoring since 2000 demonstrated that the extent of bison of movement beyond the park boundary in Zone 2 is correlated positively with population size and snow pack severity.
- **Public Safety/Protection of Private Property:** (*Federal ROD page 31*) – The agencies will cooperate with the Royal Teton Ranch to develop a bison management plan for the ranch that is consistent with the provisions in, and changes to, the Joint Bison Management Plan of the ROD.
- **Observations:** The RTR bison management plan could provide contingency bison access to Gardiner basin winter habitat, particularly during severe winters or when population abundance is near or below the IBMP 2,100-2,300 bison population conservation threshold. Additionally, bison management outside the park in the Gardiner basin needs to address other migratory wildlife (e.g., bighorn sheep, elk, pronghorn).
- **Size of Bison Herd:** (*Federal ROD page 32*) – The population target for the whole herd is 3,000 bison. If the late-winter/early-spring bison population is above the 3,000 target, specific management actions may be undertaken at the Stephens Creek capture facility or outside the park in the western boundary area to reduce its size, including removal to quarantine or slaughter.
- **Observations:** A memorandum was signed by all IBMP agencies outlining adjustments to the IBMP on November 20, 2006. This memorandum clarified that “a population size of 3,000 bison is defined as a population indicator to guide implementation of risk management activities, and is not a target for deliberate population adjustment.”
- **Brucellosis Class-free Status:** (*Federal ROD pages 32 – 33*) – Upon disclosure of a brucellosis-affected cattle herd in or near the IBMP management area, the agencies will implement modified management measures (e.g., only seronegative non-pregnant bison will be allowed in Zone 2 up to the prevailing tolerance limit) pending the completion of an investigation expected to last 60 days or less.
- **Observations:** Two Montana cattle herds have been detected with brucellosis during 2007-2008, with neither case connected to wild bison. The agencies have demonstrated the ability to maintain temporal and spatial separation between

wild bison and cattle, and every recent brucellosis transmission to cattle in the Greater Yellowstone Area where the species could be reasonably assigned was attributed to wild elk.

- **Viable Population of Wild Bison:** *Federal ROD pages 26, 30, 34* – Untested bison would be allowed outside YELL in Zone 2 once the agencies had (1) collected enough information on bacterial viability and fetal disappearance, (2) initiated an effective vaccination program, including remote vaccination in the park, and (3) maintain separation between bison and cattle and controlled bison numbers in Zone 2. When the bison population declines below 2,300 within a single winter, the agencies may, on a temporary basis for that winter, increase implementation of non-lethal management measures to provide management flexibility and reduce the total management removal of bison from the population. When the bison population declines below 2,100 within a single winter, the agencies will, on a temporary basis for that winter, increase implementation of non-lethal measures. To determine if the thresholds of 2,300 and 2,100 bison are reached, the following equation will be used: estimated early winter bison population less 10% of early winter bison population less management removals.
- **Observations:** The agencies have collected information on shed *Brucella* bacterial viability and persistence, initiated limited bison vaccination, and successfully maintained temporal and spatial separation between bison and cattle, including enforcement of the boundary between Zones 2 and Zone 3 at Yankee Jim Canyon. Each winter since 2000, some untested and unvaccinated bison have been allowed in IBMP western Zone 2. During upcoming winter 2008-2009, the early winter bison population is expected to be 2,900-3,000. Taking into account 10% over-winter natural mortality ($3,000 \times 10\% = \sim 300$) and 6% population harvest (e.g., equivalent to 2007 harvest levels, $166/3,000 = \sim 6\%$) suggests that <300 bison can be removed for brucellosis risk management before reaching the IBMP bison conservation thresholds.
- **Elimination of Brucellosis in Bison:** *Federal ROD page 22 and 35* – The agencies will deem a vaccine safe and effective according to criteria established by the GYIBC. A vaccine must induce statistically greater protection against fetal loss, infected calves, or infection in pregnant vaccinates after experimental challenge when compared to non-vaccinated animals. Also, the vaccine must reduce the prevalence of brucellosis in the targeted wildlife population.
- **Observations:** The effectiveness of vaccination will depend on the vaccine's ability to induce a protective immune response and reduction in rate of spontaneous brucellosis-induced abortion events. Currently, biobullets are the best available option for remotely vaccinating wild bison. While earlier research indicated immune response to SRB51 biobullet vaccination and reduction in abortion in captive research bison, more recent research of immune responses of captive research bison to "hydrogel" biobullet vaccination with SRB51 indicates poor immune response compared to syringe injection. There was variable but low immune response at 2 and 6 weeks after syringe vaccination in 9 yearling wild bison held captive for up to 10 weeks at Stephens Creek near the end of winter 2007-08.
- **Plan Based on Factual Information:** *Federal ROD pages 26, 30* – Each of the triggers for management actions in Zone 2 are independent (e.g., removing bison to maintain the 100 bison tolerance limit does not depend on the overall bison population size).
- **Observations:** The overall population size and migratory behavior of bison to low-elevation ranges during winter need to be integrated with brucellosis risk management and bison hunting. Otherwise, unintended consequences of removals could threaten the conservation of YELL bison when their abundance is near or below 2,300. This is especially true in the western boundary area where peak bison movement occurs in late winter and spring (e.g. April-May), after the majority of bison hunting and northern Zone 2 risk management have already occurred.
- **Coordinated Management:** *ROD page 23-24, 27* – Bison will be permitted outside the park until May 15 in the western boundary area, after which bison that cannot be hazed back into the park will be subject to lethal removal. Also, all bison outside YELL in Zone 2 of the northern boundary area would be hazed back into the park no later than April 15. The ultimate decision of an appropriate temporal separation period is left with the discretion of the Montana State Veterinarian.
- **Observations:** The plan indicates that haze back dates toward temporal and spatial separation may be modified by the Montana State Veterinarian, or joint agreement of the agencies if the persistence and viability research indicates the dates can be adjusted. Also, the plan indicates the beginning dates for hazing bison back into the park will consider environmental factors such as weather (e.g., page 27).

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