

**DRAFT IBMP ADAPTIVE MANAGEMENT PLAN
FOR THE NORTH SIDE OF YELLOWSTONE NATIONAL PARK
...VERSION 1.0**

As of October 7, 2008

Goal #1: Increase tolerance for bison outside of the north side of YNP with no undesirable consequences (e.g., transmission of brucellosis from bison to cattle, negative impacts on public safety). 2

Objective 1.1: Within timing and geographical considerations, allow untested bison in IBMP Zone 2 so as to manage the risk of brucellosis transmission from bison to livestock, and support wild bison conservation and hunting. 2

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Management action 1.1.b—Modify stock turnout dates until later in the season. 4

Management action 1.1.c—Complete persistence research to inform adaptive management. ... 4

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Objective 1.3: Reduce lethal removal of bison in management activities. Utilize hazing to achieve spatial and temporal separation based on prevailing conditions in spring. 5

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Objective 3.1: Reduce the number of infected bison. << **Alternatively:** Increase vaccination of bison (to reduce the probability of bison shedding *Brucella abortus* bacteria) and vaccination of cattle (to protect against brucellosis transmission from wildlife vectors).>> Reduce the risk of disease transmission through vaccinations. 9

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Goal #1: Increase tolerance for bison outside of the north side of YNP with no undesirable consequences (e.g., transmission of brucellosis from bison to cattle, negative impacts on public safety).

Objective 1.1: Within timing and geographical considerations, allow untested bison in IBMP Zone 2 so as to manage the risk of brucellosis transmission from bison to livestock, and support wild bison conservation and hunting.

Management action 1.1.a— Defining when and where bison can be outside the northern YNP boundary.

Using guidance from the table below, in the **short term** allow **tested non-pregnant** bison to migrate onto and occupy national forest north of the RTR within the boundaries of Zone2 on the west side of the Yellowstone River (generally west of the Yellowstone River, south of Yankee Jim Canyon, and in

the Eagle Creek area). Broaden the area in Zone 2 on the east side of the Yellowstone River to a logical hydrographic divide that roughly parallels Yankee Jim Canyon. Allow bison to migrate, year-round, into the Eagle Creek free-range area. FWP takes lead with DOL's support for public safety and property damage. In the **long term**, continue to provide space/habitat for untested bison in cattle-free areas of the Gardiner Basin.

Monitoring: In concert with surveys of the Eagle Creek/Bear Creek area northeast of Gardiner, Montana, conduct daily/weekly counts of the number and distribution of bison in the Gardiner Basin, particularly north of YNP, west of the River, and in the Eagle Creek area.

Monitoring metric: In concert with surveys of the Eagle Creek/Bear Creek area, document the numbers and dates that bison attempt to pass through Yankee Jim Canyon or Mol Heron Creek Canyon, or cross to the east side of the Yellowstone River north of Maiden Basin Creek.

- o *Associated threshold for management action:* Zero tolerance in the short term.

Monitoring Metric: Track # of animals that push agreed upon boundaries and enter Zone 2.

- o *Associated threshold for management action:* If bison in Zone 2 exceed agreed upon timing and geography, institute management activities on the north side commensurate with **Tables 1 and 2**.

Monitoring metric (long term): Determine natural migration routes and timeframes (in absence of hazing) of bison migration back into the park. Use this information to evaluate the effectiveness of current thresholds for tolerance in zone 2.

Monitoring (long term): Annually document monitoring results regarding the number of bison using Zone 2 and the number and type of management activities needed to manage bison distribution.

TABLE 1. Guidelines for Bison Management on North Side of YNP

Status	# bison allowed onto Zone 2 GNF (after transit of the RTR) before active management instituted to move them back into YNP (short term 2008-09)	# bison allowed onto Zone 2 GNF (after transit of the RTR) before active management instituted to move them back into YNP (long term 2009-10)	Short term	Long term
			For all bison, required return date to within Park boundaries (potential flexibility in the ROD already)	
tested	25 (15 GPS collared)	50	April 15	May 15
untested	0	25		May 15
pregnant	0	25 (some radio-collared)		May 15
<i>Bison bulls—regardless of sero-testing status—see Objective 1.2</i>				

Table 2. Guidelines for Bison Management on North Side of YNP

Date	Evaluation/Trigger	Management Action
Any time of	Bison in the Eagle Creek free-range	Tolerate presence of all bison

year	area	
Any time of year	Bison east of Yellowstone River, north of Little Trail Creek	Immediate hazing to other available habitat or removal.
After April 15 or May 1??	Bison west of the Yellowstone River, south of Yankee Jim Canyon	Haze back into YNP, maybe tolerate bull bison
Any time of Year	Bison north of Yankee Jim Canyon	Immediate hazing to other available habitat or removal.
Any time of Year	Bison in the Cedar Creek Drainage	Tolerate presence of all bison

Guidelines above from one group; below from another

Ongoing Jan-April	Bison leave Zone 2 and progress beyond Yankee Jim Canyon	Lethal removal
Ongoing Jan-April	Number of times bison leave Zone 2 and progress beyond Yankee Jim Canyon > 2x	Reduce bison number to 10
Ongoing Jan-April	Bison cross the Yellowstone River to the west side (Zone 3)	Lethal removal
Ongoing Jan-April	Number of times bison cross the Yellowstone River to the west side (Zone 3) > 2x	Reduce bison number to 10
Nov 1	Evaluate locations/dates of grazing cattle (private bison) in Gardiner basin	Adjust perimeter

And another ...

By Apr 15	If bison are in expanded Zone 2 (on east side of Yellowstone River to a logical hydrographic divide that roughly parallels Yankee Jim Canyon)	Employ hazing to move bison back into Eagle Creek/Bear Creek area by April 15
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Management action 1.1.b—Modify stock turnout dates until later in the season.

Pursue agreements with all landowners who graze cattle on public and private lands within and near the Gardiner basin to delay turnouts of domestic livestock until July 1. Provide financial incentives (working with government and non-government partners) for altering the timing of cattle operations.

Method: Modify Green Lake Allotment Mgt Plan to modify 6/16 turnout into Section 10 Pasture until later in the season.

Method: Adjust GNF Annual Operating Plan.

Metric: Annually record the onset of grazing on the Section 10 Pasture and the incidences of bison in the Cutler area beyond May 1.

Monitoring metric: Annually document all livestock grazing operations within and near the Gardiner basin, including the onset of grazing, quantities, and types of livestock.

Management action 1.1.c—Complete persistence research to inform adaptive management.

Complete peer-reviewed scientific publication of research findings on bison birth synchrony, and fetal and shed *Brucella abortus* field viability and persistence.

Method: Utilize research findings to guide temporal and spatial separation guidelines during spring and summer.

Objective 1.2: Manage bull bison to reflect their lower risk of transmission of brucellosis to cattle.

Management action 1.2.a Allow bull bison to occupy suitable habitat areas in Zone 2 each winter and spring or year round within the parameters of conflict management.

Allow male bison to migrate onto and occupy suitable habitat areas in the Gardiner Basin (within the agreed-upon perimeter for Zone 2) year round, as per Tables 2 and 3 (currently conflicting). Avoid hazing or removing bull bison from the Gardiner Basin unless they are an imminent threat to human safety/property or are testing the agreed-upon perimeter. FWP takes lead with DOL's support for public safety and property damage issues.

Monitoring: Weekly count of/location of bull bison outside YNP in Gardiner Basin Zone 2 and documentation of human safety threats and property damage.

- o *Threshold for management action:* If monitoring exceeds thresholds as given in Tables 2 and 3, begin defined management action. << alternative opinion presented: If there is a threat of livestock co-mingling, human safety or property damage, then hazing the bull bison from the area of conflict will be the first option. If hazing is unsuccessful or untenable, then lethal removal may be considered on case-by-case basis, taking into account such factors as the time it takes the bull bison to return to the location of conflict, risk to human safety and property, safety of field personnel, and current and predicted operational circumstances. >>

Comment [SB1]: Need to revise to match whatever decision is made for Table 3.

TABLE 3. Thresholds for bull bison management actions on the North Side including

Dates	Monitoring evaluation results that trigger action	Management action (if any)
Ongoing Nov-April	Bulls leave Zone 2 and progress beyond Yankee Jim Canyon	Lethal removal
Ongoing Nov-April	Number of times bulls leave Zone 2 and progress beyond Yankee Jim Canyon > 2x	Reduce bull tolerance
Ongoing Nov-April	Bulls cross the Yellowstone River to the west side (Zone 3)	Lethal removal
Ongoing Nov-April	Bulls cross the Yellowstone River to the west side (Zone 3) > 2x	Reduce bull tolerance

Comment [SB2]: Request to eliminate this objective since it is covered under 1.1 and 1.2

Objective 1.3: ~~Reduce lethal removal of bison in management activities. Utilize hazing to achieve spatial and temporal separation based on prevailing conditions in spring.~~

Management action 1.3.a—Haze bison back into YNP with a target date of May 15, the actual beginning date based on weather (e.g., green-up, snow pack), cattle turn-out dates, and consideration of the bison's natural migration back into the park.

Utilize May 1 as a benchmark by which time the agencies will assess prevailing environmental conditions and reach consensus on a step-wise, integrated plan for the end-of-winter return of bison into YNP from Zone 2, with a goal of minimizing repeated hazing into situations where snow or other variables will prevent bison occupancy. If necessary, haze bison from Zone 2 into Yellowstone National Park no earlier than May 15 each spring, with the actual beginning date based on weather (e.g., green-up, snow pack), cattle turn-out dates, and consideration of the bison's natural migration back into the park. Use non-motorized methods (horseback and ATVs) to the extent possible,

based on herd dispersal. Helicopter movement would only be used in specific circumstances as defined by the IBMP Partners and included in the Operating Procedures.

Monitoring metric: Annually review and apply persistence information, GNF and private land cattle turn-on dates, and applicable research results to determine the effects and effectiveness of haze-to-habitat actions on bison and preventing the commingling of bison and cattle.

- o *Threshold for management action:* Based on results of this review reset, as appropriate, thresholds and or dates for management actions.

Monitoring (long term): Determine natural migration routes and timeframes (in absence of hazing) back into the Park. Use this information to inform management threshold values and dates.

Objective 1.4: ~~Increase landowner tolerance to bison outside YNP via improved relations, education, and involvement in decision-making process.~~ Reduce conflict between landowners and bison outside YNP via improved relations, education, and incentives.

Management action 1.4.a—~~Explore options for working together with landowners and cattlemen.~~ Work with livestock producers and lessees to provide conflict free habitat in the Gardiner Basin.

Work with landowners and NGOs to reduce conflict between cattle and brucellosis exposed bison while protecting human safety and property. Along with 1.4.b, explore both short- and long-term options with land owners to prevent cattle and bison commingling, including conservation easements, stocking less-susceptible cattle (e.g., sterilized), and assisting with risk management plans, brucellosis testing, and wildlife-proof fencing for livestock. Secure funding for above. Reduced prevalence in bison will reduce risk of transmission and will lead to subsequent increased tolerance.

Monitoring: Create annual record of 1) number of acres made available to bison from conservation easements; 2) locations, numbers, types, turn-on/off dates, brucellosis vaccination and testing of cattle grazed in the Gardiner Basin; 3) extent of wildlife proof fencing erected to separate bison from livestock.

Management Action 1.4.b—Work with landowners who have human safety and property damage concern, as well as those who want increased tolerance for bison, to provide conflict free habitat in the Gardiner Basin.

Comment [SB3]: No supporting text—this Management Action added at Oct 2,3 meetings.

Management action 1.4.c—Seek to decrease the number of cattle grazing in the Gardiner Basin.

When possible, decrease livestock grazing in the Gardiner Basin by retiring public (USFS) allotments in and adjacent to Zone 2, and voluntary acquisition of private grazing rights. Permanently decrease grazing in the Gardiner Basin by purchasing private grazing rights. Seek outside (likely through nongovernmental organizations) funding for purchase of grazing rights.

Comment [SB4]: Request to delete this entire Management action by one group. Also, for Hebgen Basin GNF is rewriting this Management Action with a focus on method 2.

Method1: Annually, GNF ensures that cattle grazing (on NFS lands) is not a barrier to implementing bison habitat expansion as per management objectives of IBMP partners.

Method2: 1) Evaluate new easements available and 2) (potentially) reduced brucellosis prevalence in bison. Adjust tolerances as appropriate. Measure funding raised for maintaining separation.

Monitoring: Annually review and modify zone boundaries as per land management and ownership changes.

Monitoring: Annually track number of acres under active or inactive grazing allotments, both public and private.

Goal #2: Conserve a wild, free-ranging bison population.

Objective 2.1: Manage the Yellowstone bison population to ensure the ecological function and role of bison in the Yellowstone area and to maintain genetic diversity for future adaptation.

Management action 2.1.a—Maintain a stable bison population range and abundance within best management practice, seeking especially to reduce sharp increases and declines in bison population.

Prior to completion of genetic diversity testing (2.1.b), manage bison population in and near Yellowstone National Park within a range of 2,300-4,500.

Monitoring metric: Conduct aerial and ground surveys to estimate the annual abundance of Yellowstone bison each summer. Continue to obtain estimates of population abundance throughout the remainder of the year based on surveys, knowledge of management removals, and survival probabilities.

- o *Associated threshold for action:* See Table 4. << alternative opinion presented: 1) If bison abundance decreases below 2500 animals, cease lethal brucellosis risk management and hunting of bison and shift to non-lethal brucellosis risk management actions to maintain spatial and temporal separation between bison and cattle; and 2) If bison abundance increases above 4500 individuals, then increase state and treaty hunting, quarantine and restoration, and brucellosis risk management removals, where authorized, to selectively remove certain age and sex classes to decrease population growth rate without impairing the population demographics and genetic integrity. >>

TABLE 4. Thresholds for adaptive management based on overall bison population.

Dates	Monitoring evaluation results that trigger	Management action (if any) taken
Ongoing	Population nears 2300 as season proceeds	Stop actions that remove bison from population
Ongoing	Population is near or exceeds 3000 at beginning of season	Conduct risk management activities as per ROD
Ongoing	Population is near or exceeds 4000 at beginning of season	Take all opportunities to capture and remove bison after Feb 15

Management action 2.1.b—Increase our understanding of genetics of Yellowstone bison to inform adaptive management.

Complete an assessment of the existing genetic diversity in Yellowstone bison and how the genetic integrity of Yellowstone bison may be affected by management removals (all sources combined) to estimate existing genetic diversity and substructure in the population; establish long-term objectives for conserving genetic integrity; and assess hunting and risk management removal strategies that are compatible with conservation of genetic integrity. Establish threshold for limited or no lethal removals

based on the results of genetic diversity assessment and change desired population range under 2.1.a, accordingly.

Management action 2.1.c—Increase our understanding of the ecological role of bison to inform adaptive management.

Commission a comprehensive review and assessment of the ecological role and function of bison (e.g., nutrient redistribution, competition with other ungulates, prey and carrion, trophic relations, effects of grazing and trampling, foraging and movement ecology). Use review results to prioritize new monitoring and research to inform bison conservation and IBMP adaptive management, including understanding bison population conservation thresholds and the implications to risk management activities. Use results to refine conservation population estimate in 2.1.a.

Objective 2.2: Minimize bison slaughter by employing alternative management techniques.

Management action 2.2.a— Use slaughter only when necessary; attempt to use other risk management tools first.

Use management tools such as hazing-to-habitat, hunting, quarantine, and shipping sterilized bison to alternate, isolated destinations (e.g., tribal lands, conservation reserves) to decrease consignment of seronegative bison to slaughter.

Method: Annually evaluate management tools that will be available for the 12 months ahead (recognizing that the suite of tools will change year-to-year).

Monitoring: Weekly count of bison sent to slaughter.

Management action 2.2.b—Utilize hunting to achieve wildlife and risk management objectives.

Emphasize management of bison as wildlife and increase the use of state and treaty hunts in Zone 2 lands adjacent to Yellowstone National Park to manage bison numbers and demographic rates, limit the risk of brucellosis transmission to cattle, and protect human safety and property. Develop a hunting strategy, including combined harvest thresholds, with state and tribal hunters that ensure population conservation. Consider expanding hunting opportunities to address population concerns where applicable.

Method: Regardless of population abundance, develop a hunting strategy that includes combined harvest thresholds with state and tribal hunters that manage bison abundance, especially in areas of high brucellosis transmission risk to cattle, while ensuring conservation of population demographics and genetic integrity.

Monitoring metric: Weekly and annual summaries of bison harvested by state and treaty hunters.

Management action 2.2.c—Complete the quarantine feasibility study and utilize outcome to inform adaptive management.

Complete the quarantine feasibility study and consider an operational quarantine facility to provide a source of live, disease-free bison for tribal governments and other requesting organizations.

Sub-action I: Evaluate regulatory requirements and constraints for moving live bison, including adults, to suitable restoration sites.

Sub-action II: Continue the Interagency/Tribal Bison Restoration Panel to identify suitable release sites for brucellosis-free bison in quarantine, and solicit proposals from groups interested in restoring bison.

Monitoring: Annual summary of bison sent to quarantine and bison transported from quarantine to suitable restoration sites.

Monitoring: Annual summaries from bison populations restored using quarantined Yellowstone bison, including numbers, demographic rates, and implemented risk management actions.

Goal #3: Prevent the transmission of brucellosis from bison to cattle.

Comment [SB5]: Note that there is a great deal of overlap and redundancy between Goals #1 and 3. It appears, for example, that hazing and or temporal separation appears in Obj 1.1, 1.2, 1.3, and management action 3.2a and 3.2c. It would be better to capture the dates and quantitative information in a single place (say a table in Goal #1) then refer to that table in goal #3 but keep only new, unique guidance here in Goal #3.

Objective 3.1: Reduce the number of infected bison. << ~~alternatively:~~ Increase vaccination of bison (to reduce the probability of bison shedding *Brucella abortus* bacteria) and vaccination of cattle (to protect against brucellosis transmission from wildlife vectors). >> Reduce the risk of disease transmission through vaccinations.

Management action 3.1.a— Continue bison vaccination under prevailing authority and utilize vaccination of cattle to increase immunity of cattle to brucellosis.

Vaccinate, mark (e.g., pit tags), and release eligible bison (i.e., calves, non-pregnant females) captured near the boundary of Yellowstone National Park after state and treaty hunting seasons end each winter and spring.

Monitoring: Document the number of eligible bison captured and vaccinated.

Management action 3.1.b—Complete EIS process for remote vaccination of bison and utilize outcome to inform adaptive management.

Complete the remote vaccination analysis and provide a recommendation to managers regarding the use of remote vaccination both inside and outside YNP, pending NEPA and MEPA reviews, respectively.

Action: Initiate remote vaccination of bison outside YNP: 1) tiered off YNP data; 2) using the MEPA process.

Monitoring: Utilize the Yellowstone NP Bison and Brucellosis Monitoring and Surveillance Plan.

Comment [SB6]: Note some support information here that was not in West Side ver2.0

Management action 3.1.c—Test and vaccinate cattle.

Test all cattle resident in the basin annually (Jan 1) and vaccinate all calves, with booster vaccinations of adults as deemed appropriate by the Montana Department of Livestock. Provide financial incentives to support this effort.

Monitoring: Determine vaccination status of all cattle in the Gardiner in January; << ~~alternatively~~—when they are turned-out each spring/summer.

Monitoring Metric: If vaccination status of eligible cattle is not 100%, undertake vaccinations to achieve 100% status. If not OCV, consider AV.

- o *Threshold for management actions:* If vaccination status of cattle is not 100%, then undertake actions (TBD) to achieve 100% status.

Comment [SB7]: Unsure what this means—no details provided.

Comment [SB8]: Unsure what these acronyms are.

Comment [SB9]: Note that West side ver2.0 broke out spatial and temporal separation into three management actions. Scott has shown those three here.

Objective 3.2: Prevent cattle/bison interactions, with an emphasis on period of likely bison birthing and abortion period year.

Management action 3.2.a—Stop cattle and bison from co mingling. Utilize spatial separation and hazing to prevent cattle/bison interactions.

Maintain spatial and temporal separation of bison and cattle outside Yellowstone National Park during the likely abortion period for bison (February ~~April~~ through June) each year (see Table 2) and utilize *Brucella* persistence and viability research to guide adequate temporal separation across spring and summer.

Metric: Maintain spatial and temporal separation of bison and cattle

Also, the group recognizes a great deal of redundancy between goal #1 and goal #3 with respect to hazing and temporal separation. We could have one location for the hazing dates (say under goal #1), then simply refer to that management action in goal #1 here without repeating it here. Instead, then, goal #3 would only have detail on unique items (e.g., spacing).

Monitoring: Monitor cattle after their turn-out dates or bison from April – June for any interactions between animals or birthing fluids.

Metric: Documentation of any known interaction.

Management action 3.2.b—Utilize fencing for spatial separation to prevent cattle/bison interactions.

Comment [SB10]: Statement made that this is linked to 1.1a and 1.4a, though some labels may have changed at this point.

Objective 3.3: Employ private property fencing when and where appropriate to separate bison from cattle.

Management action 3.3.a—Use fencing to separate cattle and bison.

Use limited, strategically place fencing when and where it is effective to create separation between domestic livestock and bison, and when that same fencing will not represent a major wildlife movement barrier. In particular, use creative fencing, stocking, and cost-sharing solutions to prevent commingling of bison and cattle at the Hoppe, Rate, and other cattle operations in the Gardiner Basin.

Sub-action II: Establish a threshold protective distance for instituting bison hazing operations to prevent bison from entering cattle-occupied properties.

Monitoring: Document the number of miles of fence installed and resulting increase of acreage available to bison.

Monitoring metric: Monitor and document fence damage as well as the number of times fencing fails to inhibit bison trespass on private property occupied by cattle.

- o *Threshold for management actions:* Once fencing has been documented to have structurally failed, it must be repaired immediately.

Monitoring: Document the distance of bison from cattle operations during February through June.

Monitoring metric: Track the number of times bison are successfully and unsuccessfully moved from within the identified defensible area surrounding cattle properties to maintain spatial separation during the 20-day temporal separation time period.

Comment [SB11]: Fencing came through as an objective in the North side strawman but appears to fit in here using the West Side framework (i.e., drop it back to management action 3.2b).

Management action 3.2.c—Utilize temporal separation to prevent cattle/bison interactions.

Objective 3.5: After May 1, haze bison (north of the Yellowstone River) outside YNP to maintain spatial separation from cattle.

Management action 3.5.a—Hazing bison on the North Side of YNP.

After May 1, move bison within the agreed-upon Zone 2 perimeter of the northern boundary area back into YNP sufficiently distant from cattle operations using minimally intrusive hazing techniques (e.g., horseback).

Monitor: Distance of bison from cattle operations and location of bison.

Metric: Set threshold distance for instituting bison hazing operations, See Table 2.

Comment [SB12]: Obj 3.5 appears that it could simply be turned into management action 3.2c to match the West side ver2.0. Note that the monitoring statement called out should likely be moved to the spatial separation section.

Objective 3.4: Limit the number of occasions from year-to-year where large numbers of bison are intensively hazed and then sent to slaughter.

Comment [SB13]: This entire objective appears to simply be Obj 2.1 in the West side ver2.0 plan. It likely could be combined into there and simply deleted here.

Management action 3.4.a—Bison removal when bison population exceeds 4000.

Modulated removals of captured sero-positive bison to slaughter in any given year that the population exceeds 4000.

Date	Monitoring evaluation result that triggers	Management action (if any) taken
Ongoing	Population is near or exceeds 4000 at beginning of season	Take all opportunities to capture and remove bison after Feb 15

Working draft