# Addendum to the Year-round Bison Habitat

# Draft Joint Environmental Assessment

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Montana Fish, Wildlife & Parks

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SINCE 1895
DEPARTMENT OF LIVESTOCK

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## 1.0 Background

In the summer of 2012, Montana Fish, Wildlife and Parks (MFWP) and Montana Department of Livestock (MDoL) initiated a pubic scoping process in preparation of an environmental analysis document on the potential of year-round habitat for Yellowstone bison. Following that effort, an environmental assessment (EA) was jointly prepared by MFWP and MDoL describing six alternatives, including a no action alternative and analyzing potential consequences of each option. The draft EA was released for public comment from July 12, 2013 until September 13, 2013.

Beyond the No Action alternative, five alternatives considered were based in part upon the 2011 recommendations of the Yellowstone Bison Citizens Working Group (CWG). CWG's habitat recommendations was based upon the fact that the current bison population does not have access to enough year-round habitat given current population levels outside Yellowstone National Park (YNP) which includes National Forest lands. The CWG acknowledged that it would like to see bison have access to more of this habitat allowing for more fair-chase hunting as a population management tool which is more desirable than the expenditure of taxpayer dollars to haze, capture, and slaughter of migrating bison.

Alternatives Originally Analyzed (Summarized):

A) No Action – Management of migrating YNP bison would continue under guidance of the Interagency Bison Management Plan (IBMP) and bison would be confined to specific bison-tolerant zones in the Gardiner Basin and Hebgen Basin (Horse Butte and Madison Flats). Bison could use those zones during the winter and would be hazed back into YNP in May each year.

B) YNP Bison could use habitats year-round in the Gardiner Basin (bulls only) and portions of the Gallatin National Forest near West Yellowstone (both sexes) – Under this alternative, the following adaptive management adjustments would be implemented to the IBMP and include 421,821 acres. Of those acres, 141,870 are currently used seasonally by bison.
    - YNP bison (both sexes) could access and utilize habitat on portions of the Gallatin National Forest (GNF) west and north west of the park boundary, including: Horse Butte, the Madison Flats, south of U.S. Hwy 20, Monument Mountain Unit of the Lee Metcalf Wilderness, Cabin Creek Wildlife and Recreation Area, and Upper Gallatin River corridor to south of Buck Creek.
    - YNP bull bison could access and utilize habitat on US Forest Service (USFS) and other lands north of the park boundary and south of Yankee Jim Canyon year-round. Bison would be prohibited traveling north of the hydrological divide (i.e., mountain ridge-tops) between Dome Mountain/Paradise Valley and the Gardiner Basin on the east side of the Yellowstone River, and Tom Miner Basin and the Gardiner Basin on the west side of the Yellowstone River.

C) YNP bison (both sexes) could access and utilize habitats year-round on Gallatin National Forest lands known as Horse Butte and north along the U.S. Highway 191 corridor north to Buck Creek

This alternative covers a smaller geographic area than Alternative B. It does not include the Madison Flats or the areas north and south of U.S. Highway 20. Total number of acres included is approximately 255,714.

D) YNP bison (both sexes) could access and utilize habitats year-round on Gallatin National Forest lands near West Yellowstone only within the existing Zone 2 boundaries (Horse Butte and Madison Flats)

This alternative would include Horse Butte, the Madison Flats, and small area along U.S. Highway 8. These areas encompass approximately 37,870 acres and were identified in the 2000 Interagency Bison Management Plan (IBMP) Record of Decision as Zone 2.

E) YNP bison (both sexes) could access and utilize habitats year-round only on Horse Butte within Gallatin National Forest near West Yellowstone

This alternative is identical to Alternative D except the geographic boundary of the year-round bison-tolerant area is smaller and bison within Zone 2 and outside Horse Butte would be hazed either onto Horse Butte or back into YNP. Horse Butte encompasses approximately 11,500 acres.

F) YNP bison (bulls only) could access and utilize existing bison-tolerant areas year-round within the Gardiner Basin

Bull bison currently may access and utilize the Eagle/Bear Creek area year-round. Under this alternative, bull bison could remain year-round in the Gardiner Basin, which includes the area between the northern boundary of YNP and the southern entrance to Yankee Jim Canyon. Bison would be prohibited to travel north of the hydrological divide (i.e., mountain ridge-tops) between Dome Mountain/Paradise Valley and the Gardiner Basin on the east side of the Yellowstone River, and Tom Miner basin and the Gardiner Basin on the west side of the Yellowstone River. Total number of acres within the northern bison-tolerant area is approximately 104,000.

See the draft EA for additional details for each alternative described above at http://MFWP.mt.gov/news/publicNotices/environmentalAssessments/plans/pn_0014.html .

## 2.0 Need for Addendum and New Alternative

With the completion of the public comment period, both the Director of MFWP and MDoL's Board of Livestock were presented with a summary of the public comments received and recommendations from their respective staff for a final decision. During an evaluation period by the Director and Board, a final decision could not be reached between the agencies on which alternative to choose.

By statute, the Governor is empowered to approve a plan for both agencies to cooperate in managing publicly owned wild bison that enter the state from Yellowstone National Park (YNP). Since the two agencies have reached an impasse, the Governor has directed that a new alternative be developed for a stepped approach for expanded tolerance on the west side of YNP, based on three total population ranges for bison, and no changes to seasonal bison management north of YNP. This new alternative is set forth below.

*Description of the New Alternative*

Alternative G: Geographic Tolerance Dependent upon Overall Bison Population

This alternative combines components of three alternatives (A, C, and E), with some additional management tools depending upon population levels. Montana is committed to maintaining a minimum population of 2,500 bison and maintaining wildlife viewing and hunting opportunities. Refer to the map on page 7 for a visual representation of this alternative.

Costs for implementation, as compared to Alternatives B-F, are anticipated to be reduced for MDoL but potentially increase for MFWP. The reduction in costs is expected to come from reduced annual hazing efforts. Responses to disease threats can be made utilizing current staff with smaller, less intensive operations. Anticipated increased operational costs for MFWP may come from the need to respond year-round to private property and public safety concerns, as directed by state law.

- Population Levels Above 4,500: At population levels above 4,500, there would not be additional tolerance for bison in Montana beyond that outlined in the 2000 IBMP record of decision and subsequent adaptive management changes. Seasonal hazing, capture, and slaughter would remain available management tools as necessary and planned by IBMP partners. When bison migrate outside of the tolerance zones, the licensure of hunters may be employed as an alternative to agency lethal removal, in the discretion of MDoL and MFWP.

  Effectively, the No Action Alternative would be used to manage bison movements when the total population of Yellowstone bison exceeds 4,500. Seasonal bison migrations would continue to be restricted to within Horse Butte and the Madison Flats (AKA Zone 2), and bison outside YNP would be hazed back into the Park by May 15.

- Population Levels between 3,500 and 4,500: At population levels between 3,500 and 4,500, annual tolerance would be as outlined in Alternative E of the EA. It is recognized that the Horse Butte peninsula has an upper limit in its capacity for bison. However, this limit varies from year to year depending on factors like vegetation and snow cover. Following the haze-back deadline of May 15, if bison on Horse Butte go beyond the Alternative E landscape and multiple hazings back to Horse Butte occur, any bison outside the Alternative E landscape would be returned to Yellowstone Park, lethally removed, or captured and hauled to slaughter as necessary.

Hunting seasons for the following fall would be set taking into consideration the number of bison removed by capture, with a management goal of 3,000 to 3,500. If the hunting season does not meet the objectives set the previous spring, agency removals at the boundary may continue on the north side and, as practical, on the west side of Yellowstone Park. Bison outside of the Alternative E landscape would be captured and/or hazed back as necessary by the deadline stated in the 2000 IBMP record of decision and subsequent adaptive management changes. Furthermore, when bison migrate outside of the tolerance area, the licensure of hunters may be employed as an alternative to agency lethal removal, in the discretion of MDoL and MFWP.

The bison management area for this tolerance range is linked to overall bison population levels, expanding as lower population targets are met. If a population target is subsequently exceeded, geographic tolerance would be reduced to the geographic area associated with the new population level. MDoL and FWP would take measures to reduce the overall numbers of bison remaining in the newly designated no-tolerance zones, through hunting and/or hazing animals back into the tolerance zone commensurate with the corresponding population level.

- Population Levels Below 3,500: At population levels below 3,500, annual tolerance would be as outlined in Alternative C of the EA. Capture removals may continue on the north side and, as practical, on the west side of Yellowstone Park as necessary to maintain population objectives. Hunting seasons for the following fall would be set taking into consideration the number of bison removed through agency actions at the Yellowstone Park boundary, with a management goal range of 3,000 to 3,500.

  Bison outside of the Alternative C landscape would be captured and/or hazed back as necessary by the deadline stated in the 2000 IBMP record of decision and subsequent adaptive management changes, which is May 15. Additionally, when bison migrate outside of this tolerance area, the licensure of hunters may be employed as an alternative to agency lethal removal, in the discretion of MDoL and MFWP.

  The bison management area for this tolerance range is linked to overall bison population levels. If a population target is subsequently exceeded, geographic tolerance would be reduced to the geographic area associated with the new population level. MDoL and FWP would take measures to reduce the overall numbers of bison remaining in the newly designated no-tolerance zones, through hunting and/or hazing animals back into the tolerance zone commensurate with the corresponding population level.

*New Management Tool*

The Taylor Fork area would be designated a specialized management area. After such time as bison may reside in the area north of Taylor Creek and south of Buck Creek, this group of bison would continue to be counted as part of the overall bison population. Should the total bison population increase above the 3,500 level, this group would not be subject to hazing or capture to comply with the management actions for the higher

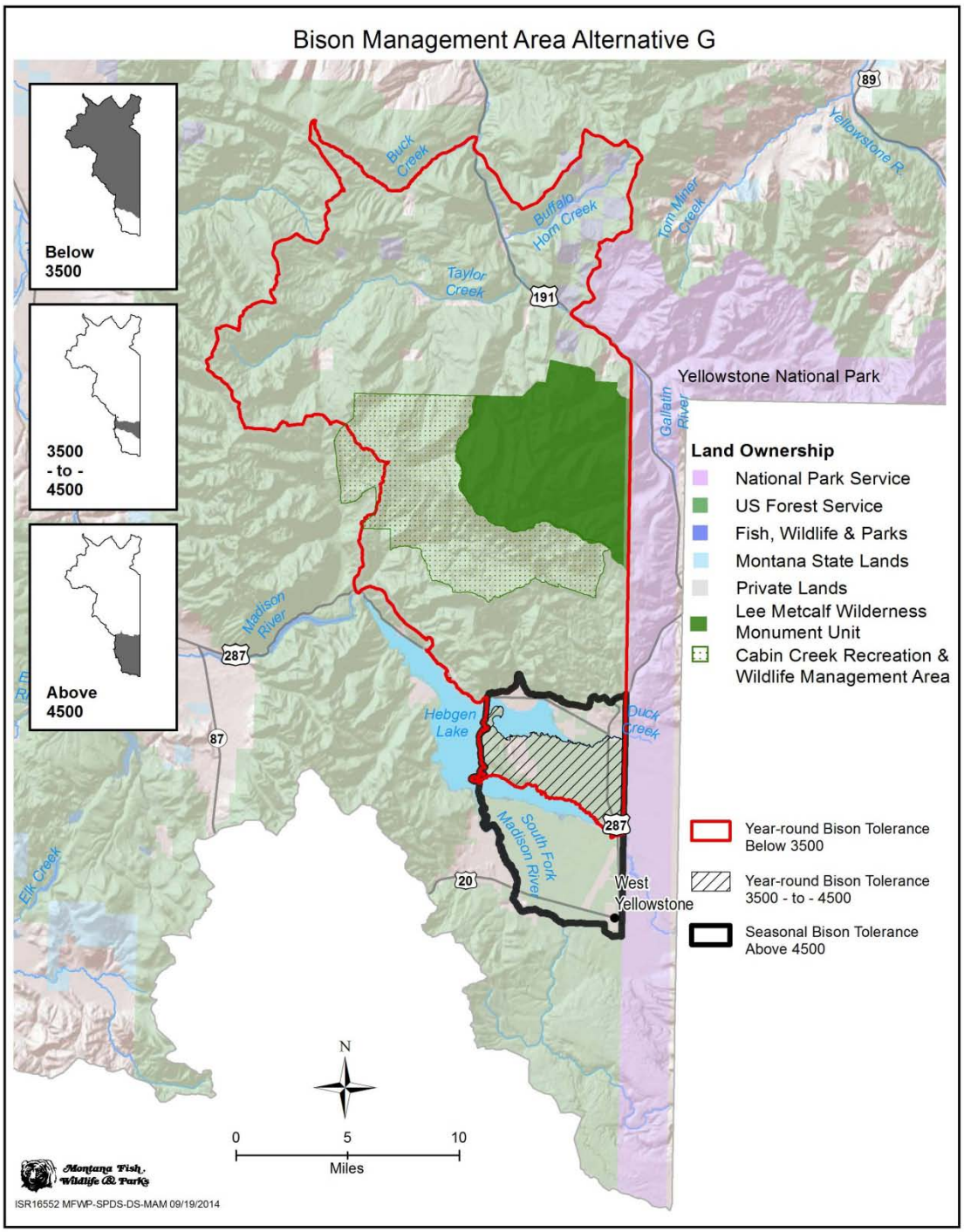
tolerance range. Hazing and capture activities may be used to prevent bison migration to the Madison Valley, to protect private property or for public safety reasons. It is initially expected that the capacity of this area is approximately 100 bison. MFWP would manage initial hunting efforts to reflect this objective.

*Adaptive Management*

Consistent with current IBMP practices, adaptive management adjustments may be used and would allow IBMP agency partners to adjust management approaches based on experience, changing landscape conditions, science, and social changes. Specific evaluation criteria for adjustments would include, but not be limited to: migrations outside of tolerance areas, effectiveness of hunting in managing population and distribution, private property and public safety concerns, comingling events with cattle, cost of management in tolerance areas, and impacts to Montana's Designated Surveillance Area and brucellosis class-free status.

MDoL, MFWP, and other IBMP agency partners would continue to explore fencing and other options related to cattle and grazing properties within the tolerance areas, engage affected landowners and operators, and issue a report that identifies and analyzes available options and associated costs for further strengthening temporal and spatial separation.

Map of Bison Tolerance Areas Based on Population Range



## 3.0 Affected Resources and Predicted Environmental Consequences

Descriptions of the affected resources and description of the analysis for the original six alternatives can be located in the draft EA pages 29-106.

The following discussion of potential consequences is applicable to new Alternative G. Alternative G is a combination of Alternatives A, C, and E; accordingly, the following analysis reflects elements of that alternative's impact analysis where appropriate.

### 3.1 Bison

Population Above 4,500:

For this tolerance range, there would be no changes to the current boundaries of the bison-tolerant area west of YNP; bison would continue to use Zone 2 (e.g. Horse Butte and Madison Flats) seasonally. Captured bison would continue to be tested and those likely infectious brucellosis seropositive bison may be taken to slaughter. Lethal removal of bison would also be used when necessary to prevent disease transmission and protect public safety or personal property.

Current hazing activities and other bison management techniques would still be used to limit bison movements beyond tolerant areas, ensure public safety and separation of bison and cattle in Montana, and bison would be hazed back into YNP on or about May 15. There would be no adjustments to the current IBMP operations.

When an episodic winter bison migration occurs, no additional public lands areas would be available for bison to use. Experience from winter 2010 - 2011 shows that hazing bison moving out of Zone 3 back to Zone 2 is difficult. IBMP partners would continue to use existing tools to resolve conflicts and issues. Managers would continue to give priority to those cases involving threats to public safety and personal property, and situations where the comingling of cattle and bison is probable.

IBMP partners would continue to monitor bison and record data on their movements as follows (USDA et al. 2010):

- Survey the number and distribution of bison in the Hebgen Basin on a weekly basis.
- Annually document the numbers and dates that bison attempt to exit Zone 2 on the west.
- Annually document the number of bison using habitats in Montana and the number of management activities needed to manage bison distribution.
- Annually collect data to update the relationships between bison management and the interaction between bison density and snow pack in the central and northern herds.
- Annually collect data to determine natural migration routes and timeframes in the absence of hazing for bison migration out of and back into the Park.

Population Between 3,500 - 4,500:

This is the most geographically restrictive of the areas described as part of this alternative but does provide year-round habitat for bison on the Horse Butte peninsula. The potential benefits of this tolerance range are that bison would be able to remain on the peninsula during the spring to complete calving, remain until spring "green up" occurs within YNP, and a possible reduction of hazing activities unless necessary to restrict bison movements or to move them away from seasonal homes and camping areas on the peninsula to other locations on public lands. Bison may choose to migrate back into YNP on their own, which could lessen the need to implement other mitigation strategies by MFWP and MDoL.

Potential challenges of management of bison within this population range include: 1) the potential need for additional oversight of bison activities and movements to ensure they do not move beyond the Horse Butte year-round habitat area, 2) a large congregation of bison on the peninsula may limit recreational activities and require management of actions by MFWP and MDoL that could impact bison and humans (i.e. hiking, camping, etc.), 3) a large congregation of bison may negatively impact the quality and quantity of vegetation/forage on the peninsula over time, and 4) effects bison may have on local residents (e.g. travel inconveniences, threats to public safety, personal property damage). Additionally, incidences of bison attempting to cross the Narrows of Hebgen Lake may occur if water conditions are advantageous and overcrowding occurs at Horse Butte.

Under this tolerance range, the potential of comingling of bison and cattle is minimized the most because the geographic area of this alternative does not include any livestock owners or private landowners that lease out pastures for cattle grazing. Additionally, there are no Forest Service allotments used by cattle within this area.

Bison would remain vulnerable to vehicle collisions along the Highway 191corridor, although the length of Highway 191 corridor available to bison would be considerably less than under Alternative B. Bison would be exposed to seasonal hunting and, possibly, poaching activities on the peninsula.

Identical to the Above 4,500 tolerance range, the current bison management tools of capture, test, slaughter, and lethal removal would remain methods for managing the bison population to the level outlined in the 2000 IBMP Record of Decision (3,000 bison) should hunting harvest be inadequate to reach that level.

Also similar to Alternative B, the implementation of this tolerance range would give IBMP partner agencies the ability to gain greater insight into bison seasonal use of bison on Horse Butte which would be used to evaluate the effectiveness of management actions and collect data for any future adaptive management adjustments. The monitoring protocols described for the previous tolerance range would continue to occur.

Identical to MFWP staff commitments described for the implementation of Alternatives B-D, staff would be required to allocate time to bison-related concerns beyond the

existing winter season which may impact their ability to complete other duties. Local law enforcement staff could be impacted as well in responding to bison-related conflicts.

Population Below 3,500:

Under this alternative, YNP bison could use a larger portion of their historic range although the year-round habitat area is not as large as the one described for Alternative B. Bison would have access to the Cabin Creek Wildlife Management Area, the Monument Unit of the Lee Metcalf Wilderness, and the portions of the GNF including Horse Butte and the Taylor Fork drainage. This alternative does not include the Madison Flats area northwest of West Yellowstone.

Identical to the description of impacts for the 3,500-4,500 tolerance range:

1. Potential of comingling of bison and cattle is lessened because the geographic area of this alternative does not include any Forest Service allotments used by cattle and there are only two private landowners with season cattle occupancy or lease pasture for seasonal cattle grazing by another.
2. Capture, test, slaughter, and lethal removal would continue to be tools to manage the bison population.
3. Hazing may be used to keep bison within the designated year-round habitat for this tolerance range and to decrease threat to public safety and damage to personal property.
4. IBMP monitoring protocols would continue to be implemented and reported in the IBMP annual reports.

Many of the potential consequences of this tolerance range and geographic boundary are identical to those described for Alternative B, such as:

- Availability of year-round habitat may facilitate earlier migrations of bison into the year-round habitat areas.
- Untested bison would be exposed to resident elk herds known to be infected with brucellosis.
- Reduction or elimination of seasonal hazing activities in the Hebgen Basin is expected to have a positive benefit to pregnant bison and newborn calves.
- Presence of year-round bison may expose additional bison to injuries or death by vehicles, landowners (i.e. eminent threat to personal safety or livestock), poaching, and hunters. Additionally during the rut and periods of competition, bison-human conflicts may increase as the bulls become less tolerant to human presence.
- A potential positive secondary benefit to a reduction in hazing activities is that there would be less disturbances and stress to other wildlife species that are present in the Hebgen and Gardiner Basins present during the spring hazing efforts.
- Potential impacts to vegetation are anticipated to be characterized as beneficial for maintenance of biological diversity in native plant communities (Knapp et al. 1999).
- Some changes in bison behavior are possible. As bison explore and learn the new habitat areas, they would likely use those areas based on productivity of the

grassland and riparian resources available. Bison would likely avoid humans when harassed and seek locations where they are less disturbed. Furthermore, bison would likely become less tolerant of humans only if they were hunted and were taught to treat humans as predators (R. Wallen NPS, pers. comm. 2012).

A distinction of this tolerance range is that if bison become established in the Taylor Fork area (between Taylor Fork Creek and Buck Creek) they would continue to be counted as part of the overall bison population. However, should the total bison population increase above the 3,500 level, this group would not be subject to hazing or capture. It is initially expected that the capacity of this area is approximately 100 bison. The MFWP would manage initial hunting efforts to reflect this capacity objective.

**3.2 Recreation**

Population Above 4,500:

Current IBMP strategies would continue to be implemented in which YNP bison could naturally migrate during the winter within designated areas west of the Park that are not expected to create any new impacts to existing recreational opportunities within Zone 2.

Recreationists within the existing bison-tolerant zones will need to be aware of the presence of YNP bison in areas where winter recreational activities (e.g. snowmobiling, skiing, and snowshoeing) and springtime recreational activities (hiking, fishing, etc.) occur.

Bison may be hazed or lethally removed if they pose a threat to public safety. In an effort to help visitors understand bison behavior and stay safe in bison country, bison-related educational materials (See Appendix E of the draft EA) were developed by CWG and MFWP and have been distributed to visitor centers and hotels in West Yellowstone.

Population Between 3,500 - 4,500:

The majority of Horse Butte peninsula is owned by the USFS, and because of the peninsula's close location to West Yellowstone and the entrance to YNP, it is a popular destination for camping, hiking, and wildlife viewing.

With the potential of a concentration of bison on Horse Butte year-round, it is possible that the number of bison-human conflicts may increase as recreationists and visitors engage in outdoor activities. Potential impacts to those recreating may include physical inconveniences and potential physical endangerment. Methods used to decrease the likelihood of negative impacts to recreationists using the GNF and human-bison conflicts would include installation of informational signs at trailheads and campgrounds, hazing of bison, closure of high-use bison areas if approved by GNF, and lethal removal of bison if necessary. Distributing bison-related educational materials to visitor centers, hotels, and other locations in West Yellowstone and Gardiner may also help decrease human-bison conflicts by educating visitors of bison behavior.

Population Below 3,500:

Similar to issues described for the previous tolerance range, implementation of this alternative may impact recreation opportunities and recreationalists within the GNF since the majority of the geographic area (88%) is managed by GNF and a popular destination for a variety of outdoor activities.

Potential impacts that are identical to those described for Alternative B include: 1) physical inconveniences, 2) potential physical endangerment, 3) additional wolf and grizzly bear sightings and incidents, 4) potentially decreased ungulate hunting opportunities due to a decrease in ungulate forage, and 5) increased bison hunting opportunities if approved by MFWP's Fish and Wildlife Commission. Additionally, this alternative's geographic boundaries do include guest ranches, and the presence of year-round bison is expected to be a positive impact for those who enjoy wildlife viewing and seeing bison on a larger portion of their historic range.

Methods used to decrease the likelihood of negative impacts to recreationists using the GNF and human-bison conflicts would be identical as those described for the previous tolerance range.

If bison become established in the Taylor Fork area and the total bison population increases, the bison in the Taylor Fork special management area would not be hazed back into YNP or captured. Their year-round presence may require additional oversight by MFWP wildlife biologists to monitor their movements and management actions to intervene as necessary if bison threaten public safety or personal property.

**3.3 Livestock Operations**

Population Above 4,500:

There would be no adjustments to the existing bison management procedures; thus there would be no changes to livestock operations unless needed by the owner. Spatial and temporal separation between bison and livestock would continue to be a priority. This method has demonstrated to be a successful method in protecting cattle operations. Upon discovery of any instance where bison and cattle are discovered in the same pasture, MDoL and assisting agencies would immediately respond to ensure separation, and efforts would be made to prevent subsequent comingling events. The hazing of bison from non-tolerant areas and back into YNP in May would continue. Bison resistant to hazing would be subject to possible capture or could be lethally removed if necessary.

The MDoL's Designated Surveillance Area (DSA) testing, vaccination, and identification requirements would remain in effect to ensure the Federal brucellosis surveillance requirements are met.

Population Between 3,500 - 4,500:

This alternative is predicted to have the least impact to livestock operations on the west side of YNP compared to the Below 3,500 tolerance range and other year-round habitat alternatives with larger geographic boundaries because no USFS grazing allotments,

livestock operations or landowners that lease to cattle are included within Horse Butte. There are two private cattle operations north of Horse Butte, near Duck Creek and Red Canyon, where cattle are kept seasonally or the property is leased-out to another cattle owner. The closer of the two properties is already fenced.

Identical methods used to maintain spatial separation of bison and cattle for the Above 4,500 tolerance range would continue to be implemented by MFWP and, such as hazing, capture/slaughter, and lethal removal if bison attempted to wander beyond Horse Butte and a direct route to YNP.

Identical to the Above 4,500 range, MDoL's DSA testing, vaccination, and identification requirements would remain in effect to ensure the Federal brucellosis surveillance requirements are met.

Population Below 3,500:

Since the geographic boundaries of this tolerance range excludes active USFS grazing allotments that are used by cattle, management of bison within this tolerance range is anticipated to have slightly less impact on livestock operations than Alternative B. However, there are seven horse-used allotments that would be accessible to bison. Based upon statistics of bison-horse conflicts provided by YNP, the potential for horse-bison conflicts is low.

Identical to the previous tolerance range and Alternative B, spatial and temporal separation between bison and livestock would continue to be a priority. Additional boundary fencing may be required to maintain separation between the two species in the future. MDoL has provided fencing assistance to livestock owners in other areas where bison seasonal migrate. MFWP and MDoL would continue to monitor the effectiveness of existing and new bison-related fencing and adjust design or construction materials as necessary to ensure spatial separation of livestock and bison. Monitoring fencing effectiveness is one of the management actions described in IBMP annual reports.

Identical methods described to maintain spatial separation of bison and cattle for the 4,500-3,500 tolerance range would continue to be implemented by MFWP and MDoL such as hazing, capture/slaughter, and lethal removal if bison attempted to wander beyond the geographic boundary for this tolerance range.

If bison become established in the Taylor Fork area and the total bison population increases, the bison in the Taylor Fork special management area would not be hazed back into YNP or captured. Their year-round presence may require additional oversight by MFWP wildlife biologists to monitor their movements and management actions to intervene as necessary if bison threaten public safety or personal property and installation of new fencing to deter bison from intermingling with horses on grazing allotments and at dude ranches.

Identical to the Above 4,500 range, MDoL's DSA testing, vaccination, and identification requirements would remain in effect to ensure the Federal brucellosis surveillance requirements are met.

**3.4 Socioeconomics**

Population Above 4,500:

Implementing this tolerance range would continue the current bison management protocols per the IBMP. The existing economic trends in the community of West Yellowstone would continue with the seasonal tolerance of bison within Zone 2. MFWP and MDoL would continue to maintain spatial and temporal separation between bison and cattle to minimize the threat of brucellosis transmission.

The overall management of bison would continue to be scrutinized by the general public. Social values towards bison management are expected to be unchanged in that the broad spectrum of views and opinions would continue depending upon the intensity of bison management required to meet the objectives of the IBMP.

Population Between 3,500 - 4,500:

Impact to socioeconomic resources are predicted to be the minimal under this tolerance range because active USFS grazing allotments, the town of West Yellowstone, and the majority of privately-owned lands are beyond Horse Butte's boundaries.

Private property owners and business owners on the Horse Butte peninsula may be negatively impacted by year-round bison because they may congregate in higher concentrations, since this alternative provides access to the smallest amount of year-round habitat. However, as reported in the Bozeman Chronicle (April 5, 2012), many Horse Butte residents support the potential for year-round bison on their property.

Predicted consequences of the management of bison in this tolerance range to social values may be locally positive since tolerance is higher for year-round bison, but continue to be mixed depending upon the personal preferences of residents and visitors.

If this tolerance range were in effect, predicted impacts to socioeconomic resources would be similar to those described for Alternatives B and C including: 1) visitor expenditures in West Yellowstone may increase, 2) livestock operators may need to install additional fencing to deter livestock and bison from commingling, and 3) some private landowners may install fencing to deter bison from coming on their property and away from personal property.

Predicted consequences of management of bison within this tolerance range to social values would be identical to those described for Alternative B; mixed.

Population Below 3,500:

Since the geographic boundaries for this tolerance range would encompass active GNF grazing allotments for horses, privately-owned properties with seasonal cattle operations

and guest ranches, socioeconomic impacts may be greater than those described for the 3,550-4,500 tolerance range because there may be a need for additional fencing to keep livestock and bison apart and to protect private property. Socioeconomic impacts are not expected to be as many as those for Alternative B because this tolerance range encompasses approximately half the number of privately-owned acres compared to Alternative B.

Predicted impacts to socioeconomic resources would be similar to those described for the previous tolerance range, as would be the consequences to social values.

**3.5 Wildlife and Fisheries**

Population Above 4,500:

Identical to the impacts described for the No Action Alternative, the use of the current IBMP management procedures would not create any new impacts to wildlife or fisheries or their respective habitats. The continuation of seasonal hazing activities directed at bison might disturb and displace some wildlife species during periods of action. Displacement and stress would be short term and localized.

The current protocol of the installation and maintenance of fencing to restrict bison movement and minimize bison-cattle comingling would continue. MFWP would continue to monitor existing bison-related fencing and the design of new bison fencing to minimize impact to resident and transient wildlife that use the Hebgen Basin. Other fencing that has been used in the effort to manage bison movements and reduce bison-cattle comingling is a 5-foot wood rail and smooth wire configuration built so that small wildlife can move below the wire and ungulates can jump over the top rail.

Population Between 3,500 - 4,500:

Bison management within this tolerance range is not expected to impact wildlife species since Horse Butte has higher densities of residences and human presence, and densities of wildlife are likely not as great as in other areas of the GNF that are included in the year-round habitat for Alternatives B and the Below 3,500 tolerance range. Because there are no streams through Horse Butte, no impacts to fisheries are expected.

Bison management for this tolerance range would continue the use of the cattle guard across US Highway 287 near Hebgen Dam on a seasonal basis at the western boundary of the bison-tolerant zone, which may be a minimal encumbrance to wildlife movement between the Hebgen Basin area and the Madison Valley.

Identical to Alternative B, MFWP would continue ongoing wildlife survey and research efforts and use that information to assess whether the year-round presence of bison is having unforeseen impacts on wildlife species and their habitats. Use of adaptive management adjustments would assist in the identification of problems and possible bison management alternatives that may be necessary to implement in order to minimize impacts to wildlife.

Implementation of this tolerance range would meet the wildlife-related goal of the GNF as stated in the *Gallatin National Forest Plan* (1987) to provide habitat for viable populations of all indigenous wildlife species and for increasing populations of big game animals.

Population Below 3,500:

MFWP and MDoL predict the consequences to wildlife and fisheries resources for bison management in this tolerance range would be the same as were described for Alternative B as minimal impacts, which was determined based on the following:

- Bighorn sheep and bison diets are not significantly associated with each other (Singer et al. 1994). Furthermore, traditional bighorn sheep range in much of North America typically is located in terrain not associated with bison use (Reynolds et al. 2003).
- Pronghorn antelope are highly selective feeders (Schwartz et al. 1977) whereas bison are more flexible in choice of diet. The theory that large and small ruminants will not compete with each other for food resources (Bell 1971) is further affirmed by similarity in sheep and pronghorn diets and dissimilarity to bison diets (Peden 1972).
- Moose and bison habitats of the plains do not overlap (Reynolds et al. 2003). Moose forage on willows and other woody browse, particularly when preferred forage is of poor quality (Larter et al. 1994). Furthermore, because of the difference in height, moose are able to take advantage of taller browse than bison. In general, moose are primarily browsers and bison are primarily grazers and therefore are considered to be more complimentary than competitive in feeding habits (Reynolds et al. 2003).
- Elk have a low to moderate diet overlap but high habitat overlap with bison; however at much higher ungulate densities, these species did not have to compete for either in the analysis area (Singer et al. 1994).
- As for deer species, there appears to be little, if any, habitat or diet overlap between white-tailed deer and bison. Although bison and mule deer experience some degree of overlap in habitat use, there appears to be little or no competition between these two species because of differing diet preferences (Singer et al. 1994). Competition may also be precluded by seasonal distribution differences and by the limited ability of deer to deal with deep snow (Barmore 1980).
- Increased distribution of bison outside YNP might result in increased distribution of carcasses providing food for scavengers in areas where this food source was not previously available. An additional food source for scavenger species, including wolves and grizzly bears, could have the potential to create both positive and negative impacts on certain scavenger species.

Although bison periodically cross the Yellowstone River and would be expected to cross bodies of water within the year-round bison habitat (e.g. Gallatin and Madison Rivers, Graying and Watkins Creeks, etc.), they do not measurably disturb fisheries by these movements. Bison are known to graze sedges and willows along the perimeters of wetland habitat. Bison do not remain in specific locations for long periods of time, so they allow plant communities to recover before being regrazed in the growing season.

Although short-term impacts are likely to occur to wetland vegetation, no long-term impacts are expected to fish habitat. Benefits to fisheries are likely indirect in the context of bison falling through ice in the spring and thereby providing large amounts of protein upon which aquatic insects feed. Thus, bison become food for the detritivores, and these insects are food for fish in the system (R. Wallen NPS, pers. comm. 2012). This is likely a minor effect relative to the larger system being evaluated. Potential negative impacts are limited to bank destabilization and soil erosion (generally on a small scale). Their trails cross streams, but bank erosion is limited to small areas associated with these stream crossings. The amount of soil erosion is negligible to minor relative to the effects of high flow erosion processes (R. Wallen NPS, pers. comm. 2012).

Identical to the implementation of the 3,500-4,500 tolerance range, the IBMP partners would continue ongoing survey and research efforts related to bison for greater understanding of the species.

Because of the larger year-round habitat available to bison, bison management in this tolerance range would necessitate the year-round use of the cattle guard across US Highway 287 near Hebgen Dam to prevent bison from moving beyond the designated geographic boundary of this tolerance range.

### 3.6 Public Safety

Population Above 4,500:

Identical to all alternatives, IBMP partners, including MFWP, would continue to respond to public safety and property owner concerns. Priority would continue to be given to complaints involving public safety issues. MFWP and MDoL would continue to document bison-human conflicts per the IBMP management action 1.3b outlined in IBMP annual reports. This action item focuses on efforts to work with landowners who have human safety and property-owner concerns, as well as those who favor increased tolerance for bison, to provide a conflict-free habitat in the Hebgen and Gardiner Basins. Furthermore, MFWP would continue working with members of the Yellowstone Bison Coexistence Project to coordinate information regarding potential applicants to their program that helps to decrease damage to private property through the installation of fencing and other bison-related barriers.

During periods of episodic bison migration, such as winter of 2010-2011, the agencies' ability to respond to bison-related incidents immediately was diminished because of the spike in the number of calls to IBMP agency staff, and responses were prioritized to address incidents involving the public's safety first. This protocol would remain in place in the event another episodic migration occurs.

The movements and presence of bison along U.S. Highway 191 and 287 corridors would continue to be a traffic hazard to motorists, especially during hours of darkness when the bison are difficult to see. The intensity of the hazard would depend upon the number of bison present at one time at a given location. Furthermore, incidents of private property damages caused by the seasonal presence of bison would also likely occur.

The current risk of infection to humans by brucellosis would remain unchanged if the status quo was maintained and bison were could migrate into the existing bison-tolerant areas on the west side of YNP.

As is the current practice north of Gardiner, a cattle guard is installed across Highway 287 near Hebgen Dam to restrict bison movement west of the dam during the winter season. Electronic caution signs are placed on the highway prior to the guard to warn motorists of the upcoming hazard. After bison are hazed back into YNP in May, the cattle guard would be replaced with a concrete "topper" to provide safe passage for motorcycles and bicycles.

Population Between 3,500 - 4,500:

Bison - human issues previously described in the section for recreation (section 3.2) is applicable for this section as well. With the potential of a concentration of bison on Horse Butte year-round, it is possible that the number of bison-human conflicts may increase as seasonal residents, recreationists, and visitors use the Horse Butte peninsula. Potential impacts to the public may include physical inconveniences and physical endangerment. Methods used to minimize negative impacts to residents and visitors may include the construction of bison-related barriers to protect personal property, installation of informational signs at trailheads and campgrounds, placement of additional signs along road ways warning drivers to the presences of bison, hazing of bison, closure of high-use bison areas if approved by GNF, and lethal removal of bison if necessary.

Since bison would be restricted to Horse Butte peninsula, the grate cattle guard top across Highway 287 near Hebgen Dam would be replaced with a concrete top seasonally to provide safe passage to motorcyclists and bicyclists. The guard may be a hazard to unwary motorcycle and bicycle riders because the spaces of the grates are larger than what is used for a typical cattle guard. During the winter season, electronic caution signs would be placed on the highway prior to the guard to warn cyclists of the upcoming hazard.

Based on known data regarding the transmission of brucellosis to humans, MFWP and MDoL deem there to be a low risk in general, as well as no additional risk of brucellosis infection to humans, if bison were managed within this tolerance range. Bison hunters should use MFWP-provided handling precautions to minimize the risk of bacterial infection when handling bison meat. Additionally, while horses can be infected with brucellosis, the likelihood is small based on MDoL's experience.

Identical to the Above 4,500 tolerance range, MFWP and other IBMP partners would continue to respond to public safety and property owner concerns and report those incident statistics in the IBMP annual reports. Incident reports would be used to evaluate if initial protocols to minimize public safety risks are effective or not and if adjustments are necessary to bison management or educational outreach efforts to improve public safety.

Population Below 3,500:

Issues related to year-round presence of bison as described for the previous tolerance range would be applicable for this tolerance range as well because Horse Butte would be the southern boundary of the expanded year-round habitat available to bison for management of bison below the population level of 3,500.

Identical to all the alternatives, IBMP partners including MFWP and MDoL would continue to respond to public safety and property damage concerns within the year-round bison habitat areas. Response to bison incidents would be on a first-come, first-served basis and, when necessary, prioritized to which incident presents the most immediate threat to public safety. MFWP would also continue working with members of the Yellowstone Bison Coexistence Project to coordinate information regarding potential applicants to their program that seeks to increase tolerance for bison in areas surrounding YNP. This is often through efforts to help decrease damage to private property. Individual members of the Coexistence Project have also completed other projects to increase bison tolerance, such as the installation of fencing around rural bus stops.

In regards to bison-vehicle collisions, statistics on bison-vehicle collisions on U.S. Highway 191 tracked by the Montana Department of Transportation (see draft EA for statistics) and comments received during the scoping period support the hypothesis that some of those collisions occur during the seasonal hazing of bison back into YNP. With the elimination of seasonal hazing activities, the number of bison-vehicle collisions may decrease. However, some hazing activities may be necessary to move bison away from roadways and populated areas to designated year-round habitat.

Unlike the management of bison for the previous tolerance range, the cattle guard across U.S. Highway 287 near Hebgen Dam would become a permanent fixture to prohibit bison movements beyond the designated year-round habitat area. Continued use of the guards could be a hazard to unwary motorcycle and bicycle riders because the spaces of the grates are larger than what is used for a typical cattle guard. Electronic caution signs would be placed on the highway prior to the guard to warn cyclists of the upcoming hazard.

The risks of vehicle collisions and personal injuries could be minimized through educational efforts which may include the following:

- distribution of educational materials at local hotels and venues to inform the public to be aware of the presence of bison (see Appendix E for copies of the brochures),
- addition of wildlife crossing signs along highways,
- publication of press releases focused on the addition of year-round bison, and
- if necessary, the agencies would submit a request to MDT for lowering the speed limit on highways in location where the bison are known to be active.

If there is an increase in the total bison population above 3,500, bison within the Taylor Fork special management area would be subject to the previously described management strategies to ensure public safety and protect personal property.

**3.7 Cultural Resources**

Population Above 4,500:

Few impacts to cultural or historic areas are expected to occur where existing sensitive sites are exposed to bison using existing bison-tolerant areas. Archeological resources can be at risk from development, natural occurrences, and human activity (USDI et al. 2000).

Population Between 3,500 - 4,500:

Bison could access year-round habitat on Horse Butte, which may put some historic/cultural resources at risk because the protection of snow cover and frozen soils would be gone during the warmer months. Bison would have the ability to establish wallows in new locations, which can be 15 feet wide and one foot deep, remove localized vegetation, remove top soil, and compact lower soil layers. Furthermore, historic structures may be at risk of being used as horning or rubbing objects. Ways of mitigating impacts may include excavation of the site, primarily done for prehistoric sites, and/or installation of fencing around a historic site to manage any impacts bison may inadvertently cause (M. Pablo NPS, pers. comm. 2012).

The presence of year-round bison on the landscape is anticipated to be a minor to major positive impact to tribes and those who view free ranging bison as culturally important.

The presence of bison year-round on Horse Butte may provide tribal treaty hunters with additional hunting opportunities during the summer and falls seasons. Currently, some tribal hunters are not allowed to hunt after February 1 due to tribal rule or out of respect to the bison, especially pregnant cows. Some tribes do hunt through the end of March, and others do not identify a limited season. Historically, tribes hunted bison during the summer months when the "buffalo had firm flesh, with plenty of fat, needed in the Indian's diet" (Whealdon et al. 2001). Additionally, during the summer bison's hair becomes very thin so the pelts that are taken can be dressed on both sides and be made into a variety of articles such as clothing and teepee covers. Winter hides are thicker and show the stress of winter conditions. Any changes to the state's current bison hunting season could require MFWP Commission and MDoL approval. The implementation of additional hunting opportunities could assist in regulating the total bison population level.

Population Below 3,500:

Bison could inhabit a larger portion of their historic range outside YNP within each alternative's designated boundaries for the first time and would promote a greater understanding of the seasonal movements of bison in and around the western Yellowstone area.

Identical to the 3,500-4,500 tolerance range, presence of year-round bison on a larger landscape could provide licensed and tribal hunters with additional hunting opportunities

and may expose cultural/historic resources to additional risk of disturbance by bison movements and actions.

**3.8 Visual Resources**

Population Above 4,500:

The seasonal presence of bison within existing bison-tolerant areas on the western boundary of YNP would continue and provide positive aesthetic value to the landscape.

Hazing and other bison management activities per the existing IBMP procedures would still occur. Hazing activities would continue as previously discussed to move bison out of non-tolerant areas. Those activities would be visible to the public and could have a negative impact on those who are offended by this management action. Such hazing activities may be required on a daily basis as was the case during the 2010-2011 winter when an episodic migration occurred.

No impacts are expected on the viewshed (e.g. vegetation, fencing, capture facilities, etc.) if current bison management activities continued.

No impacts to sensitive plant species are anticipated because they would be dormant and likely under snow cover when bison are present.

Population Between 3,500 - 4,500 AND Below 3,500:

Since the geographic area these tolerance ranges overlap, the following discussion of potential impacts to visual resources is for both ranges.

The presence of bison within new year-round habitats is expected to have some impacts upon existing vegetation. The level of those impacts is difficult to specify or analyze since it is unknown how many bison would utilize the new areas available to them and how long the bison would remain in a geographic area before moving elsewhere. The analysis of potential impacts is based on 500 bison remaining within the year-round habitat on the west side, which is based upon the number of bison typically hazed back into YNP by MFWP, MDoL, and other IBMP partners in May each year.

Bison evolved through natural selection as a "dominant grazer" on complex landscapes (Fuhlendorf et al. 2010), and historically occupied a variety of habitats. Bison were found throughout the prairies, arid plains and grasslands, meadows, river valleys, aspen parklands, coniferous forests, woodlands, and openings in the boreal forests (Long 2003; Burde and Feldhamer 2005; MFWP and MNHP 2010). Bison utilize the woodlands in the summer for shade and in the winter when the accumulation of snow prevents feeding in more open terrain (Meagher 1978; Burde and Feldhamer 2005).

The diet of the plains bison consists primarily of grasses though bison will consume forbs and woody vegetation when their preferred vegetation is not readily available (Nowak and Paradiso 1983; Foresman 2001; Long 2003; Burde and Feldhamer 2005; Picton 2005). On the National Bison Refuge, 88% of the bison's diet is made up of Idaho and rough fescue, and blue bunch wheatgrass (Foresman 2001). Meagher (1973) found in an

analysis of rumen samples that sedges were the most important forage for bison in YNP with sedges, rush, and grasses making up 96% of their diet throughout the year.

Potential impacts to vegetation are anticipated to be mixed with impacts characterized as beneficial for maintenance of biological diversity in native plant communities but detrimental to goals of monoculture type communities as managed by many agricultural interests (R.Wallen NPS, pers. comm. 2012). Grazers tend to be important for recycling nutrients in grassland plant communities. Bison probably perform this function in some of the wetland communities they forage in as well. Since bison do not remain in specific locations for long periods of time, they allow plant communities to recover before being regrazed during the growing season.

YNP bison have been observed to graze in upland habitats during the growing season for upland shrub and grassland habitats. As the uplands mature late in the summer, YNP biologists have observed the bison move in to wetland habitats to graze more frequently on the sedges that grow around the perimeter of wet pothole habitats and in oxbows that have been either cut off from stream flow or only carry water during the high flow period each summer. These sedge habitats provide important food resources for bison. While foraging in the riparian communities, bison would browse on early growth portions of willow and cottonwood stems.

During a study of bison in Theodore Roosevelt National Park, Norland (1984) observed that bison were not centering foraging activities on permanent water sources but were instead highly mobile to utilize different water sources. Bison also used temporary water sources, went without water for at least one day, and utilized snow instead of water when available. Van Vuren (2001) found that the location of bison foraging was relatively unaffected by the availability of water in comparison to cattle, and that bison were less likely to graze close to water. During his observations of the free-ranging herd of bison in the Henry Mountains, Utah, Nelson (1965) observed that, "very little time was spent at the water hole. As soon as their water needs were satisfied, they immediately began grazing and moving away from the water and did not show a tendency to hang around the area as is common with cattle".

Bison have evolved with the ability to remove up to 18 inches of snow with their large low-hanging head in order to access the underlying vegetation (Meagher 1978; Picton 2005). This adaptation allows bison to effectively feed on natural sources during the winter season in conditions that may limit the forage ability of other wild ungulates and may require the diet of domestic livestock to be supplemented (Meagher 1978).

Some sensitive plant species may be impacted by consumption or destruction by trampling, wallowing, or general movements within the year-round bison habitat depending upon the timing of life cycle the plant is in and the location of bison at a given time.

Horning and rubbing on trees can create negative effects to forested areas by damaging or killing saplings or mature trees. Bison of all age and sex classes engage in this behavior

which involves the rubbing of an object with its head, horns, neck, or shoulders (McHugh 1958; Coppedge and Shaw 1997). Horning is believed to be associated with relief from insect irritation though it may also be a behavioral display or associated with coat shedding (McHugh 1958; Coppedge and Shaw 1997; Gates et al. 2010). Bison prefer to horn aromatic shrubs, sapling, and treated utility poles which may contain insecticidal or insect deterring properties to gain relief from insects (Coppedge and Shaw 1997).

Wallowing is another behavior that creates disturbance to plant communities but provides adequate sites for re-colonization of early seral stages of plant communities and adds to the diversity of the community. The size of a wallow can vary but range near 15 feet wide and one foot deep. The soil within a wallow becomes exposed and compacted from use. This compacted shallow bowl collects rainwater and creates a microenvironment in which seeds can sprout. The seedlings of sedges and rushes occur in wallows that are otherwise absent in the prairie (Coppedge et al. 1999; Knapp et al. 1999; Lott 2002). Wallowing is associated with the relief of insect and parasite irritation, shedding, and potentially as a means of thermoregulation as bison may lower their body temperature through contact with cooler soil (Nowak and Paradiso 1983; McMillan et al. 2000; Lott 2002; Reynolds et al. 2003; Picton 2005). Wallowing is also associated with reproduction. Bulls will urinate in a wallow, and then both the bull and cows will roll in the urine. The pheromones in the urine induce the cows to come into estrus helping to coordinate the estrus cycle of the females within the herd (Bowyer et al. 1997; Picton 2005). The urine may also advertise a bull's fitness level to other competing bulls (Bowyer et al. 1997; Lott 2002).

Wallowing behavior also has the potential to spread seeds, both native and invasive. Many seeds have adaptations such as hooks, awns, and/or barbs that increase efficiency of seed dispersal by animals (Mori et al. 1998). When bison wallow, they embed plant seeds into their fur and later release the seeds into the environment as they wallow elsewhere (Stoneburner 2012). The addition of bison within the GNF may have positive benefits to some plant species in the dispersion of their seeds. Rosas et al. (2008) concluded that bison were potentially important dispersers of forbs and graminoids. The ongoing weed management efforts by the GNF is expected to help mitigate potential negative impacts of bison by decreasing the spread of noxious weeds through a combination of techniques including herbicides, biological control agents, mechanical treatments, and cultural treatments (e.g. re-seeding or grazing) (USFS 2005).

MDoL and MFWP have the ability to mitigate some livestock operator concerns of detrimental impacts to vegetation by installing new fencing where needed, as does a cooperative effort by a group of non-government organizations (NGO) to help with fencing to decrease concerns about damage to private property and protection of public safety. Impacts from new fencing are expected to be negligible with limited and localized disturbance to vegetation.

New or ongoing GNF forest treatments may be influenced by the year-round presence of bison in terms of how those projects are implemented and what, if any, mitigation is necessary to minimize impacts to bison and habitats used by them. It is difficult to

predict what those impacts may be. However, methods to decrease the possibility of threats to GNF staff or contracting staff may include distribution of educational materials about bison behavior to staff, additional warning signage in the project area frequented by bison, temporary fencing to deter bison within the project area when practical, hazing of bison from the project area, and lethal removal if necessary.

The need for additional wildlife caution signs to alert drivers to the potential presence of bison on and near roadways may be necessary to minimize bison-vehicle collisions. The addition of caution signs would increase the number of human-related objects visible within the highway corridor thus potentially diminishing the aesthetic quality of the viewshed for some people.

**3.9 Cumulative Effects**

Nearly all resources within the geographic boundaries of Alternatives G under consideration are located within the GNF under the jurisdiction of the USFS with the exception of wildlife and fisheries, which MFWP manages. As such, management of the vegetation, access, wildlife, and other features is directed by the 1987 GNF Forest Plan, the 2006 GNF Travel Plan, and the 1964 Wilderness Act that directs the management of the Lee Metcalf Wilderness. In addition to those broad plans, numerous other activities have taken place in the forest in the past such as timber harvests, weed management, controlled burns, land exchanges, and grazing which have altered vegetation levels in some manner and contributed to the existing vegetation resources. The presence of bison on public lands may influence future projects within the GNF within the geographic boundaries of Alternative G in terms of how those projects are implemented and what, if any, mitigation is necessary to minimize impacts to bison and habitats used by them. Because it is unknown how many bison would remain within the year-round habitat at a given time and the actual locations of use, it is difficult to describe what the potential impacts to future GNF projects may be. Additionally, any future timber or vegetation treatment projects on public lands may influence bison movements and alter available bison forage in a specific area. One such example is the Lonesome Wood Vegetation Management 2 project that will initiate forest treatments on approximately 2,900 acres south of Hebgen Lake including approximately 2,575 acres of forest thinning and 325 acres of small tree slashing followed by prescribed burning. Beyond the extraction of timber and prescribed burning, other activities for this proposal may include the construction of and rehabilitation of skid trails, landings, and temporary roads, all of which may assist bison to use the project area (e.g. treeless movement corridors and grazing locations) after its completion.

Recreation, approved and self-initiated, is another activity that has been occurring for many years within the GNF and will continue under the guidance of the current forest plan. Recreational activities and trails may also be influenced by the presence of bison and be reflected in updates to the forest plan in the future.

*Potential Cumulative Effects of Alternative G*

Since this new alternative is designed to be responsive to fluctuations in the total bison population level, describing cumulative impacts is difficult because geographic tolerance

areas could change year-to-year or not at all depending on the population level of a given year. The following is summary of potential cumulative effect for each of the bison population tolerance ranges within Alternative G.

Population Above 4,500:

If the total bison population exceeded 4,500, bison management would continue as if under the No Action Alternative following current IBMP guidance. There would be no opportunity for IBMP partners to gather multi-year analysis of bison migration, and the cumulative effect would be a negative impact for the loss of data gathering and loss of research opportunities. Current observation and documentation of bison would continue within the confines of the existing bison-tolerant zones within the Hebgen Basin.

The number of bison migrating into Zone 2 areas may continue to increase as the YNP bison herd populations increase. This influx of the number of bison may require additional management activities by MFWP, MDoL, and other IBMP partner agencies to ensure public safety, limit property damage, and minimize comingling incidents between bison and cattle. Increased management activities also may include higher number of bison captured and held at the Horse Butte facilities until released back into YNP, additional hazing activities, use of lethal removal in the field more often, and/or capture and slaughter of bison.

As previously described, severe winter conditions, snow pack depth, and bison population levels within YNP contribute to the likelihood of bison migrating to lower elevation ranges outside of YNP. If an episodic migration should happen, bison movements would be limited to within the existing Zone 2 areas. Based on experiences from winter 2010-11, the number of bison-human conflicts would likely be numerous and potentially reduce local social tolerance toward the presence of bison and future IBMP adjustments.

No cumulative impacts are anticipated to vegetation, water resources, soils, or cultural sites if the No Action Alternative were chose because many of those resources are typically protected from bison by snow cover and frozen soil during the winter season.

Population Between 3,500 - 4,500 (Horse Butte Only) AND Population Below 3,500 (West Side - Horse Butte North to Buck Creek)

Bison management under either of these tolerance ranges would provide bison to freely range beyond YNP boundaries year-round onto other public lands and private lands where they would be tolerated. Knowledge and experience gained by the implementation of this alternative would assist IBMP partners in future decisions regarding bison management within the Greater Yellowstone Area and provide additional opportunity for research and data gathering on other topics related to bison.

Many of the anticipated cumulative impacts for bison management for these two population ranges would be identical since their geographic boundaries overlap. However because of their spatial differences, cumulative impacts for the 3,500-4,500 tolerance range (Horse Butte) may be less intense or null depending upon the resource.

The year-round presence of bison is likely to have both positive and negative impacts to recreation. Bison viewing opportunities would be an added benefit for recreationists where other activities were taking place. The level of potential negative impact to recreation depends upon bison behavior and density, density of human presence and activity, and management response necessary to minimize bison-human conflict. These impacts would be location specific and opportunities available to recreationalists, including motorized access, within the entire GNF would be unchanged unless USFS decided otherwise.

Establishing year-round bison tolerance areas outside YNP may increase the perceived risks for the spread of brucellosis between bison and cattle. However, those risks are minimized by the vaccination and monitoring of cattle within the project area, which is in the DSA, as well as the timing of cattle turned out to the project area. Currently, there are no USFS cattle allotments and only two private cattle operations within Alternative G's largest tolerance boundary. Ongoing brucellosis risk management by MDoL through the DSA program diminishes the threat of change to Montana's standing as a "Class-free State." With additional bison management experience within the DSA over time, the implementation of this alternative may lead to a change in the perceived risks of year-round bison if no transfers of brucellosis from bison to cattle are recorded. Furthermore, the IBMP's strategy of separation has been effective in suppressing brucellosis transmission between bison and cattle and methods to improve separation techniques could be investigated in the future.

Enforcement of the late arrival of cattle to grazing allotments would also assist in decreased exposure of cattle to bison birthing materials, which can carry *Brucella* bacteria. If bison-livestock conflicts arise, GNF has the ability to change the terms of use for the allotment. Any changes may have short term and/or long term negative consequences to livestock owners.

The economy of Gallatin County has benefited from growth tied to the area's high quality wildlife, wildland resources, and direct access to YNP. The addition of year-round bison to a larger portion of their historic range would benefit visitors and others who desire to view bison thus becoming an incentive for additional visitors to the community of West Yellowstone year-round. Businesses open during the fringe seasons (spring and fall) may enjoy the economic benefits from increased spending by visitors and hunters if an expanded bison hunting season were approved.

Similar to the discussion of impacts for other alternatives under consideration, livestock, structures, and residents can be at risk when bison leave the Park. If bison were able to access and use a greater portion of the GNF in the Hebgen Basin, an increased number of property owners could experience property damage by bison, and there could be an increase in bison-related accidents. Increases in residential and commercial development in the Hebgen Basin may also contribute to increased incidents of bison-related damage to private property. Efforts to decrease property damage and accidents by MFWP and

other IBMP partner agencies would continue through the hazing of bison, signage, educational outreach, fencing collaborations with NGOs, and lethal removal.

In comparison to the more restrictive management of bison when the population exceeds 4,500, wildlife resources would see no effect or minor effects within the geographic bison tolerance area dependent upon the total bison population level. Many species, such as birds, fisheries, and many small mammals would not be affected by the presence of bison. Grizzly bears and wolves may experience a minor positive benefit in that a new source of food (live or carrion) would be available. Ungulate species may be slightly negatively affected by the construction of new bison-resistant fencing to either prohibit comingling with livestock or deter their movements beyond the bison-tolerant areas. Also, some competition for forage between bison and elk is possible, but the negative relationships have yet to be shown. The elimination or reduction of hazing activities would mean fewer disturbances, thereby positively benefiting all wildlife species.

Management under either of these bison management ranges could result in minor to major impacts to individual social values and visual resources. Some might view the management actions of this alternative as being in conflict with agricultural interests, while others might view the management actions as a major positive benefit to the species, the GYE, and for the cultural values bison embody.

While affects to vegetation are anticipated by ongoing and future projects by the USFS, cumulative impacts to vegetation from bison would be minor to moderate depending upon the density of bison present given the alternative. For example, management for a population range of 3,500-4,500, higher density of bison on Horse Butte would likely have greater negative impact to the vegetation than the same number of bison spread on a wider landscape such as the number of acres available under for a bison population of below 3,500.

The only cumulative impact to visual resources would be the addition of bison to the landscape year-round. Many of the current bison management activities such as hazing, capture, and lethal removal would continue, and may be visible depending upon the location of the activity.

## 4.0 Environmental Impact Statement Determination

Consistent with the determination statement in the draft joint EA for Year-round Habitat for Yellowstone Bison, MFWP and MDoL have evaluated this alternative considered for the proposed action and have determined that an environmental impact statement is not warranted because the agencies have proposed and described mitigations that would reduce the impacts to the human environment. Furthermore, predicted impacts to physical resources are largely considered to be negligible to moderate and can also be managed and minimized by adaptive management adjustments by MFWP, MDoL, and other IBMP partner agencies as the components of year-round bison project are evaluated.

The largest geographic area of the proposed action under Alternative G still restricts bison to a specific geographic boundary within Montana where they would be actively monitored and managed. The bison-tolerant boundary when the total bison population is below 3,500 represents approximately 0.3% of Montana's 147,200 square miles.

There is a reasonable probability that some resource impacts will occur and continue to occur if any one of the alternatives were chosen. The difference between the impacts per alternative, including the No Action Alternative, depends upon the density of bison, the size of the bison-tolerant area available to them, and human activities in an area.

The year-round presence of bison would contribute a native species to the landscape adjoining Yellowstone National Park. Impacts to other resident species are anticipated to be negligible to moderate depending upon the species and if new fencing to manage bison movements are necessary.

Bison are considered an important cultural species for Native American tribes as well as an important wildlife resource to the State and society in general. Providing naturally migrating bison the ability to roam a larger portion of their historic range could be considered a positive management step for greater tolerance of the species.

Important to Montana is its cattle industry which in 2012 supported nearly 12,000 farms and had value of $1.7 billion (USDA NASS 2012). The proposed action would not conflict with any state or federal laws that require the management of bison and brucellosis. The IBMP management activities would continue to ensure that the risk of spreading of brucellosis by bison to cattle is minimized under all the alternatives. The various other steps, as described in Section 3.4, help to decrease exposure of cattle to brucellosis in birthing matter to a low risk. The project area is within the brucellosis Designated Surveillance Area (DSA) and does not include any USFS cattle grazing allotments and only two privately-owned seasonal cattle operations. All cattle within the DSA will continue to be required to meet the vaccination and testing conditions of the program. The current and ongoing brucellosis risk management efforts by MDoL would make certain Montana's Class Free status is maintained, thus protecting the state's entire cattle industry.

# 5.0 Public Participation

### 5.1 Public Involvement

The public will be notified in the following manners to comment on this EA, the proposed action and alternatives:

- Two public notices in each of these papers: *Helena Independent Record, Livingston Enterprise,* and *The Bozeman Chronicle;*
- One press release;
- Direct mailing to interested parties in the project area and other locations in Montana;
- Public notice on the Fish, Wildlife & Parks web page: *http://fwp.mt.gov:* and
- Copies will be available for public review at MFWP Region 3 Headquarters and Helena Headquarters.

The public comment period will extend for (30) thirty days. Written comments will be accepted until 5:00 p.m., December 11, 2014 and can be mailed to the address below or submitted through MFWP's website:

Year-round Bison Habitat EA Addendum
Montana Fish, Wildlife & Parks
PO Box 200701
Helena, MT 59620-0701

### 5.2 Collaborators

Montana Department of Livestock, Helena MT
Montana Fish, Wildlife, and Parks
Wildlife Division, Helena and Bozeman MT

## 6.0 Anticipated Timeline of Events

| | |
|---|---|
| Public Comment Period on EA: | early November through early December |
| Decision Notice Published: | December 2014 |

## 7.0 Preparers

Rebecca Cooper, MFWP, Helena MT

**References**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