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# Winter Range Assessment for Bison in the Upper Gallatin River Drainage:

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FWP population objective for bison wintering in the Taylor Fork/Porcupine areas.

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Taylor Fork – Looking northwest, toward Shed Horn Mountain and Cache Creek

# DRAFT

## PREFACE

The Gallatin Wildlife Association (GWA) requested FWP provide a winter range assessment for bison in the upper Gallatin Drainage. This request originated from a meeting with FWP and representatives from GWA. As an organization, GWA is interested in establishing a wild bison herd in the Taylor Fork area of the Gallatin drainage. They are interested in understanding the potential of this area for supporting a wintering population of bison.

Bison in Montana are designated as a big game animal in need of special disease management. Typically, bison enter Montana from Yellowstone National Park during fall and winter. They usually return to YNP in spring and early summer. Management of bison in Montana is through an Interagency Bison Management agreement. The agencies participating in this plan include, U.S. Forest Service, Animal & Plant Health Inspection Service, Montana Department of Livestock, National Park Service and Montana Fish, Wildlife & Parks.

Some Yellowstone bison entering Montana are infected with brucellosis. Bison wandering out of YNP, into Montana create damage situations on private lands. Also, there are social implications with bison living on a landscape where people live, work and recreate. The myriad of management challenges associated with these issues will not receive detailed discussion in this document. The purpose of this assessment is to provide a population figure, and a subsequent rationale, for wintering bison for the Taylor Fork/Porcupine area. This winter population objective is based on a combination of factors. Although this region may have the forage resources to winter a sizeable bison herd, several other factors come into play in this area.

FWP's approach to managing bison in the Taylor Fork is to begin with a conservative population goal of 75-125 wintering bison. We feel this number will have minimal influence on wintering populations of elk and moose. Also, while it's inevitable that bison will wonder within the Taylor Fork Basin, we want to avoid having a population of bison that, due to population density/forage issues, will begin to seek out new ranges outside of the upper Gallatin. The primary concern in this area is the relative ease that bison might use upper Cache Creek to access Indian Creek and move into the Madison Valley. FWP desires a management scheme that will minimize the potential for bison to move toward the Madison Valley.

## DRAFT

### Current Winter Use by Big Game

FWP biologists observed about 550 elk in the Taylor Fork area during the 2004 early winter aerial survey in the upper Gallatin. Biologists observed 140 elk in the Taylor Fork area during the early winter 2005 aerial survey. Previous aerial surveys, especially during the 1980s and early 90s, documented more than 700 elk wintering in the Taylor Fork drainage.

During mild winters, the majority of those elk occupy the Cache Creek and Albino Lake areas within the Taylor Fork drainage. During more severe winter conditions, many of the elk wintering in the Cache Creek vicinity move toward winter ranges in the Madison Valley. The majority of elk wintering in the Taylor Fork area under these conditions concentrate in the Cameron Draw-Lincoln Mountain area. Smaller groups of elk winter in the Wapiti and Eldridge Creek areas. The severity of winter conditions influence the movement of elk out of the Taylor Fork toward winter ranges in the Madison Valley. The timing of this movement explains some of the conditions that cause significant variations in the number of elk observed during the early winter aerial surveys.



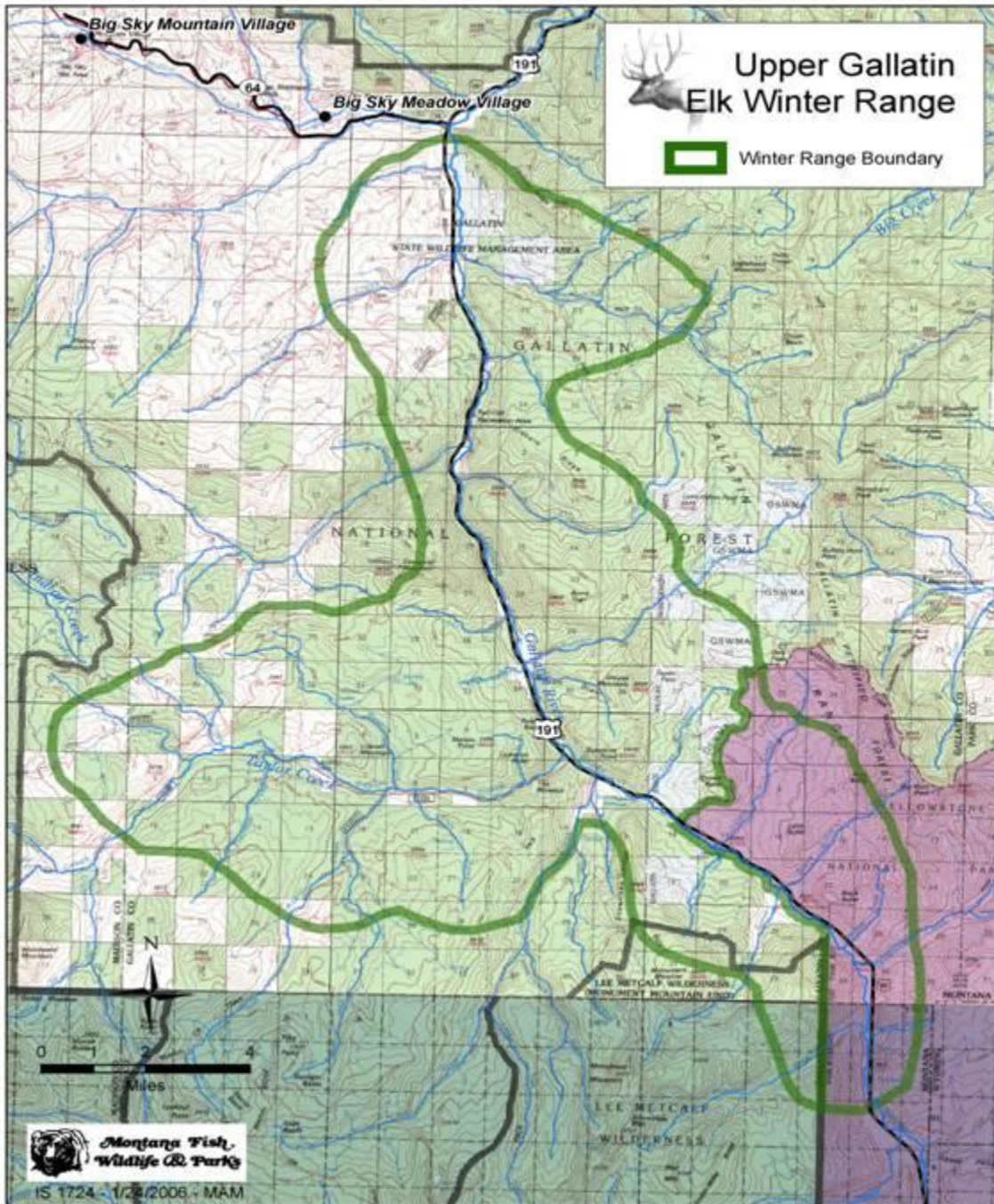
A northeast view from Lodgepole Creek. Highway 191 and Tepee Creek in the background.

Based on aerial surveys and radioed elk locations, the majority of elk wintering in the Cache Creek vicinity during December and January move to the Madison Valley in February. They

## DRAFT

seem to spend the remainder of the winter along the east face and flats adjacent to the Madison Range.

The wintering population of elk in the upper Gallatin has declined over the last 8 years (Table 1). While the Taylor Fork serves as a winter range for the Gallatin elk herd, it also serves as a staging area and temporal winter range for elk heading toward winter ranges in the Madison Valley. A similar situation exists during early spring and calving season. As calving season approached many of the elk that wintered in the Madison, along with elk that wintered in the Taylor Fork move into the mid elevations of the Taylor Fork and calve.



**Table 1. Total number of elk observed during the annual post-hunting season aerial survey in the Upper Gallatin Drainage from 2003-2005.**

<b>Year</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>Long-Term Ave.</b>
Total Observed Elk:	<b>1076</b>	<b>1574</b>	<b>922</b>	<b>1651</b>

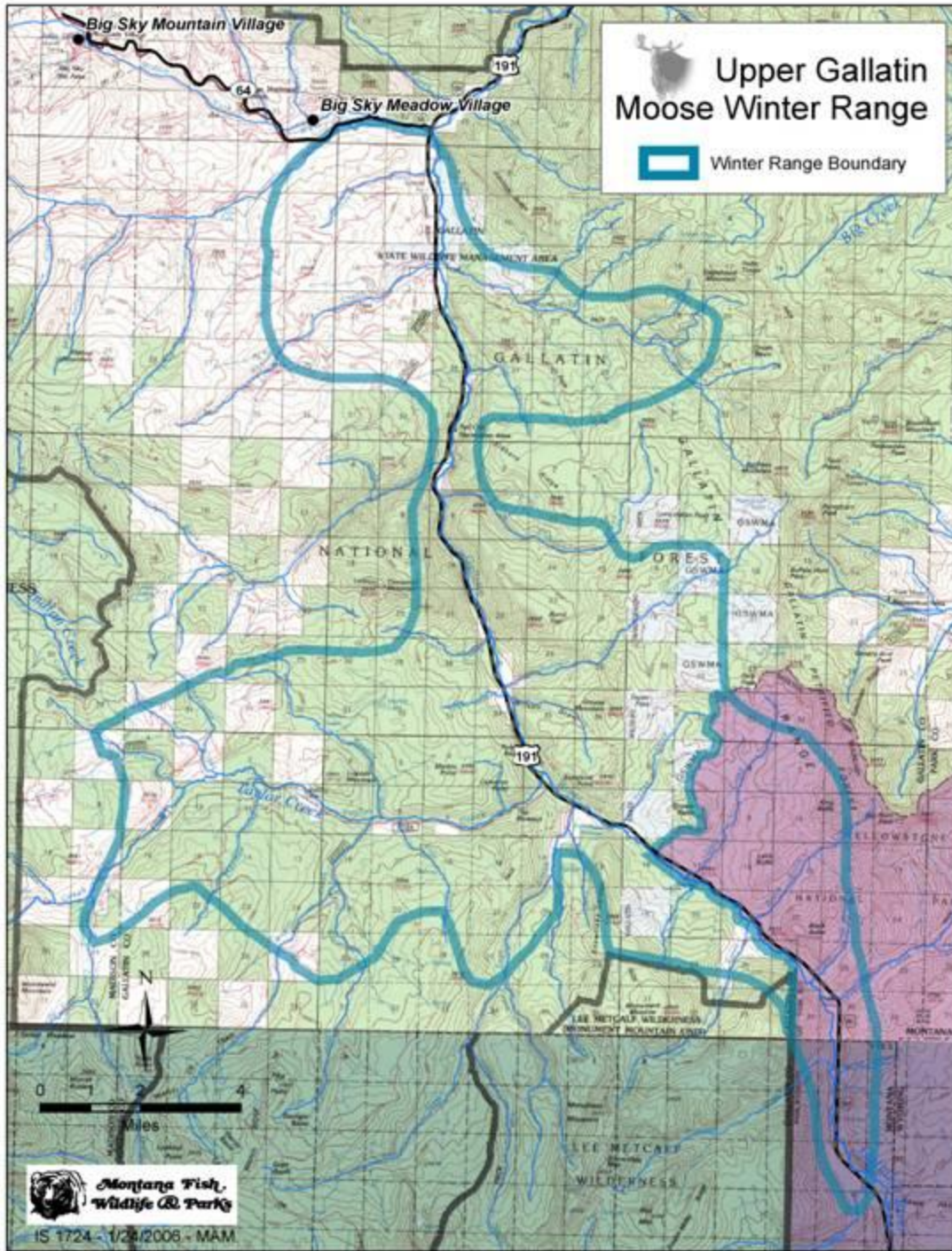
The riparian areas and lower elevation stands of spruce/ fir and Lodgepole pine support a wintering moose population in the Taylor Fork. During early December through early January, moose seek out the willow bottoms as foraging areas. As the snow begins to harden and deepen, moose tend to move out of the willow bottoms and seek out dense stands of spruce/fir and Lodgepole pine.

FWP initiated an early winter moose survey in the Upper Gallatin in 2005. Biologists observed 32 moose during this aerial survey, 20 of those were in the Taylor Fork Drainage. Moose are observed coincidentally during the early winter and early spring elk aerial surveys. FWP biologists observed 28 moose during the 2004 early winter elk aerial survey in January 2005. We observed 11 moose during the early winter elk aerial survey in December 2005. The majority of those moose were observed in the Taylor Fork Drainage. During the early 1980s and 1990s, FWP biologists conducted an annual ground survey along the main Gallatin River and the Taylor Fork. Biologists often observed over 60 moose on this survey each year. FWP re-initiated that survey in January 2005. We observed no moose on that survey. 7 moose were observed during the ground survey in December 2005. Also, moose aerial surveys were flown during the 70s and 80s in the Hebgen Basin and Upper Gallatin. During that time, biologists observed over 200 moose on individual surveys.

There is substantial anecdotal evidence suggesting moose numbers have declined across the northern regions of Yellowstone National Park. The results of the ground survey combined with field observations by FWP personnel, hunters and landowners, all tend to support the fact that moose numbers have declined over the past 15 years. However, the Taylor Fork drainage represents some of the best moose winter range in the upper Gallatin.

The population objective set for bison takes into account that a significant portion of bison foraging behavior and preference, especially during the winter months, directs them toward the willow-riparian bottoms that are preferred areas for winter moose. There is no visual evidence that wintering moose are having a negative impact on these willow communities. More intensive monitoring of these habitat components is advised if bison become a part of the landscape.

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Other populations of wintering big game are fairly insignificant in the Taylor Fork area. There are a small number of mule deer, and occasionally white-tailed deer that winter in this area. Mountain goats occur at higher elevations of the Taylor Hilgards, Shed Horn Mountain and the windswept ridges that run east from Skyline Ridge and Sage Peak. Bighorn Sheep occur at higher

## DRAFT

elevations in the upper Taylor Fork. Most of these sheep winter at lower elevations in the Upper Madison Valley.

### **Additional Wildlife Use**

The most significant issue aside from competition with other wintering wildlife is the influence wild bison may have on riparian and aspen complexes in the area in relation to spring and summer grizzly bear foods. The Taylor Fork is used heavily by grizzly bear, especially in spring and early summer. Grizzly bear key in on forage opportunities associated with these mesic areas. Increased grazing pressure from bison may have a negative impact on vegetation in these critical habitats. Contrastly, the addition of bison adds another source of carrion and prey to the system. This additional source of protein may benefit predators like grizzly bear, wolves, mountain lions and coyotes.



Moose in willow bottom of Wapiti Creek May 2005

## **Livestock Grazing Allotments**

The U.S. Forest Service grants domestic grazing allotments in the Wapiti, Sage Eldridge and Cache Creek areas. Most of the grazing on these allotments is by cow/calf pairs. Although grazing by horses is also a part of the use by domestic livestock in this area, on U.S. Forest Service and private lands.

Turn out dates for cattle on these federal grazing allotments is July 1<sup>st</sup> of each year. Most of the cattle grazing ends on these allotments by early October of each year. Presently the Cache/Eldridge allotment is operated under a deferred grazing system. The Forest Service is moving toward a rest-rotation grazing system for the Cache/Eldridge allotment in the next five years. The Wapiti allotment is presently managed under a rest-rotation grazing system.

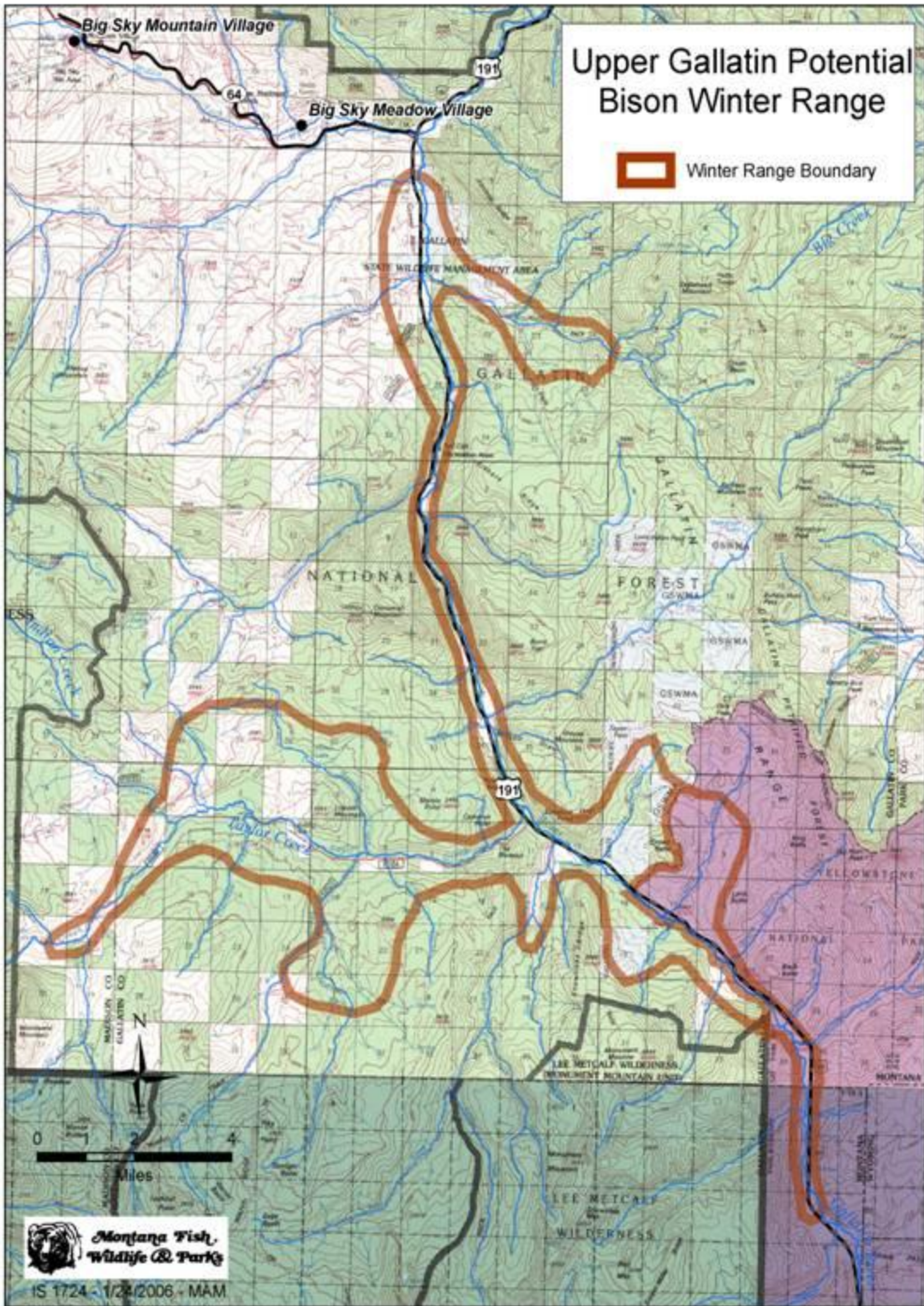
The issue of brucellosis remains a strong factor in considering the movement of bison out of Zone 2 identified in the Interagency Bison Management Plan. This poses some extremely challenging management decisions regarding the spatial and temporal separation regarding domestic livestock and bison.

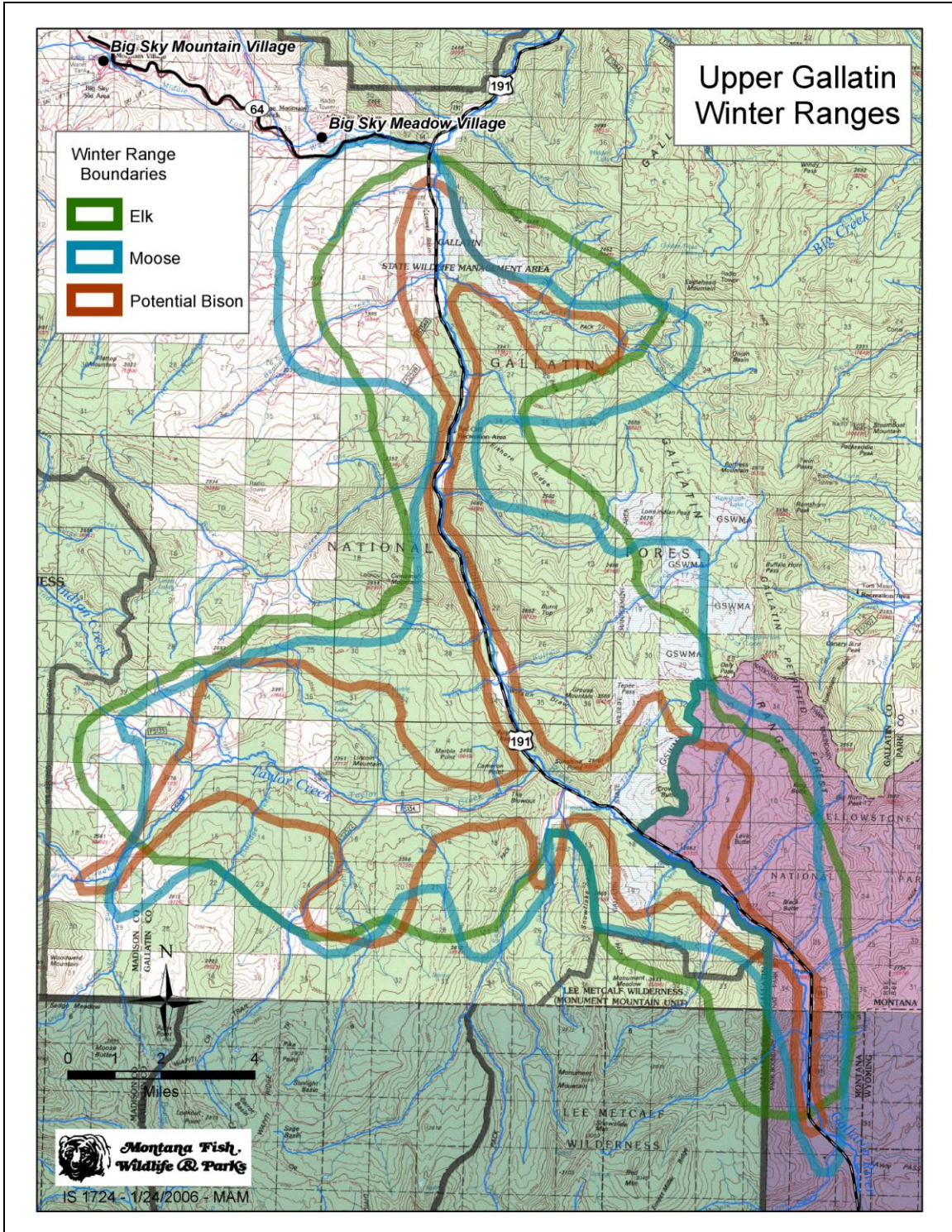
## **Potential Bison Winter Range**

FWP assumes the grazing and movement behavior of bison in Taylor Fork would mirror that of bison currently inhabiting YNP and surrounding areas. As winter progresses, bison tend to inhabit gently sloping to bottomland areas characterized by sagebrush/bunchgrass and riparian/willow vegetation types. Based on this behavior and habitat preference, FWP produced an approximate winter range map that outlines potential winter habitat for bison in the Upper Gallatin. The core areas of potential winter for bison include the Daly, Lodgepole, Taylor Fork and Porcupine Drainages. Certainly there are additional areas suitable for wintering bison in areas adjacent to the potential winter range identified on Map 3. However, based primarily on social factors, FWP doesn't believe these areas represent reasonable locations for wintering bison.



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