

DELTA BISON INTERIM MANAGEMENT PLAN



Photo by Stephen D DuBois

**ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION**



2012

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DELTA BISON INTERIM MANAGEMENT PLAN

STATE OF ALASKA
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DEPARTMENT OF FISH AND GAME
Cora J. Campbell, Commissioner

DIVISION OF WILDLIFE CONSERVATION
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Alaska Department of Fish and Game
Division of Wildlife Conservation

2012

Acronyms used in this document:

Acronym/Use	Agency/Item/Group
ADF&G or Department	Alaska Department of Fish and Game
DWC	• Division of Wildlife Conservation
COE	U.S. Army Corps of Engineers
DBH	Delta bison herd
DBMP	Delta Bison Management Plan
DBWG or Working Group	Delta Bison Working Group
DJBR	Delta Junction Bison Range
DNR	Alaska Department of Natural Resources
DAG	• Division of Agriculture
DOF	• Division of Forestry
DMLW	• Division of Mining, Land, and Water
DOT&PF	Alaska Department of Transportation and Public Facilities
USDA	U.S. Department of Agriculture

EXECUTIVE SUMMARY

Editor's Note on Interim Plan: This updated plan for management of the Delta bison herd is interim pending resolution of the issue of fencing. Although the Delta Bison Working Group (a citizens' stakeholder group that provided recommendations on management of Delta bison to the Alaska Department of Fish and Game) agreed that fencing was the best solution for keeping bison out of agriculture fields, and that agriculture lands should be fenced into three large compounds, the farming community and others indicated fencing three large compounds was not a solution they could support. Furthermore, it did not appear likely that the Working Group would be able in the near future to agree on a specific fencing solution supported by key interest groups. Also, the farming community's preference is to explore management alternatives that current ADF&G funding cannot support, or are outside the scope of authority for ADF&G. However, the interim plan will provide the basis for carrying out all other aspects of management of the Delta bison herd. Therefore, to avoid impasse in implementing management actions, ADF&G decided to suspend efforts at this time to resolve the fencing debate through the Working Group. Instead, ADF&G will continue to work at the regional level and through Headquarters to collaborate with the Department of Natural Resources to explore various fencing construction and maintenance alternatives as well as other means to mitigate or prevent bison damage to agriculture fields. Leadership in both departments will seek agreement on recommendations to forward to the Legislature, and to the Governor's office if appropriate. If the ultimate resolution of this issue includes a cost-share agreement for fencing, it may be possible to take advantage of a joint funding offer from the Salcha-Delta Soil and Water Conservation District of \$320,000. Further delay, however, in reaching a resolution may result in the expiration of this opportunity.

The Delta bison herd (DBH) is a valuable and special wildlife resource managed by the Alaska Department of Fish and Game (ADF&G or Department) for residents and visitors of the state. The herd ranges over a large area near the community of Delta Junction which encompasses military land, the State of Alaska's Delta Junction Bison Range (DJBR), other state lands, and private agricultural lands. Introduced to this area in 1928, this plains bison herd provides unique opportunities for hunting and viewing bison in a road-accessible portion of the state. DBH drawing hunt permits are among the most sought after hunting permits in the state, with 10,000–15,000 people applying annually for approximately 80–170 permits.

In the late 1970s and early 1980s, the Alaska Department of Natural Resources (DNR) disposed of approximately 100,000 acres of land for agricultural development in the Delta Junction area. Subsequently, DBH modified its seasonal movements to take advantage of the forage and other amenities derived from these new agricultural lands. Over time, conflicts between bison and agriculture increased, resulting in a significant resource management challenge for ADF&G and DNR. Balancing the statewide interest in bison conservation and hunting with local agricultural land use is the most challenging issue surrounding management of DBH.

This interim plan was produced with assistance from the Delta Bison Working Group (DBWG or Working Group), a 7 member citizen's advisory group that for the past 2 decades has made recommendations to ADF&G on Delta bison management issues. One of the primary accomplishments of the planning process was reaching agreement between agricultural and

hunting interests that the long-term solution to eliminating conflicts between bison and agriculture is to construct bison-proof fences to keep bison out of private agricultural lands. The plan includes a recommendation to develop and adopt legislation to establish a state cost-sharing program to assist with construction of bison-proof fences.

During the term of this plan, ADF&G will work within its present legal authorities and funding capabilities to reduce bison conflicts with agriculture primarily by managing DJBR to attract bison away from agricultural lands and by manipulating the timing and location of bison hunting. While these measures helped reduce bison-caused crop damage in the past, they did not succeed in reducing conflicts to a level acceptable to many farmers. Representatives of the Delta agricultural community and others continue to advocate for more effective permanent, long-term solutions. The recommendation to establish a cost-sharing program to construct bison-proof fences to keep bison out of private agricultural lands is intended as a more effective solution to conflicts between bison and agriculture. However, this recommendation would have to be implemented through legislative action. The cost of constructing and maintaining bison-proof fences around private agricultural lands is significant and there would be additional costs involved in managing the program. Administering a program to fence private agricultural lands is not within the duties or authorities of ADF&G. ADF&G will work with DNR and others to further evaluate the feasibility of a program to construct bison-proof fences around private agricultural lands and work with the Alaska legislature to address this issue.

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MISSION STATEMENT

Maintain a healthy, free-ranging bison herd in the Delta Junction area that provides the greatest reasonable opportunity to hunt and view bison while also keeping conflicts between bison and private property owners to the minimum level possible using all management techniques available to the Alaska Department of Fish and Game.

INTRODUCTION

The Delta bison herd (DBH) is a valuable and special wildlife resource for residents and visitors of Alaska. The herd ranges over a large area near the community of Delta Junction encompassing military land, the State of Alaska's Delta Junction Bison Range (DJBR), other state lands, and private agricultural lands (Figure 1). Introduced in 1928, this plains bison herd provides unique opportunities for hunting and viewing bison within a road-accessible portion of the state. The herd is also unique nationally because it is one of the few genetically pure, wild, free-ranging, hunted bison herds in the United States.

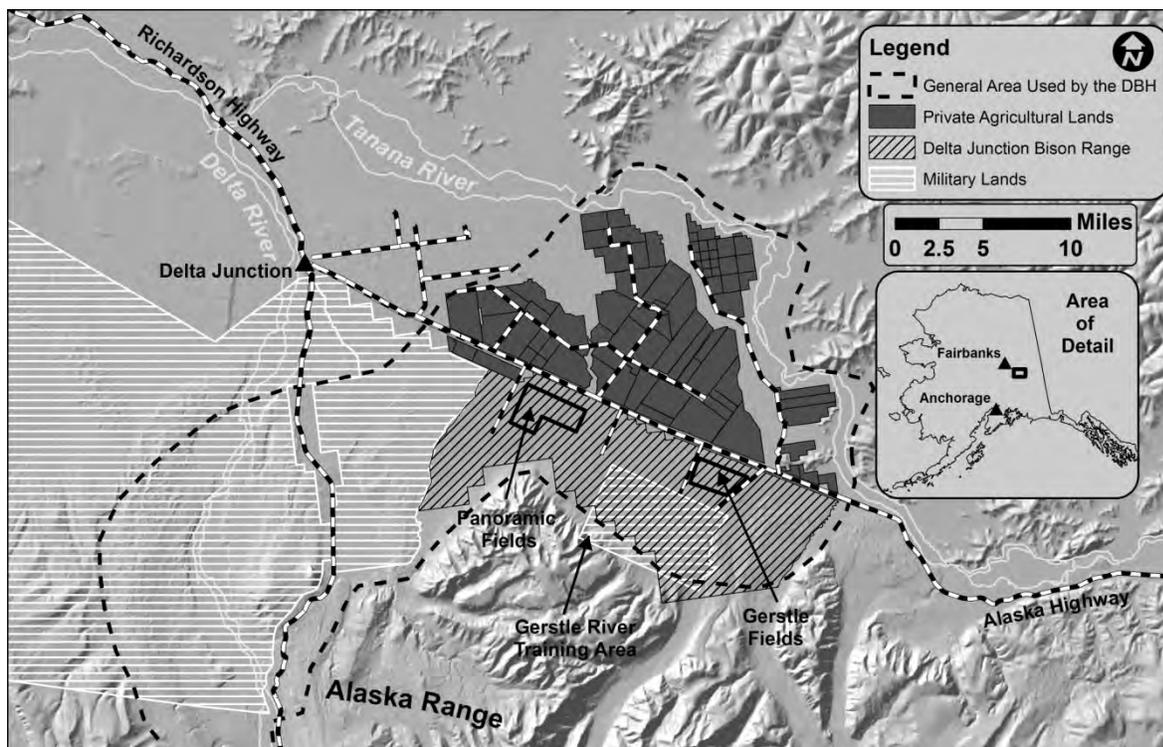


FIGURE 1. Landownership and general area used by the Delta bison herd.

Management of DBH is complex. Management decisions can directly affect or be affected by many activities in the Delta Junction area, particularly agricultural, military land use, and hunting. Bison use of the landscape, including private agricultural land, is multi-faceted and not completely understood. Private agricultural land provides not only high quality forage but also water, cover, and travel corridors for the bison. Balancing the statewide bison conservation and hunting interest in the herd with local agricultural land use is the key issue involved in this plan.



An equitable balance of these interests must be maintained to provide for a free-ranging bison herd in close proximity to agricultural activities, and to preserve public access to nonpublic and public lands for hunting and viewing not only bison but also variety of other species including moose, waterfowl, grouse, coyote, and predators.

The plan was developed through a collaborative process involving Alaska Department of Fish and Game's (ADF&G), Division of Wildlife Conservation (DWC) and a citizen's advisory panel, the Delta Bison Working Group (DBWG or Working Group). In addition, the Alaska Department of Natural Resources (DNR), Division of Agriculture (DAG) participated in the planning process.

DBWG is composed of representatives of local and nonlocal bison hunters as well as Delta agricultural and business interests and is tasked with advising ADF&G on Delta bison management issues (Appendix A). The Working Group assisted DWC in developing a series of Delta bison management plans beginning in 1992, the most recent of which was the 2000–2005 Delta Bison Management Plan (DBMP). ADF&G continued to use the 2000–2005 DBMP to guide Delta bison and DJBR management activities pending completion of a new plan. Persons who served on the Working Group during this most recent planning process and the interests they represent are as follows:

1. Delta Junction hunting – Don Quarberg, Delta Junction.
2. Local agriculture – Mike Schultz, Delta Junction.
3. Statewide hunting – Don Bunselmeier, Delta Junction and Leonard Jewkes, Fairbanks.
4. Delta Junction community – Glen Wright, Delta Junction.
5. Delta Junction business – John Sloan, Delta Junction.
6. U.S. Army – John Haddix, Fairbanks.
7. Statewide agriculture and research – Phil Kaspari, Delta Junction.

2012 CHANGES TO THE INTERIM BISON MANAGEMENT PLAN

A primary accomplishment of the planning process was reaching agreement among agricultural and hunting interests that the long-term solution to eliminating conflicts between bison and agriculture is to construct bison-proof fences to keep bison out of private agricultural lands. Although this is a seemingly simple concept, representatives of bison hunting and agricultural interests had not previously agreed to the use of fencing. It should be noted that the recommendation also specified the grouping of agriculture lands into three large blocks for the purpose of fencing. The farming representatives on the Working Group supported “large block” fencing simply to promote further discussion and consideration of fencing in general even though significant skepticism from the farming community was apparent. Subsequently, it was confirmed that the farming community did not support this approach to fencing because of the impracticality of such a project, although they agreed that some type of fencing is necessary. Therefore, while ADF&G supports the concept of fencing private lands, it does not advocate the concept of fencing large blocks of property belonging to multiple owners.

Other key changes in this plan from the 2000–2005 DBMP include recommendations from the Working Group:

1. for a reduction in the herd size objective from 360 bison (precalving) to 275–325 bison (precalving),
2. to continue the cooperative program between ADF&G/DWC and DNR/DAG to annually assess the level of bison-caused crop damage on farms in the Delta area,
3. for the legislature to increase the cost of applying for a Delta bison drawing permit from \$10 to \$20 to help pay for the cost of Delta bison management activities, and
4. for the legislature to establish a state cost-sharing program to assist farmers with constructing bison-proof fences to keep bison out of private agricultural lands.

Increasing the cost of applying for a DBH hunting permit and establishing a state program to assist farmers in constructing bison-proof fencing require legislative action. Unless legislative action occurs, ADF&G can only implement options that can be accomplished within ADF&G's existing legal mandates, funding levels, and what is judged to be biologically sound and feasible. ADF&G will participate in, and help facilitate, discussions with DNR and the legislature concerning fencing and related issues. If legislative action causes significant changes to the Delta bison management program, the management plan will be amended to conform to revised legal mandates, revised funding capabilities, or both.

DWC prepared this interim plan based on the recommendations of DBWG, other public comment, and professional input of staff. This plan provides guidance for managing DBH and also serves as the game management plan for DJBR as required in AS 16.20.310. The plan will continue to guide management of DBH and DJBR until significant new management issues arise or other changes occur that necessitate an update.

Detailed background information on DBH, the developments in area land use patterns, information on bison movements and foraging patterns, hunting, and other issues involved in managing DBH is in Appendix B. The section also provides information on additional actions taken in recent years to reduce conflicts between bison and agriculture. Together, this information provides background to better understand the basis for the goals, objectives, and tasks that comprise the overall management program for DBH and DJBR.

Appendix A provides additional information on DBWG and the planning process. Appendix C describes some of the alternative actions considered in the past by DBWG and ADF&G but are not proposed as part of this interim plan. A brief rationale for why the action is not being proposed is provided. Appendix D includes legal information that pertains to management of DBH and DJBR. Appendix E describes land use permitting requirements of ADF&G and DNR for DJBR.

DELTA BISON MANAGEMENT GOALS, OBJECTIVES, AND TASKS

This section of the plan identifies the goals, objectives, and tasks (management actions) for management of DBH and DJBR. Each section begins with a goal statement then outlines the management objectives and tasks needed to work towards accomplishment of the goal. Because



there is significant overlap between some goal topics – e.g., herd size, hunting management, and bison conflicts – some objectives and tasks are repeated under different goals.

HERD HEALTH

Goal: Monitor the health of the Delta bison herd.

OBJECTIVE 1: Monitor DBH to determine if any diseases are present which might threaten the health of the herd or other wildlife species.

Task 1: Periodically collect bison bio-samples to test for evidence of disease.

Task 2: Communicate with local, state and federal veterinarians, and livestock owners and hunters whenever there are concerns about the transmission of diseases.

OBJECTIVE 2: Minimize the potential for transmission of diseases between livestock and DBH.

Task 1: Take actions to prevent contact between livestock and wild bison if infectious livestock diseases are discovered in area livestock.

OBJECTIVE 3: Work through the DWC Wildlife Veterinarian and other officials to determine appropriate steps to prevent spread of diseases from bison to other wildlife species if diseases are transmitted from livestock to DBH.

OBJECTIVE 4: Monitor the genetics of DBH.

Task 1: Periodically collect genetic samples and conduct tests to further document the genetic makeup of DBH.

Task 2: Wood bison reintroductions should not overlap with the range of DBH to avoid the risk of cross breeding.

HERD SIZE AND COMPOSITION

Goal: Manage the Delta bison herd to accomplish a reasonable balance between providing the greatest opportunity to hunt and view bison while keeping negative impacts to private property at a minimum.

OBJECTIVE 1: Manage DBH to maintain a herd size of 275–325 bison (precalving) for a 5-year period.

In the 2000–2005 DBMP the herd size objective was 360 bison (precalving). The purposes of establishing a slightly lower herd size objective in this plan include

- a. Reduce hunter crowding and competition to improve individual hunter success and to avoid hunting seasons of excessive length.
- b. Improve the ability to achieve the harvest objective.
- c. Evaluate whether bison-caused crop damage significantly decreases as a result of fewer bison.



In the 2000–2005 DBMP with a herd size objective of 360 bison (precalving), the Department issued between 65 and 170 Delta bison hunting permits annually. As success rates declined permit numbers increased to achieve the harvest and herd size objectives. This resulted in some hunter crowding at times, particularly when the bison were in private agricultural lands where landowners typically restricted the number of hunters on their property at one time, and when hunters were concentrated on DJBR and other non-private land. Initially, more permits will be issued to reach the objective of 275–325 bison (precalving). Once the herd is stabilized at the lower objective, approximately 70 to 90 permits will be issued annually.

The herd size objective will be reevaluated annually to determine the effects on bison hunting opportunity, hunter crowding, bison use of DJBR, and agricultural crop damage. If legislative action occurs and a program to fence private agricultural lands is implemented, the herd size should be based on the biological carrying capacity of the remaining range available to the bison herd. Carrying capacity is difficult to assess directly from measurements of forage, and therefore would have to be estimated through indirect indicators such as range use assessments and nutritional condition of bison. All of these factors will provide a basis for adaptive management of herd size.

Task 1: Monitor herd size and composition by conducting an annual herd census and a sex and age composition count.

Task 2: Issue hunting permits for bull bison, cow bison, or either sex bison to achieve desired sex and age composition.

OBJECTIVE 2: Manage DBH to maintain a sex ratio of no less than 50 bulls (at least 1 year old):100 cows.

Task 1: Monitor herd size and composition by conducting an annual herd census and a sex and age composition count.

Task 2: Issue hunting permits for bull bison, cow bison, or either sex bison to achieve desired sex and age composition.

DELTA BISON HUNTING

Goal: Provide the maximum hunting opportunity possible at the prescribed herd size and minimize conflicts with private agricultural operations.

OBJECTIVE 1: Emphasize providing a larger number of DBH hunting permits rather than managing for large, trophy-size bulls and fewer permits.

This objective is intended to provide the greatest number of bison for hunting and viewing at a given herd size but does not maximize the number of large, mature bulls in the herd.

OBJECTIVE 2: Manage for at least 70% hunter success.

Task 1: Monitor hunter success by compiling the drawing permit results.

Task 2: Adjust bison hunting seasons, bag limits, number of permits issued, and other factors to attain at least 70% hunter success.



Several hunting ideas were discussed during the development of this plan that will be reviewed further for possible use in managing the Delta bison hunt. One idea is to establish an initial either sex bag limit when the regular Delta bison hunt is opened on 1 October. Once the quota established by the Department for either cows or bulls is met, only bison of the remaining sex can be taken. The advantage of this idea is that it will make hunting easier for hunters early in the season which should increase hunter success rates and decrease illegal kills of the wrong sex. The main disadvantage is that later in the season, hunters will have to be informed of the switch to a single sex harvest regime for the remainder of the season. This idea needs a thorough review by Fish and Game advisory committees and the public prior to adoption.

OBJECTIVE 3: Administer the Delta bison hunt to minimize conflicts between landowners and hunters.

In March 2010, the Alaska Board of Game extended the Delta bison hunting season to a year-round season from 1 July–30 June based on the understanding that the Department would conduct the normal hunting season from 1 October–31 March, and issue permits on a case-by-case basis to address bison-agriculture conflicts between 1 April and 30 September.

Task 1: Use the year-round hunting season authorized by the Board of Game to allow hunting of bison that remain in agricultural areas north of the Alaska Highway during the summer months.

- a. Bison harvested in summer will be included in the annual harvest quota.
- b. The bag limit for this special hunt is any bison.
- c. ADF&G will use flexibility provided by the Board of Game with the year-round hunting season to allow take of problem animals during April–September and to condition bison to stay away from agricultural areas until crops are harvested. Decisions on the use of special hunts will be coordinated with private landowners to the degree possible.

Task 2: When needed as a tool to reduce bison-agricultural conflicts, issue permits from 1 April to 30 September to hunt specific areas on a case-by-case basis.

Task 3: Issue permits no earlier than 1 October for the regular season to help prevent conflicts between hunters and farmers during the harvest period.

Task 4: Issue hunting permits for bulls, cows, or either sex bison to achieve desired sex and age composition.

Task 5: Provide a long hunting season from 1 October–31 March to provide maximum hunting opportunity. The intent is to spread hunters over time and space to provide a safe hunt and to minimize conflicts between hunters, and between hunters and the public.



Task 6: Assist landowners in minimizing problems with motorized vehicles on private lands through emphasizing this concern in the hunter orientation information.

Task 7: Increase the application fee for Delta bison hunting permits from \$10 to \$20.

DBWG unanimously recommended this measure to help improve and offset the cost of DBH management. This requires legislative action. Application fee revenues accrue to the Fish and Game Fund, but not to specific projects such as Delta bison management. However, the legislature can express the intent to use the additional funds from application fees only on Delta bison management; a directive that the Department will honor.

Task 8: Produce winter forage to attract bison to DJBR during the winter months to increase hunting opportunity on state land.

BISON CONFLICT MANAGEMENT

***Goal:* Minimize conflicts between bison and the public, including but not limited to agriculture interests, in the Delta Junction area.**

Habitat management on DJBR and on military lands is directed at fulfilling the legislative intent of reducing conflicts between bison and agriculture. Despite this intent, the bison conflict management goal and several of the objectives in the 2000–2005 DBMP were not met. Specifically, the Department was unable to keep DBH south of the Alaska Highway or out of private agricultural lands by the dates specified in the goals and objectives of the 2000–2005 plan. This was caused in part from changing agricultural practices on private agricultural lands which resulted in the production of crops that are more attractive to bison compared to the crops produced on DJBR. It was also the result of easy access to unfenced grain and hay farms.

OBJECTIVE 1: Manage DJBR to entice bison to remain south of the Alaska Highway and away from private agricultural land until as late in the fall as possible.

The Department manages DJBR to address two issues. One is to attract and hold bison in the summer to delay their movement onto agricultural lands before crops are harvested. The other is to attract bison as much as possible in the fall and winter so they are accessible to hunters on public land. Forage management includes a combination of seeding, fertilizing, mowing, burning, and weed control. As funding allows, the plan is to fertilize approximately 400–600 acres of perennial forage annually, and to plant approximately 200–400 acres with annual grass, oats, and barley. Fertilizer application rates will be adjusted to achieve the highest quality and quantity of forage. Perennial nugget bluegrass and annual grasses, oats or barley will be managed primarily as a high quality fall forage. Perennial red fescue will be managed primarily as lower quality winter forage.

At current funding and staffing levels, it is not possible to cultivate all the acreage originally cleared for cultivation of bison forage. Invasion of native grasses, forbs, and woody vegetation are becoming reestablished in some peripheral areas. The Department will use prescribed



burning, mechanical, and possibly chemical methods to eliminate undesirable, competing vegetation.

NOTE: The “wet blade mower” technique for applying herbicides was tested. After extensive study, the U.S. Department of Agriculture (USDA), Agricultural Research Service recommended against using this technique on DJBR.

Task 1: Promote growth of annual and perennial grasses for bison fall and winter forage through a combination of seeding, fertilizing, mowing, burning, and weed control within the constraints of available funding and staffing.

Task 2: Use prescribed fires to remove plant debris and recycle nutrients.

Task 3: Consider use of herbicides on DJBR to further enhance forage production.

Task 4: Provide mineral blocks and water for bison on DJBR.

Task 5: Manage moose hunting in DJBR fields to limit motorized vehicle traffic that could displace bison onto private agricultural lands.

Task 6: Continue to experiment with new crops or techniques to increase the attractiveness of DJBR to bison.

Task 7: Maintain general public access to DJBR as specified in statute (AS 16.20.320) if it does not interfere with DJBR bison management objectives (see Appendix D for actions that would be necessary to restrict general public access).

Task 8: As stated in Sec. 16.20.310(c), “...coordinate, as closely as possible, the game management plan with the activities of the Agricultural Development Authority, Department of Natural Resources, relating to the Big Delta agricultural development project.”

OBJECTIVE 2: Enhance bison summer range west of the Richardson Highway to increase its attractiveness to DBH for the purpose of delaying the herd’s seasonal migration eastward towards DJBR and private agricultural lands.

Task 1: Place salt blocks west of the Richardson Highway to delay bison movement into agricultural lands as long as possible in the summer and fall.

Task 2: Depending on funding, consider the following habitat management actions west of the Richardson Highway:

- a. Cooperate with the U.S. Army to improve existing military bison food plots and natural forage on Donnelly Training Area.
- b. Use prescribed fires to improve summer range habitat.
- c. Fertilize native forage along the Delta River.

ADF&G will continue to work with the military to ensure that bison management activities do not disrupt critical training operations.

OBJECTIVE 3: Manage the Delta bison hunt to minimize conflicts between hunters and landowners in order to help maintain hunting access to private agricultural land to the greatest extent possible.

Task 1: Issue permits that require general hunting to begin no earlier than 1 October to help prevent conflicts between hunters and farmers during the crop harvest period.

Task 2: Allow a long hunting season from 1 October to 31 March to give hunters maximum hunting opportunity while avoiding high hunter concentrations to reduce safety concerns and conflicts.

Task 3: When needed as a tool to reduce bison conflicts with agriculture, issue permits between 1 April and 30 September to hunt specific areas on a case-by-case basis, contingent upon landowner approval.

Task 4: Assist landowners in minimizing problems with motorized vehicles on private lands through emphasizing this concern during the hunter orientation.

OBJECTIVE 4: Work with landowners, the public, and DNR to resolve or minimize conflicts with bison to the greatest extent possible.

Task 1: Where bison conflicts with agriculture occur inside a fenced farm, assist the farmers by moving bison out of fenced areas until crops are harvested or until 1 October, whichever is earlier.

Task 2: Where bison conflicts with agriculture occur in unfenced areas, assist the farmers by directing hunters to problem areas during the bison hunting season if requested by landowners.

Task 3: Assist other members of the public who experience bison problems on a case-by-case basis.

OBJECTIVE 5: Conduct annual collection of data for DNR/DAG to use in crop damage assessment.

ADF&G will continue working with DAG on a crop damage assessment program as funding and resources for both agencies allow.

OBJECTIVE 6: Participate in legislative considerations of establishing a state sponsored cost-sharing program to construct fences around private agricultural lands to keep bison out.

DBWG unanimously agreed that “The long term solution to solving conflicts between bison and agriculture is fencing.”

ADF&G supports the approach of fencing private property to prevent bison-caused crop damage. Alternatives involving fences to enclose DBH would conflict with the legislative intent to manage DBH as a free-ranging herd and cannot be implemented without legislative action. Further, the Department is not funded or staffed to manage animals in permanent or seasonal captivity. If a state-sponsored fencing program is established to benefit Delta agricultural landowners, ADF&G is not the appropriate agency to administer the program but could assist with advice on the impact of fencing on wildlife.

During Working Group meetings there was extensive discussion about whether fences should be built to enclose DBH either temporarily or permanently, or whether fences should be constructed around private lands to prevent bison access and damage. The Working Group reviewed the following fencing alternatives and issues:

- a. Fences could affect public access on local highways and other roads. The Alaska Department of Transportation and Public Facilities (DOT&PF) would have to be consulted and approve fences that affect state highway usage.
- b. Because cattle guards become inoperable during winter, only gates can prevent bison from entering fenced areas at road access points.
- c. A bison-proof fence should be constructed of high-tensile woven wire at least 8 feet tall. Preliminary construction cost estimates are highly variable and range from approximately \$20,000–\$70,000 per mile. Land clearing and preparation are not included in these estimates.
- d. Fences and gates would have annual maintenance costs that include 1) pounding down “frost-heaved” posts, 2) mending broken wires, 3) annually removing any trees that have fallen on the fence (this is a common occurrence because tree roots are compromised when fence line is cleared), and 4) annually clearing grasses and shrubs that grow up into the fence.
- e. Fences would alter or prevent movements of other wildlife such as moose and bears.
- f. Fences could complicate problems with wildlife on highways.
- g. Females and offspring may become separated on opposite sides of a fence.
- h. Some fencing options would result in loss of public access to DJBR for activities including, but not limited to, grouse and upland game bird hunters, berry pickers, youth moose hunters. Restricting public access would require, at a minimum, regulatory action (See AS 16.20.320) by DNR.
- i. Management of the Delta bison range youth moose hunt would be affected if DJBR were fenced.
- j. Preliminary review by the Department of Law suggests that completely enclosing DBH for even a portion of the year would violate the legislative intent in establishing DJBR to “perpetuate a free-ranging bison herd.”
- k. A significant portion of fall and winter forage used by DBH is produced on private farm lands. Fencing farms to exclude bison would eliminate access to that forage.

- l. The result of farmers choosing to fence their land to protect it from bison could result in additional restrictions or prohibitions on public access to private lands for other activities such as hunting moose, geese, ducks, cranes, and grouse, and wildlife viewing.
- m. If fences preclude bison from using winter forage on private agricultural lands in the Delta I and Delta II areas, the bison may move into other agricultural areas in Delta Junction along the Clearwater and Tanana Loop roads. These areas do not experience bison conflicts at this time, but have in the past.

The majority recommendation of the Working Group (5–1 vote) was to establish a cost-sharing program to assist landowners in fencing large blocks of private agricultural lands to keep bison out. However, this recommendation involves several complications. For example, the proposal to fence private agricultural lands in large blocks of multiple landowners would involve numerous road crossings. It has not been determined how a fenced road crossing would be designed to prevent bison from entering while still allowing public access to the roadway. DOT&PF would have to be involved in any proposals to construct fences that might affect roads and highways. The proposal involves a cost-sharing program between private landowners, the state, and possibly other entities; but the DBWG did not make a recommendation on how expenses would be apportioned.

Additional details of DBWG recommendation include:

- a. Enclose large blocks of contiguous agricultural lands as complete units with boundary fences rather than fencing individual farms. This approach will help reduce the total length of fence required and costs involved.
- b. Construct two sections of drift fence to the west of Sawmill Creek to prevent bison from entering agricultural and residential areas in the Delta-Clearwater and Tanana Loop Road areas.
- c. Maintain unfenced corridors, for example the Gerstle River and Sawmill Creek corridors, between large blocks of agricultural land to allow movements of bison and other wildlife species.
- d. The necessary fencing should be paid for through a combination of legislative funding and cost-sharing by the involved owners of agricultural parcels.
- e. Fencing service districts, similar to the road service area system in place in the Fairbanks North Star Borough, could be used to enable landowners to share in the cost of construction and maintenance of bison-proof fences.



BISON VIEWING MANAGEMENT

Goal: Provide opportunities for nonconsumptive enjoyment of the Delta bison herd, such as bison viewing, interpretation, and education.

OBJECTIVE 1: Identify methods and funding sources other than bison permit fees to improve bison viewing opportunities for the public.

Task 1: Work with DOT&PF and other agencies to improve bison viewing facilities as opportunities arise within agency's routine planning programs.

Task 2: Work with the U.S. Army to provide public bison viewing platforms or designated viewing areas on bison summer range on Fort Wainwright Donnelly Training Area.

Task 3: Work with the DWC Wildlife Viewing program to enhance bison viewing opportunities such as, for example, the development of informational brochures and interpretative signs.

APPENDIX A: DBWG AND THE PLANNING PROCESS

DELTA BISON WORKING GROUP

ADF&G established the first Delta Bison Working Group (DBWG or Working Group) in 1992 to assist with the development of “a game management plan for bison” in 1993 as specified in Alaska Statute 16.20.310. DBWG subsequently assisted ADF&G with developing updated plans in 2000, and most recently in 2011. DBWG’s primary charge was to help ADF&G establish the appropriate balance between the competing interests of the bison herd and agricultural development. DBWG functioned under a consensus decision-making process. However, when consensus was not reached the group used majority rule, although minority opinions were also acknowledged and included in the plans. Also, the group met occasionally during the life of an active plan to discuss various issues when the ADF&G Area Biologist felt it was in the best interest of keeping the public informed or when feedback from the public was desired.

During the 2009–2011 planning process, DBWG included seven seats that represented the following interests: 1) statewide hunting, 2) Delta Junction agriculture, 3) Delta Junction hunting, 4) statewide agriculture and research, 5) the Delta Junction community, 6) Delta Junction business, and 7) the U.S. Army. There were no defined terms for the representatives who served on DBWG. When needed, new representatives were appointed by the ADF&G Region III Supervisor to fill vacant seats. Members of the Working Group brought considerable knowledge and experience regarding Delta bison management, agriculture, and business issues, providing valuable assistance to the Department.

HISTORY OF THE PLANNING PROCESS

In the late 1990s when the 2000–2005 Delta Bison Management Plan (DBMP) was developed, members of the DBWG and the public did not express an unusually high degree of concern about conflicts between bison and agriculture, suggesting the DBH management program was achieving an acceptable balance between the bison herd and agricultural development. In March 2007 when ADF&G initiated the process to update DBMP by conducting a review of the 2000–2005 DBMP, members of the Working Group did not identify major new issues or concerns about Delta bison management. Because no pressing Delta bison issues were identified and the Delta Area Biologist was occupied with other commitments, ADF&G did not proceed with the plan update at that time but continued to use the 2000–2005 DBMP to guide Delta bison and DJBR management activities.

When the planning effort was resumed during winter 2008–2009, some members of the Delta agricultural community expressed an elevated level of concern about conflicts between the bison herd and agricultural operations. Increased concern was due, at least in part, to bad weather during the previous growing season that negatively affected crop production, exacerbating the damage caused by bison. Also, although much acreage was becoming eligible to be removed from the Conservation Reserve Program some farmers were reluctant to risk new cultivation when faced with the possibility of bison damage. In response, ADF&G expanded the planning process to fully evaluate issues involving conflicts between DBH and agricultural operations and consider options to minimize these conflicts. The heightened level of concern by the agriculture interests compelled the Alaska Department of Natural Resources (DNR), Division of Agriculture (DAG) to become fully-engaged in the planning process.

From March 2007 through April 2011 ADF&G conducted 11 public meetings, including 10 meetings in Delta, to identify actions that could be taken to reduce or eliminate conflicts between bison and agriculture and to receive public comment. In addition, several discussions occurred at the Delta and Fairbanks Fish and Game Advisory Committee meetings and among members of the Delta Chapter of the Alaska Farm Bureau, the Salcha-Delta Soil and Water Conservation District, and between members of the Delta agricultural community and DNR. The majority of the verbal public comment received during public meetings in Delta was focused on concerns about the impact of DBH on agricultural development. Several Delta area farmers attended most meetings and became active participants in the planning process. While several people who came to the Working Group meetings in Delta focused on the conflicts between bison and agriculture, others noted the positive aspects of the Delta bison herd. One Delta resident stated, "Bison are what make the Delta area unique."

During the planning process several representatives of the Delta agricultural community requested that ADF&G take immediate action to prevent or reduce bison crop damage. In response, ADF&G took several actions including increasing funding for forage production on DJBR and conducting an early bison hunt in the agricultural area north of the Alaska Highway from July to October 2010. The U.S. Army also made a significant effort to improve forage on summer range on military lands through fertilization (see Background Information). Members of the Delta agricultural community proposed legislation to require ADF&G to evaluate use of fencing as part of the game management plan for DJBR. In addition, the ADF&G Region III office advanced recommendations made by DBWG for legislative action to the commissioners' offices of ADF&G and DNR for consideration. However, no legislative action occurred during the planning process.

In August 2009 ADF&G organized a tour of the Delta agricultural area, the Bison Range, and bison food plots on Fort Wainwright Donnelly Training Area for members of the Working Group and others closely involved in the planning process. The tour was very informative and helped provide an on-the-ground perspective of the issues and challenges discussed during planning meetings.

In September 2009, following a series of Working Group meetings held in Delta, the Department distributed a newsletter which provided background and history on DBH and Delta agricultural development and requested public comment on the recommendations being considered by the Working Group at the time. The written comments received in response to the newsletter were all focused on the importance of DBH as a valuable wildlife resource of statewide importance that provides a unique hunting opportunity on the Alaska road system.

After considering both verbal and written public comment and the many alternative recommendations proposed, the Working Group agreed at their December 2009 meeting that some type of fencing is needed as a long-term solution to conflicts between bison and agriculture. The Working Group could not however, agree on whether fences should be constructed around private agricultural parcels to keep bison out or whether fencing should be constructed to confine bison on DJBR permanently or seasonally or construct fences to create a barrier south of the Alaska Highway that would prevent or delay bison from reaching private agricultural lands until annual harvesting was complete, usually by 1–15 October.

After an extended impasse over the best approach to fencing, the Working Group met again in January 2011 and the majority of the Working Group recommended that a state sponsored cost-sharing program should be established to assist Delta farmers in constructing bison-proof fences around large blocks of private agricultural land. The majority of the Working Group also supported a proposal to reduce the size of DBH from the present management objective of 360 bison in the precalving count to an objective of 275–325 bison (precalving).

In April 2011 ADF&G distributed a document titled “Proposed Measures to be Included in the Delta Bison Management Plan Update” and invited public comment for a 30-day period. On 21 April 2011 the Department held a public informational meeting in Fairbanks and accepted verbal public comment. The meeting was primarily attended by the same people that had attended previous meetings in Delta and discussion focused on fencing alternatives. No written public comments were received.

In spring 2011 ADF&G requested the USDA Animal and Plant Health Inspection Service to examine the situation involving conflicts between bison and agriculture in Delta and, if possible, provide recommendations for measures that would help reduce conflicts. A second field trip of Delta agricultural areas and DJBR was conducted in July 2011 with ADF&G, USDA Animal and Plant Health Inspection Service, and DNR Division of Agriculture staff, as well as several representatives of the Delta agricultural community and the Chairman of the Delta Fish and Game Advisory Committee. After analyzing the Delta situation, and after consulting with experts in other states, the USDA Animal and Plant Health Inspection Service produced a proposal for an experimental project designed to evaluate the effectiveness of using limited fencing in conjunction with personnel on duty 24 hours a day to discourage bison from moving off of DJBR until early or mid-October. To date, there are no plans to implement this experimental project.

In summer 2011, ADF&G staff prepared the update to DBMP based on input from the public, recommendations of DBWG, and best professional judgment including considerations of the Department’s present legal authorities and funding capabilities.

APPENDIX B: BACKGROUND

ORIGIN OF THE DELTA BISON HERD

Bison colonized North America after migrating from Asia to Alaska over the Bering land bridge several hundred thousand years ago. They were one of the most abundant large mammals in Alaska for most of the last 100,000 years. Large-horned forms such as steppe bison (*Bison priscus*) once roamed Alaska in the company of now extinct species such as mammoths, mastodons, horses, lions, sabre-toothed tigers and dire wolves, as well as species which remain present in Alaska today such as moose, caribou, Dall sheep, and muskox. Large-horned Pleistocene bison existed in North America until about 10,000 years ago, after which smaller horned bison evolved.

The International Union for the Conservation of Nature, American Bison Specialist Group, recognizes two subspecies of bison in North America, the plains bison (*Bison bison bison*) which occurred from central Canada south to northern Mexico and the wood bison (*Bison bison athabascae*) which occupied the northern portion of bison range extending into Alaska. There is on-going debate about bison taxonomy and whether North American bison should be classified as two separate subspecies. However, distinct morphological differences exist between plains bison and wood bison. Among the differences, wood bison are somewhat larger than plains bison and the bulls have a hump that declines in a sharp angle to the neck, in contrast to the more rounded hump of plains bison bulls.

Wood bison were the most recent subspecies of bison to naturally occur in Alaska and once inhabited a large portion of the state including the area now occupied by DBH. Wood bison were extirpated from Alaska during the last few hundred years, most likely because of hunting and changes in the distribution of habitat. Wood bison are still present in Canada and ADF&G is proposing to reintroduce them into portions of their historic range in Alaska. One principle of the reintroduction is to maintain the genetic separation of the wood bison subspecies by not placing them in locations where they could breed with plains bison or cattle.

In 1928, 28 plains bison were transplanted from the National Bison Range in Montana to Delta Junction. They were released on the Delta River near the current location of Delta Junction because the area supported abundant native forage. The herd steadily increased until 1950 when a hunting season was established to stabilize herd size. Stock from DBH was used to establish plains bison herds on the Copper River (1950), the Chitina River (1962), and the Farewell burn near McGrath (1965 and 1968).

MOVEMENT PATTERNS OF THE DELTA BISON HERD

Historically, DBH ranged over an area that extends from hills north of the Tanana River south to mountains of the Alaska Range. At times, Delta bison ranged as far east as Healy Lake, as far west as the Little Delta River, and as far south as Rainbow Mountain in the Alaska Range.

DBH normally travels toward the floodplain of the Delta River from mid-February to March (Figure 2). The majority of cows calve from late April to early June on the floodplain. The herd remains along the Delta River floodplain and adjacent uplands between Black Rapids Glacier and the mouth of the Delta River until early to mid-July.

In approximately mid-July, the bison herd migrates from the Delta River to DJBR. Typically they then move onto private agricultural lands north of the Alaska Highway in late July to early August. The herd then winters on both private agricultural lands and DJBR.

In recent years some local farmers reported that a portion of the herd is now remaining on private agricultural lands year-round and is not migrating to the Delta River floodplain to calve. During the April 2011 aerial calving survey, a group of approximately 50 bison, including 4 newborn calves, were observed north of the Alaska Highway. Some of these bison were in private agricultural lands and some were along the Tanana River near the outlet of Healy Lake.

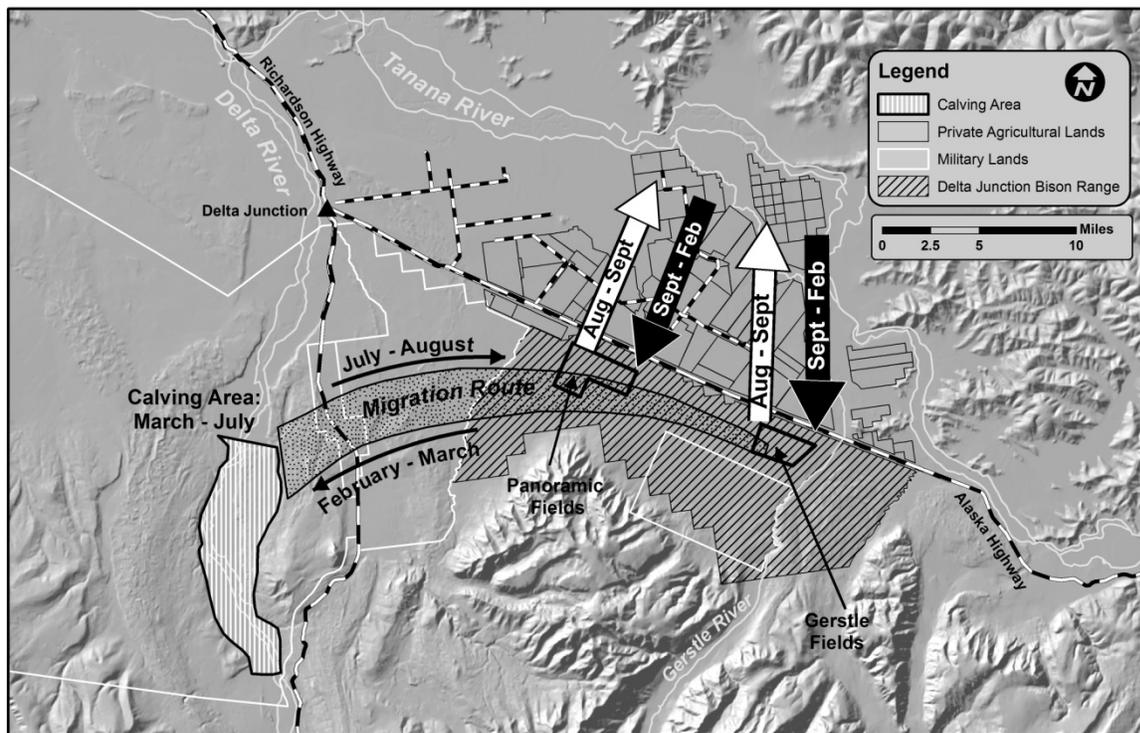


FIGURE 2. Migration routes of the Delta bison herd.

LAND USE AND DEVELOPMENT IN THE DELTA BISON HERD'S RANGE

Military Land Use

Allen Army Airfield was established in 1942 near Delta Junction within the area used by DBH. Military use of the land evolved in purposes over the years. In 1955 it was designated as Fort Greely. The Defense Base Closure and Realignment Act of 1990 resulted in Fort Greely being realigned in July 2001 with most of the land used by DBH being transferred to Fort Wainwright and designated as Fort Wainwright Donnelly Training Area. Increased levels of military training are occurring in these training areas and more are planned for the future. A large portion of the Gerstle River Training Area lies within the legislatively designated boundaries of DJBR (Figure 1) and remains under military control.

Military activities increased in the last 6–8 years and may be a variable that influences DBH movements, particularly on the Fort Wainwright Donnelly Training Area portion of DBH's critical calving and summer range along the Delta River. The Department coordinates with the Donnelly Training Area Range Control regarding areas used by bison, but training activities are rarely altered due to bison presence. The Department has minimal influence on military land use and training practices. However, at least for the time being, all training near the calving ground is in the winter when the animals are not present.

The U.S. Army actively worked within the last 5 years to improve bison habitat and increase forage production on up to 2,000 acres of military lands to lure bison away from important training areas. Habitat improvement actions by the U.S. Army on military land include establishment of a blue grass forage plot, prescribed burning, fertilization of natural vegetation, and mowing. These efforts may help to delay the migration of DBH toward DJBR and private agricultural lands. However, because the habitat improvement areas are generally level and cleared of vegetation, they become attractive for use as military training areas, and many of the forage plots areas are reclaimed for use by the U.S. Army.

Development of Agriculture in the Delta Area

Even before the development of large scale agriculture in the area, residents of the Delta Junction area experienced both conflicts with as well as benefits from the bison herd. Conflicts initially occurred on Fort Greely housing areas and in the town of Delta Junction. In the 1950s, agriculture began to develop within the area traditionally used by DBH. Since agriculture began, conflicts with bison occur primarily on farms. At the same time agriculture began to develop, native bison forage began decreasing in the Delta Junction area as wildfires were suppressed and forests became more abundant.

Since 1978 the State of Alaska sold nearly 100,000 acres to become over 200 farm tracts in the Delta Junction area. As farms developed, bison began to include hay and cereal crops in their fall and winter diets. Crop damage increased following development of private agricultural land in the Delta I and Delta II agricultural areas primarily north of the Alaska Highway in 1979.

Farmers who purchased land in the Delta I portion of the Delta Agricultural Project were not officially informed of potential bison problems, although it was common knowledge that bison were present in the area. ADF&G had provided comments to DNR through the agricultural planning process that conflicts with bison were likely to occur. Sale contracts for agricultural parcels in the Delta II portion of the Delta Agricultural Project stated that DBH uses the area for a portion of their range and that the state is not responsible for damage caused by bison to farms. At the time of Delta II sales, the DBH herd size objective was 250–300 bison (precalving).

Of the approximately 100,000 acres of farm tracts in the Delta area, the land is not all in agricultural production. In 2008, the most recent year for which statistics are available, the following farm acreages were reported in the Delta Junction area (including the Tanana Loop area):

1. grain crops 5,617 acres
2. hay, grain hay, and pasture 4,191 acres
3. grass seed 226 acres

4. potatoes 30 acres
5. canola 40 acres
6. other crops 97 acres
7. fallow 9,600 acres
8. Conservation Reserve Program non-cropped 23,093 acres
9. Grassland Reserve Program non-cropped 1,124 acres

In addition, status is unreported for approximately 23,000 acres of which approximately 50% is fallow and 50% is mostly hay crops with a small portion in grain. USDA considers approximately 33,000 acres as no longer farmable because it is overgrown and is not easily reconverted to crop land. Approximately 50,000 acres were removed from crop land status (L. Wilhelm, personal communication, USDA Farm Service Agency, Delta Junction, Alaska). Some of the land is used for livestock enterprises such as dairy, beef, swine, and game farms which include elk, bison, and yak.

Delta Junction Bison Range

The Alaska legislature established the approximately 87,000-acre DJBR south of the Alaska Highway in 1979 which includes approximately 18,000 of military land (Figure 1). The purposes of the range identified in the legislation are to

1. perpetuate free-ranging bison on the land described in the act by management of habitat to provide adequate winter range for bison, and
2. alter seasonal movements of bison herds on the land in order to diminish the damage caused by the herds to agriculturally developed land.

In 1984 the Alaska legislature appropriated \$1.54 million in capital improvement project funds for DJBR development, and they also increased the application fee for a Delta bison hunt permit from \$5 to \$10. Funds derived from the application fee increase were intended for management of DJBR. Capital improvement funds paid for clearing of 2,700 acres to plant bison forage on DJBR, the purchase of equipment for forage management, and to hire personnel to accomplish these tasks.

The Department is able to influence the timing and direction of DBH movements to some extent by indirect actions, including habitat management on DJBR. However, management practices that would confine the herd, such as fencing, are not allowed.

Although DJBR management practices help to alter the seasonal movements of the bison herd and reduce bison-caused crop damage, conflicts between bison and agriculture continue. The success of DJBR to date is limited to some extent by restrictions placed on ADF&G by various factors including

1. Soils and Water: Soil conditions are poor on DJBR and make producing high quality forage expensive and difficult. DJBR soils are acidic, shallow, silty, rocky, and have low organic matter content that results in very low capacity to hold moisture. Because of the poor soil condition, DJBR forage production is dependent on adequate precipitation and large quantities of expensive fertilizer. Quantity and timing of precipitation is critical for

incorporating fertilizer into the soil and for providing moisture for plants. Droughty conditions significantly reduce bison forage quality and quantity on DJBR.

2. Pesticides: ADF&G management avoided the use of herbicides and insecticides to reduce the invasion of undesirable plant species and grasshopper outbreaks because of public opposition to ADF&G's use of these products. This hampered the Department's ability to manage for high quality forage on DJBR. The Department compensated by managing undesirable native grasses and woody vegetation by mechanical methods that are less effective and more expensive. A new more specific herbicide applicator called a "wet blade mower" was tested statewide and on DJBR in 2007. However, USDA Agricultural Research Service determined that the wet blade mower would not be efficient for ADF&G to use in plant control and management on DJBR.
3. Fences: Legislative intent stipulates that DBH must be managed as a free-ranging herd. Therefore, constructing fences to confine DBH within DJBR is not a management option for the Department.
4. DJBR Staffing: Efforts to maximize forage production with current staffing during summer 2009 and 2010 demonstrated that additional staff and equipment would be necessary to make a significant increase in the forage available on DJBR.
5. Public Access: Legislation that established DJBR includes provisions to maintain public access for recreation, hunting, and other purposes. It is possible that public use of DJBR in August and September contributes to DBH moving towards private farmlands earlier in the year. Closing DJBR to motorized recreation would require working with DNR in a rule-making process that would require public hearings (See Appendix B). Hunting by motorized vehicles in DJBR fields is currently prohibited from 1 July through 30 September.

In 2002 the Alaska Board of Game restricted moose hunting in the Panoramic and Gerstle Fields to decrease disturbance of bison by moose hunters. Managers recommended this action as a way to further delay movement of bison onto private agricultural land. This board action established a special limited drawing permit for the Bison Range Youth Moose Hunt. The hunt was established to

- a. reduce damage to bison forage crops on DJBR;
- b. reduce disturbance to bison in the fields during moose hunting season;
- c. reduce safety hazards to ADF&G staff conducting fieldwork on DJBR during moose hunting season; and
- d. provide an opportunity for a limited number of youth from ages 10–17 to be introduced to moose hunting in an area with a high chance of success.

This popular youth hunt reduced activity on DJBR during hunting season. However, it is not clear if there was any significant change in the timing of bison movements towards private agricultural lands.

6. Forage Survival: Bison grazing pressure on DJBR forage is most intense in the late summer and autumn when grasses are preparing for winter and vulnerable to mechanical injury and depletion of carbohydrate reserves. This vulnerability is greatest in the initial year of planting.

State Land Use Plans

The Delta Land Management Planning Study and the Delta-Salcha Area Plan, completed by DNR in 1982, both considered the development of the private agricultural land, wildlife habitat and the public interest in maintaining a free-ranging bison herd in the Delta Junction area. These plans resulted in the recommendation that the area south of the Alaska Highway, including DJBR, should be managed as wildlife habitat and that land north of the Alaska Highway should be managed for agriculture.

The Delta-Salcha Area Plan is now incorporated into DNR's Tanana Basin Area Plan as Subregion 7, Delta-Salcha. Private agricultural lands within the Tanana Basin Area Plan are now classified as "private." DJBR is identified in Tanana Basin Area Plan as Management Unit 7K. The primary surface use of the unit is wildlife habitat and the secondary use is forestry. The plan states, "Reference to the Delta Bison Management Plan should be made on all management decisions concerning this unit." Furthermore, "small timber sales may occur where consistent with the primary management intent, and will require the approval of the Department of Fish and Game." With regard to recreation and access, the plan states, "The existing trail network shall remain available for recreational access. Establishing new access trails for recreational use or to reach other state land and resources must be compatible with maintaining the overall habitat value of this unit, and will be coordinated with the Department of Fish and Game." As of May 2011, DNR was working on an update of the Tanana Basin Area Plan; however, any changes to the plan are not likely to significantly affect management of DJBR.

DBH FORAGING PATTERNS AND EFFECTIVENESS OF DJBR

About 80% of a bison's diet consists of grasses and sedges. Prior to development of agriculture in the Delta Junction area, most of the diet of DBH included arctic grasses. Arctic grasses are adapted to transfer nutrient reserves into the root system in midsummer to fall as they prepare for dormancy and the onset of winter. During this period of senescence, forage quality is greatly reduced.

Large scale DJBR forage development began in the mid-1980s based on the working hypothesis that DJBR would be managed to produce forage that was more attractive to bison than forage available north of the Alaska Highway. To further entice DBH to remain on DJBR, mineral blocks and water were provided, and actions were taken to reduce disturbance levels.

DJBR's working hypothesis was generally successful until the mid- to late 1980s. The greatest determining factor for success seemed to be the ability to produce an adequate amount of high quality forage on DJBR to meet the nutritional requirements of DBH. During the mid- to late 1980s, most agricultural crops were grains. While grains remain higher in nutritional quality than native grasses, as grain crops mature, they do not appear to be as attractive to bison as grass. This is because the forage quality of grain crops decreases as plants transfer nutrients from the leaves and stems into the seed grain.

The trend in recent years is for more production of oat and brome hay. There is usually regrowth after the final harvest of hay. While the regrowth is still high nutritional quality, not enough grows to be commercially harvested; thus it is left in the fields. The forage quality of this regrowth is as high as the quality produced on DJBR. Consequently, instead of having high quality forage available primarily on DJBR during the fall, there are now large quantities available on private farmlands. Therefore, enticing bison to remain south of the Alaska Highway on DJBR in the fall has become less successful.

Bison will find and use food with the highest nutritional quality, including agricultural crops on DJBR and private agricultural lands. Most crop damage occurs when bison move onto farms prior to completion of the fall harvest. However, because bison visit some areas more than others that have the same available forage, ADF&G believes there are other less-understood variables influencing movement. Those include a combination of water, cover, habitual travel routes, and disturbances. For example, private agricultural lands adjacent to the Gerstle River appear to be particularly desirable to DBH where they have ready access to food, forest cover, and water.

HERD SIZE

The management objective for herd size is based on the number of bison in the herd before calving occurs (precalving). The number of bison in the herd increases by about 20% after calving. The first Delta bison management plan that was in place between 1980 and 1985 included a precalving herd size objective of 250–300 bison. The herd size objective was increased in subsequent versions of the plan. From 1992 until present and included in the 2000–2005 Delta Bison Management Plan, the herd size objective has been 360 bison.

For decades people have voiced strong conflicting opinions about the ideal population objective for DBH. There is interest from some people for a herd larger than the current objective, as well as interest from other people for a herd smaller than the current objective. The attributes and aspects of the different herd sizes include the following:

1. Smaller herd
 - a. Potentially less impact on the agriculture crops.
 - b. Reduced hunter and viewing opportunity.
 - c. Decreased genetic variability.

2. Larger herd
 - a. Potentially more impact on agriculture crops, fields, and fences.
 - b. Increased hunting and viewing opportunities.
 - c. Greater genetic variability.
 - d. Potentially increase the goods and services purchased by hunters in the Delta Junction community.

Still other opinions argue for managing the herd size based on the limit set by natural environmental factors that do not include access to forage on private agricultural land. It is difficult to determine the number of animals this would be for several reasons. The quantity of forage they get from private agricultural lands and DJBR is unknown. Whether they will

continue to have full access to their summer range on military land is unknown. Also, since the herd is free-ranging it can seek new range.

For a healthy, reproducing and self-sustaining population to remain viable, it should not go below the minimum viable population size. Small populations are more likely to go extinct or approach extinction than large populations. Small populations are more vulnerable to disease, extremes in weather, predation, or loss of genetic diversity than large populations. Although this concept is often applied to a species, it can be applied to isolated populations of a species, such as DBH. Although we do not know what the minimum viable population size is for DBH, the range in size of the herd over the past several decades suggests that the current and past sizes of the herd did not go below the minimum viable population size. In 2010 the International Union of Concerned Scientists, American Bison Specialist Group, recommended managing individual bison herds for a minimum population of 1,000 in order to maintain maximum genetic diversity for long periods of time.

HUNTING MANAGEMENT

The Department uses hunting for managing the size and composition of DBH. Predation is not a significant mortality factor. An unknown number of bison die each year from other causes such as drowning, wounding loss, and other accidents.

DBH hunting permits are among the most sought after hunting permits in the state. In recent years an average of 15,000 people submitted applications for approximately 80–170 drawing permits. The permit winners are selected by a random lottery with no preference for the number of years a person has submitted applications.

The Board of Game currently authorizes the Department to issue up to 200 bison hunting permits per year. The current hunting season is year-round from 1 July to 30 June. However the Department uses its discretionary permitting authority to limit the season from 1 October–31 March, except on a case-by-case basis when hunting is needed as a tool during the other times of the year to reduce bison crop destruction.

Most hunting occurs on private agricultural land and state land in DJBR. However, some hunting also occurs on military land. The ability of hunters to have access to DBH on private land is dependent on the willingness of private landowners to allow access.

Hunting on private land has become more difficult for hunters in recent years for one or more of the following reasons:

1. Some landowners charge access fees.
2. Other landowners do not allow hunters on their property.
3. Some landowners have fenced their land, placing it off limits.
4. Many landowners allow only one hunting party on their property at a time.
5. The number of individual landowners has increased because farm tracts are being subdivided into smaller but more numerous parcels which makes determining ownership and obtaining access more difficult.
6. Hunter success has decreased over time, thus during some years, more permits must be issued to meet harvest requirements resulting in more hunters are in the field.

Motorized vehicles are not restricted for hunting bison. Unfortunately, some hunters use 4-wheelers and snowmachines in an illegal manner to pursue and herd bison while hunting. Commonly this action results in bison being chased through fences. As more private farm acreage becomes fenced, there is an increasing incidence of hunters chasing bison through fences.

Some landowners charge access fees because there is a cost involved in providing access to hunters. For example, dealing with hunters takes time, there may be some damage to fields and fences, and bison carcass remains left in the field can damage farm equipment. Landowners who no longer allow hunting on their property generally cite the following reasons:

1. Landowners have problems with motorized vehicles.
2. Landowners have a sense that the Department and hunters are not concerned about the difficulty farmers have with bison.

BISON HERD HEALTH AND DOMESTIC LIVESTOCK INTERACTION ISSUES

There are no disease syndromes or reoccurring health issues known presently in DBH based on extensive observational effort. DBH is observed through a combination of air and ground methods for more than 100 hours per year by ADF&G staff. Furthermore, more than 100 hunters per year observe DBH during the hunting season. In addition, a number of carcasses from bison harvested each year are inspected by ADF&G staff at hunter check-out. An extensive effort to conduct serosurveillance of DBH took place during 2000–2003. Since then other less extensive sampling has occurred.

However, several diseases are known to occur in domestic livestock in the Delta Junction area, and tests have shown that bison have been exposed to most of them. Those include infectious bovine rhinotracheitis, bovine viral diarrhea, bovine respiratory syncytial virus, infectious bovine kerato conjunctivitis, Johne's disease, and parainfluenza III.

Based on the past specific disease testing and current level of health monitoring, we believe there are no major health risks to the herd at this time. However, during annual DBH movements, the herd comes into close proximity to domestic livestock in the Delta Junction area. Furthermore, some domestic livestock have become feral within the range of DBH. ADF&G has no control over domestic livestock health and limited control over the consequences of contact between free-ranging bison and livestock.

Health monitoring of DBH will continue to rely on extensive observation effort by ADF&G staff, bison hunters, and the public. Animals deemed of high enough interest by ADF&G staff regarding their health status may be immobilized or euthanized for further examination and testing. Since specific disease testing has not been done for approximately 10 years, we are proposing a monitoring guide for 2013–2015. In the future, we will compile a list of diseases and parasites for testing, sample sizes, and any needed funding sources.

GENETICS

In the late 1800s when plains bison numbers were very low, some ranchers intentionally crossbred plains bison with cattle in an attempt to create a more hardy variety of livestock. As a result, few herds of genetically pure plains bison remain today, including the present day herd on

the National Bison Range in Montana. However, bison brought to the Delta area in the 1920s from the National Bison Range were still free of cattle genes. Genetic testing of DBH to date has not detected any cattle introgression. DBH and other Alaskan plains bison herds are among the relatively small number of plains bison herds in North America that may remain free of cattle genes. Therefore, DBH may be useful in the future for providing cattle-free genetic bison stock.

Three domestic herds of plains bison are currently in pastures in the Delta area. Bison have escaped from two of these herds and joined DBH. Because the genetic purity of the domestic herds is not known, the genetic purity of DBH could be compromised. Further genetic testing of DBH would be needed to detect cattle gene introgression.

INTERIM ACTIONS TAKEN TO HELP REDUCE BISON CROP DAMAGE

During 2009–2010 while the planning process was underway ADF&G implemented a number of interim actions to reduce conflicts between bison and agriculture in the Delta area. These actions included

1. In 2009 and 2010 the Department allocated approximately \$20,000 in additional funding per year for bison forage management on DJBR. Increased forage management included:
 - a. Planting an additional 200 acres of oats (2009 and 2010).
 - b. Increasing the fertilization rate on 700 acres of perennial bluegrass (2009 and 2010); Planting 30 acres with forage turnips in 2009 and 70 acres in 2010 to assess if it would be a preferred forage species that would help keep bison on DJBR longer.
2. ADF&G conducted an early bison hunt that started on 26 July 2010 to test whether hunting bison only in agricultural areas north of the Alaska Highway would cause bison to avoid agricultural lands and move back to DJBR.
3. In 2009 and 2010, the U.S. Army invested over \$140,000 to improve bison summer habitat on military lands, primarily by fertilizing 550 acres on the Buffalo Dome Flats summer range on the west side of the Delta River and bison food plots in the Meadows Road area. This level of funding from the military is not likely to be available on a regular basis in the future.

With this additional effort in 2009 and 2010 ADF&G concluded

1. The workload required to manage bison forage at the increased funding level during the last 2 years is not sustainable with a DJBR staff of one person.
2. During summer 2009 and 2010, the timing of the bison herd movement was in late July. This timing was later than the mid-July movement dates recorded from 2000 to 2008. During summer–fall 2009 and 2010, ADF&G and U.S. Army bison management activities did not significantly alter DBH movement patterns observed since about the early 1990s.

CROP DAMAGE ASSESSMENT PROGRAM

The economic value of bison damage to agricultural crops had not been assessed in the past, which makes evaluating the efficacy of bison management actions to reduce damage difficult. In summers 2009, 2010, and 2011, ADF&G gathered data for a crop damage assessment program in cooperation with the Alaska Division of Agriculture. Each year, ADF&G staff flew several

aerial surveys over all grain and potato crops north of the Alaska Highway during the harvest season and photographed bison crop damage. Dr. Charlie Knight from the Division of Agriculture analyzed the aerial photos and conducted ground surveys of crop damage. In 2011, Dr. Knight noted that there were more fenced fields in the Delta I Agricultural Area.

Dr. Knight produced monetary estimates of crop damage for 2009, 2010, and 2011 (Table 1). In presenting these data Dr. Knight emphasized that these are very rough estimates and further work is needed to accurately assess actual crop damages. Dr. Knight categorized the aspects of crop damage or economic loss as follows:

1. Grain Down: Barley, oat, or canola fields that had been trampled, wallowed, or eaten. Values were determined by field areas and percent losses estimated within each field.
2. Extra Grain Desiccation and Drying Costs: In an attempt to minimize bison damage to their crops, Delta farmers often harvest their grain earlier and at a higher grain moisture level than they would have if the bison threat were not present. In 2010, some grain was sprayed with a crop desiccant to facilitate an early harvest. In most cases, however, harvest time in the Delta area was dictated by the weather conditions rather than the presence of bison. Thus, additional drying costs were less in 2010 than in 2009. However, in 2010, some oats were harvested at moisture levels as high as 33% to avoid further bison damage. In 2011 a later harvest resulted in lower drying costs. Additional costs of grain drying and crop desiccation were estimated following interviews with the farmers affected.
3. Grass, Hay, and Straw: Hay fields along the Sawmill Creek and Gerstle River corridors get many different kinds of bison damage each year. Bison roll and graze in the uncut fields; they eat, scatter, and leave manure in the cut hay that is drying in the windrows; they ram their horns into the big rounds of baled hay and rip up the wrapping materials and eat holes in them; and they get into the stacks and break open the stored bales of hay and straw. The combination of all of the actions reduces the quality, the usable quantity, and ultimately the value of these crops. Farmers occasionally do not get their straw all baled in the fall and wait until spring to bale it. Bison eating, bedding down, and spreading manure on the straw during the fall and winter reduces quantity and quality. All of these losses have been lumped together in this category.
4. Potato Damage: Potato crops experienced some damage, which is different from damage to other crops. Rot caused by physical harm to a small portion of the crop can be spread to a shed full of potatoes. This causes a considerable reduction in the value of the entire crop. Although not reported as a loss, there is fear that bison and other animals can spread viruses as they walk through the fields.
5. Fence Damage: Bison usually do not go through fences unless they are being pursued or are strongly attracted to a crop behind the fence. Dr. Knight said he had two reports of bison going through fences in 2010 causing more labor than actual materials damage.
6. Missed Opportunities: Rather than planting hay or barley, many farmers would like to plant higher cash-value crops such as potatoes, oats, canola, field peas, wheat, or later-maturing, higher yielding varieties of barley. However, most of these crops are very attractive to or easily damaged by bison. Therefore the farmers feel that it would be

unwise to plant such crops as they would almost certainly be damaged by bison. Several farmers mentioned that these missed opportunities were the source of their greatest losses; however, it is impossible to assign a dollar value on missed opportunities.

TABLE 1. Alaska Department of Natural Resources, Division of Agriculture estimates of bison-caused crop damage, 2009–2011.

Damage type	2009	2010	2011
Grain down (barley, oats, and canola)	\$32,190	\$58,238	\$50,480
Extra grain desiccation and drying costs	\$30,700	\$10,650	\$5,200
Grass, grass hay, barley, and oat straw	\$37,250	\$38,065	\$20,100
Potato damage	\$35,000	\$48,000	\$31,000
Seedling grass field damage	\$4,000		
Fence damage (labor and materials)	\$3,000	\$3,000	\$0
Total	\$142,140	\$157,953	\$106,780

APPENDIX C: ALTERNATIVES CONSIDERED BUT NOT ADOPTED

COMPENSATION PROGRAMS

1. Farmers purchase crop insurance to receive compensation for bison-caused crop damage.

Rationale: Crop insurance programs currently available are not adequate to compensate farmers for on-going bison-caused crop damage. There is no standard methodology established to assess the economic losses caused by bison nor are there qualified insurance adjusters in Alaska with the necessary expertise.

2. Establish a state program to compensate farmers for bison-caused crop depredation.

Rationale: There is no standard methodology established to assess the economic losses from bison crop damage. Furthermore there is concern that establishing a crop damage assessment program for Delta bison would create a precedent for the state accepting liability for other wildlife caused damages.

FENCING ALTERNATIVES

3. Fence DBH into DJBR or a portion of the range either year-round or on a temporary basis from mid-July until crops are harvested.

Rationale: Confining DBH in a fenced area would violate the legislative intent of DJBR to “perpetuate free-ranging bison.” More detail on the legal, management, and financial issues involved in managing DBH in an enclosed area are provided in Appendix E.

4. Construct a barrier or “drift” fence along the south side of the Alaska Highway to prevent the bison from migrating into private agricultural areas.

Rationale: The effectiveness of constructing a barrier fence along the Alaska Highway is uncertain because bison can go around the ends of the fence to access the agricultural areas. A barrier fence would interfere with public access to DJBR and would disrupt movement patterns of moose and other wildlife. DOT&PF expressed concerns about disruption of wildlife movements and the possible effects on wildlife-vehicle collisions. They would need to be consulted on any proposals involving fencing along highways.

BISON HUNTING MANAGEMENT PROVISIONS

5. Establish an open season with no bag limit north of the Alaska Highway to eliminate nonmigratory bison.
6. Provide information to hunters on the location of the bison herd. Conduct a weekly aerial survey and provide a report to hunters. Farmers could provide information to ADF&G about bison on their lands.
7. Escort hunters. If ADF&G escorted the hunters, perhaps landowners would be more receptive to letting people hunt on their land.
8. Allow local people to guide hunters on their own property.
9. Use an alternate hunter list. If someone does not intend to use his/her permit it could be reissued to another hunter.

10. Break the hunt into designated hunt periods. Most people do not need 6 months to hunt. Allow 3 months to hunt, and then let someone else get a chance.
11. Establish a preference or bonus point system for DBH hunting permits so that people who apply year after year have a greater chance of receiving a permit.
12. Charge successful permit applicants a large fee and use funds to compensate farmers or contribute to bison management
13. Give landowners, or a designated group of hunters, the chance to harvest bison as soon as they cross the Alaska Highway.
14. Open bison hunting on the north side of the Alaska Highway on 1 July while keeping the season closed on the south side of the highway in DJBR until crops are harvested in the fall. This is to discourage bison from entering agricultural lands until crops are harvested.

Rationale: Bison hunting provisions that were supported by the DBWG are incorporated into the management recommendations of this plan.

ALLOCATE A PORTION OF DBH HUNTING PERMITS TO FARMERS

15. Issue depredation permits to farmers. Let landowners have a few of the bison; either part of the quota that were not already killed at the end of the season, or get some up front.

Rationale: Awarding a portion of DBH hunting permits to farmers was not supported by members of DBWG as means of providing compensation for bison-caused crop damage. If such a program were established it would be difficult to determine how to allocate the permits among affected farmers.

HAZING BISON

16. Haze bison out of agricultural areas until crops are harvested.

Rationale: Hazing bison was attempted in the past and had limited usefulness in keeping bison out of agricultural areas.

APPENDIX D: LEGAL REQUIREMENTS

CONSTITUTION OF THE STATE OF ALASKA

Article VIII of the Constitution of the State of Alaska provides the overarching policy for management of natural resources in the state. Section 3, often referred to as the “Common Use Clause” is particularly pertinent to discussions of the DBWG during the development of this plan. This clause may preclude the possibility of designating one or more Delta bison hunting permits to a specific group, such as the Delta agricultural landowners who experience impacts from the bison herd and bison hunting.

Article VIII, Natural Resources states:

Section 1. It is the policy of the state to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest.

Section 2. The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the state, including land and waters, for the maximum benefit of its people.

Section 3. Wherever occurring in the natural state, fish, wildlife, and waters are reserved to the people for common use.

Section 4. Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the state shall be utilized, developed, and maintained on the sustained yield principle, subject to preferences among beneficial uses.

Section 5. The legislature may provide for facilities, improvements, and services to assure greater utilization, development, reclamation, and settlement of lands, and to assure fuller utilization and development of the fisheries, wildlife, and waters.

ALASKA STATUTES

Several sections of Title 16, Fish and Game, apply to management of Delta bison and DJBR. There are general provisions, such as the authority of the commissioner and there are specific measures that apply to DJBR and the auctioning and/or raffling of bison hunting permits.

Sec. 16.05.020. Functions of commissioner. The commissioner [of the Alaska Department of Fish and Game] shall

(2) manage, protect, maintain, improve, and extend the fish, game and aquatic plant resources of the state in the interest of the economy and general well-being of the state.

In 1979 House Bill 31 established DJBR. The purposes of the act identified in Section 1 of the legislation are:

"to perpetuate free-ranging bison on the land described in this Act by management of habitat to provide an adequate winter range for bison," and

"to alter seasonal movements of bison herds on the land in order to diminish the damage caused by the herds to agriculturally developed land."

This legislation was codified into Sections 16.20.300–320 of the Alaska Statutes. Section 16.20.300 identifies the lands included in DJBR. The text of the other portions of the statute follows.

Sec. 16.20.310. Game management plan for bison.

- (a) The commissioner shall develop and may amend a game management plan for bison in the area described in AS 16.20.300. After holding public hearings in accordance with 44.62.310 and 44.62.312, the commissioner shall implement the game management plan.
- (b) The game management plan must include, but is not limited to:
 - (1) planting grains for bison and planting other wildlife forage;
 - (2) altering existing plant cover to create additional range and year-round habitat for bison and other animal species in the area;
 - (3) tilling to produce forage.
- (c) The commissioner shall develop and amend the game management plan to coordinate, as closely as possible, the game management plan with the activities of the Agricultural Development Authority, Department of Natural Resources, relating to the Big Delta agricultural development project.

Sec. 16.20.315. Bison range timber sales. The Department of Natural Resources, Division of Forestry, shall provide for the sale of timber in the Delta Junction bison range area in a manner that does not delay implementation of the game management plan required under AS 16.20.310.

Sec. 16.20.320. Activities on bison range area. Nothing in AS 16.20.300–16.20.320 shall be construed as prohibiting activities on land described in AS 16.20.300 that are otherwise permitted in accordance with the laws and regulations of this state, including, but not limited to, hunting, trapping, engaging in recreational activities, using the land for access to adjacent areas, and a 300-foot Alaska Railroad right-of-way.

AS 16.05.343 provides for auctions or raffles of big game harvest permits. These provisions are relevant to DBWG’s consideration of providing a bison harvest permit to Delta agricultural interests who are impacted by bison damage (Appendix C). The key provision of both paragraphs (a) and (c) is that “The donation may be made only to a nonprofit corporation established to promote fish and game law enforcement...” Thus, donation of a bison harvest permit to an agricultural organization would require legislative action to make an organization other than a nonprofit established to promote fish and game law enforcement eligible for a permit donation. Even if legislation were proposed, it may violate the Equal Access Clause of the Constitution (see above).

Sec. 16.05.343. Auctions or raffles for big game harvest permits.

- (a) The Department may donate one bison harvest permit each year for a bison from the Delta bison herd for a competitive auction or raffle. The donation may be made only to a nonprofit corporation established to promote fish and game law enforcement, subject to the terms of a memorandum of understanding developed by the Department.
- (b) (Not applicable to Delta Bison)
- (c) The Department, subject to regulations adopted by the commissioner, may issue, through a competitive auction or raffle, up to two harvest permits each year for each of

the following big game species: Dall sheep, bison, musk ox, brown or grizzly bear, moose, caribou, and wolf. Notwithstanding AS 36.30, the Department may authorize a qualified organization to conduct the auction or raffle on behalf of the Department. If the Department does authorize a qualified organization to conduct an auction or raffle for a big game species, the Department shall make available to a qualified organization based in the state at least one harvest permit for that species. If the auction or raffle is conducted by a qualified organization, the organization may retain an amount from the gross proceeds of the auction or raffle equal to the administrative cost of the auction or raffle plus an amount not to exceed 10% of the net proceeds. The proceeds from the auction or raffle of a big game harvest permit may not be used to make a contribution to any candidate for political office or to any organization supporting or opposing ballot propositions or to pay expenses associated with lobbying the legislature or administration. All proceeds from the auction or raffle of the big game harvest permit, less the amount that is retained by a qualified organization under this subsection, shall be deposited in the Fish and Game Fund under AS 16.05.100. A person who is issued a big game harvest permit under this subsection shall receive upon the person's request a complimentary hunting license and a big game tag for the big game species for which the big game harvest permit is issued. A hunting license issued under this subsection must bear the inscription "Governor's license" or a similar designation. A person who receives a big game harvest permit, hunting license, or big game tag under this subsection may exercise the privileges conveyed by the permit, license, or tag only in accordance with applicable law. In this subsection "qualified organization" means a nonprofit corporation established to promote fish and game law enforcement or an organization that is established to promote management of hunted game species and use of game populations for hunting and that complies with applicable laws governing activities under this subsection.

LEGISLATIVE HISTORY, ATTORNEY GENERAL'S OPINIONS AND LEGAL DECISIONS

Management of the Delta Bison Herd and Delta Junction Bison Range

In 1980 the Alaska legislature passed House Bill 568 which extended the life of DJBR from 3 years to 10 years. In 1988 the legislature repealed the termination date for DJBR. Although the bill consisted of only a few lines of text, the Chairman of both the House Special Agricultural Committee and the House Resources Committee sent the Speaker of the House, Terry Gardiner, a letter of intent stating:

“It is the intent of the Legislature that the Delta Junction bison herd be managed for maximum reproduction and productivity. The present base population is not to be reduced and the past average number of animals harvested by hunting permit shall be continued. Any animals which seasonally exceed the base population after historic hunting allocation shall be disposed for maximum return to the state.”

Mandate for Managing DBH as a Free-Ranging Herd

On 30 June 2009, while this plan was being developed, Representative John Harris requested clarification of Delta bison legal issues from Brian Kane, Legislative Counsel for the Legislative Affairs Agency Legal Services. The two questions raised by Representative Harris on the free-ranging status of DBH and key parts of the responses are as follows:

1. Can the 1979 session law enacting AS 16.20.300 be used to justify free ranging even though the language is not in today's statutes?

Response: The purpose behind why the legislature passed the act – “to perpetuate free-ranging bison on the land described in the act” is still in place.

2. Is the Delta Junction bison herd a true free ranging herd?

Response: Seeing as the bison are not owned by anyone, not held in place by barriers, appear to at the very least have freedom to roam, and are also descendants of a wild stock from Montana, the signs all point to the Delta Junction bison being considered a free-ranging herd.

STATE LIABILITY FOR BISON DEPREDATION OF CROPS

In 1980 a Delta Farmer, Howard Smith, was sued by the Alaska Farmer's Cooperative for nonpayment for seed and fertilizer he purchased from the cooperative. In his defense, the farmer filed a cross-complaint against the state alleging the state was liable for any sums owed because the state failed to protect his crop from bison depredations. The state filed a motion for summary judgment against Smith and the motion was granted in the state's favor in a June 1982 court decision. The state's case was based on “the common law rule that states are not liable to individuals for damages to real or personal property inflicted by wild animals protected by game laws which are administered by governmental agencies.”

In a memo to Representative Pappy Moss dated 27 February 1981 the Alaska State Legislature House of Representatives Research Agency described the state's potential liability for wildlife depredation of crop land. This memo was written in response to questions relating to proposed legislation dealing with compensation by the state to producers of certain agricultural products for income loss attributable to bison depredation. The memo refers to two Assistant Attorney General Opinions and was inconclusive with regard to the state's liability. Eighteen months later the courts issued the Howard Smith decision that determined that the state is not liable for bison depredation of crops.

More recently the memo prepared by Brian Kane, Legislative Counsel for the Legislative Affairs Agency Legal Services agrees with previous Attorney General's Opinions but does not conclusively indicate whether the state is liable for bison-caused crop damage. The memo identifies provisions or conditions that might affect a legal claim for liability. Some key parts of the response are:

1. The state may be held liable for damage by Delta bison if a court were to find that it has negligently performed or failed to perform a duty to keep the critters away from farmer's crops.
2. The statute specifically states that the game management plan must include “altering existing plant cover to create additional range and year-round habitat for bison and other animal species in the area.” It seems that this provision of the management plan falls in line with the second stated purpose of the Act: “to alter seasonal movements of bison herds on the land in order to diminish the damage caused by the herds to agriculturally developed land.” This second purpose increases the state's duty to protect the agriculture



of the area, but uses the words “diminish the damage,” which does not mean the state has to 100% keep the bison from damaging crops. Even if a duty was created by the Act, the state may only need to show that its management plan achieved the stated goal of diminishing the damage to agricultural lands.

3. It would be up to the court, if a claim were pursued, to determine whether the state was liable for damages, and that is an outcome I am unable to predict.

ACCESS FEES FOR HUNTING ON AGRICULTURAL LANDS

An Assistant Attorney General’s memo to the Commissioner of the Department of Fish and Game, dated 7 May 1992, addresses the topic of access fees for hunting on agricultural lands. The memo specifically examines holders of state agricultural rights in the Delta Junction area. The memo concludes:

“The owner of the agricultural interests to land acquired from the state may limit access to those lands for hunting and other purposes. The owner may allow public access, and charge a fee therefore, if the hunting use of the land is not inconsistent with or contrary to the agricultural use of the land.”

APPENDIX E: DJBR MANAGEMENT AND LAND USE PERMITTING

The statutory designation of the Delta Junction Bison Range (DJBR) in AS 16.20.300-320 provides for a game management plan for bison and other wildlife species, timber sales on the range, and continued public use of the lands (Appendix A). The law requires that the game management plan for DJBR be coordinated with the Department of Natural Resources (DNR). This appendix stems from review and coordination with DNR and is intended to help clarify how agency and public land use permitting on DJBR is to be handled.

PUBLIC RECREATIONAL USE AND OTHER ACTIVITIES

Activities permitted in accordance with the laws and regulations of the state, including, but not limited to, hunting, trapping and recreational activities on DJBR are specifically authorized in AS 16.20.320. Generally, casual public use of DJBR lands is authorized without a permit, similar to other state-owned and managed lands. This plan does not include any proposals to adopt regulations to restrict public use of DJBR. If in the future the Alaska Department of Fish and Game (ADF&G) sought to close DJBR to certain public uses in order to better manage for bison or wildlife habitat, the Department would be required to work with DNR to restrict land uses through a public rulemaking process according to state land use regulations.

Organized events or other public uses that might result in impacts to the land may require a state land use permit. DNR, Division of Mining, Land, and Water (DMLW), should be consulted on the need for a land use permit. The Delta Junction Area Biologist will forward all DJBR public use requests to DMLW for determination of permitting requirements. If a proposed activity requires a land use permit or other authorization, DMLW shall consult with the Division of Wildlife Conservation (DWC) and will only issue a permit after receiving DWC's concurrence that the activity will not result in significant adverse effects to bison and other wildlife habitat purposes for which DJBR was established.

DEPARTMENT OF FISH AND GAME WILDLIFE AND WILDLIFE HABITAT MANAGEMENT ACTIVITIES

Management activities for wildlife and wildlife habitat undertaken by ADF&G are covered within the statutory purposes of DJBR and generally do not require a land use permit from DMLW. This includes typical activities such as tilling to produce forage, altering existing plant cover to create habitat for bison and other animal species and planting grains for bison and planting other wildlife forage.

Prescribed burning on DJBR will be done in consultation with DNR. The prescribed burn approval is sufficient authorization from DNR for a prescribed burn on DJBR; however, if the burn is to extend outside of DJBR lands, a land use permit is also required.

Timber in DJBR is included in DNR, Division of Forestry (DOF) timber base. Because of vegetative cover type and seasonal hydrology, some lands within DJBR may be considered wetlands by the U.S. Army Corps of Engineers (COE). Normal silviculture practices intended to regenerate forest cover types after timber harvesting, including surface preparations that scarify soil, are exempt from COE Section 404 permits (33 CFR 323.4 [a]). However, if DWC wildlife management activities are intended to *convert* [italics added] areas of forest cover into

grasslands, a COE 404 wetland permit may be required. Before undertaking actions to convert forest lands to grasslands or other non-forest land uses, DWC should consult COE and, if necessary, request a wetlands determination for the specific lands involved. If required by COE, wetland permits must be obtained prior to initiating the project. If such a forest land use conversion project is envisioned by DWC, DOF should be notified so that the lands can be removed from the timber base. The term “conversion” does not include a temporary change in forest cover type such as removing black spruce to allow growth of aspen or other species (See AS 41.17.110 and 11 AAC 95.200, that governs conversion of forest land to other uses). In addition, if DJBR lands are cleared for non-timber purposes DWC, in consultation with DOF, will determine if the timber has significant salvage value (See AS 41.17.083). If the timber has significant salvage value, the timber will be salvaged as part of the clearing process, unless there are overriding reasons why the salvage would be detrimental to the purposes of enhancing bison or other wildlife habitat.

TIMBER SALES AND OTHER FORESTRY PRACTICES

Timber sales, access roads, and other forestry practices proposed for DJBR by DOF are designated as secondary uses by DNR's Tanana Basin Area Plan, and will be coordinated with the ADF&G Habitat and Restoration Division and the Delta Area Biologist. Any proposed forestry practices must be consistent with or not interfere with the primary purpose of the bison range, which is enhancement of bison and other wildlife habitat. Concurrence of DWC must be obtained prior to initiation of forestry activities on DJBR.

FIRE MANAGEMENT

ADF&G is the land manager for decisions on fire suppression during wildland fire events, particularly as related to wildlife populations and/or habitat. The Delta Area Biologist or their designee will cooperate with DOF in preparation of the Wildland Fire Situation Analysis as provided for in the Alaska Interagency Wildland Fire Management Plan. The fire Incident Commander retains ultimate authority for decisions involving a threat to public safety and for overall fire manageability. Fire rehabilitation on DJBR will be accomplished through the normal fire rehabilitation process and funding mechanisms in DOF, with rehabilitation decisions being made cooperatively with the Delta Area Biologist to maximize benefit to bison and other wildlife habitat.