D E L T A B I S O N M A N A G E M E N T P L A N

Alaska Department of Fish and Game

CONTENTS

I. STRATEGIC PLAN

A. LOCATION

In Game Management Unit 20, that area bounded by Delta Creek on the west, the Gerstle River and the Healy River on the east, the Goodpaster River on the north, and the Game Management Unit 13 boundary on the south.

B. OBJECTIVES

To protect, maintain, and enhance the bison population in concert with other components of the ecosystem and thereby assure its capability of providing the greatest sustained opportunities to participate in hunting bison and, secondarily, to view and photograph bison.

To protect human property in human-bison interactions.

C. MANAGEMENT GUIDELINES

Consider the ecological relationships of bison and the human benefits derived from bison and other wildlife in the formulation and implementation of management programs for bison.

This area supports many interacting plant and animal species which are dependent upon each other and on nonliving components

of their environment for their life requirements. These interrelationships are complex and incompletely understood at present.

All human use of the area has some effect upon its biotic components. However, to a considerable degree the biotic components of ecosystems are dynamic and adaptable to change. This inherent resiliency allows for the temporary alterations of ecosystems that most human use of wildlife represents, without causing permanent changes. Nevertheless, management of bison should be designed to minimize disruptive effects on the ecosystem while providing for optimum human benefits from all resources.

Because many species of wildlife in the area provide benefits to man, and because management of bison may affect other species, management programs for bison must consider probable effects on other species and their use by man and should be designed to yield the optimum mix of uses which constitutes the greatest public benefit.

Conduct habitat improvement programs to compensate for loss of bison habitat and to reduce agricultural damage.

Availability of winter forage is the most critical natural factor affecting the Delta bison herd. After spending the summer on traditional range along the Delta River, the

animals migrate north along the river, and when opposite Fort Greely, begin moving east toward the present agricultural area. Currently, bison spend four or more months on unfenced agricultural lands for fall and winter forage. When the bison arrive in the agricultural area before harvest, crop depredations occur. More and more farms are being fenced to avoid crop damage, resulting in a loss of winter habitat.

In 1979 the Alaska Legislature designated a 70,000-acre tract south of the Alaska Highway as the Delta Junction Bison Range Area. The Range, as established, conformed to the recommendations of the Delta Land Use Planning Study, which recommended setting aside land south of the Alaska Highway to compensate for wildlife habitat lost to agricultural development north of the highway. A major purpose of the Range is to provide winter range for bison. The Bison Range was also established to reduce crop damage by providing an alternative source of forage during the grain harvest period.

Habitat improvement programs on the Bison Range will involve clearing and planting grain or perennial grasses to provide fall and early winter forage. Additional areas will be burned to produce and maintain grasslands and shrublands beneficial to bison during late winter. This open habitat is particularly important because it should reduce late winter mortality in years of deep, crusted snow.

Efforts will be made to delay fall movements of bison from their summer range near the Delta River. This may involve habitat improvement and the use of salt. Trails linking summer habitat and the Bison Range will be developed to encourage bison use of the fall and winter habitat provided on the Range.

Habitat improvements discussed above will reduce, but not eliminate, bison-agriculture conflicts. Hunting, noisemakers, and, in some situations, fencing may be used to discourage use of croplands by bison.

Maintain a pre-calving population of 250-300 bison, depending on availability of suitable habitat.

Delta bison originated from a 1928 transplant from Montana. The animals thrived, growing to a herd of more than 500 during the 1940's. Subsequent population fluctuations due to the severity of winter and availability of forage have resulted in a present herd size of nearly 300 animals. Presently the herd is productive (70 calves per 100 cows and 80% yearling survival). Predation does not appear to be a major mortality factor. Mortality exclusive of the legal harvest results in an 8 to 10 percent loss per year. Losses include drowning, accidents, predation, illegal kills, vehicle-bison collisions, and starvation during winters of deep, crusted snow. Currently the population appears balanced

with available habitat. Herd size has been stabilized through the removal of annual increases by hunting. Hunting will continue to be the primary management method for maintaining desirable herd size. Should development of the Delta Bison Range increase the capacity of the habitat to support additional bison without increasing conflicts with agricultural operations, the herd size may be increased.

Control the number and distribution of hunters to distribute hunting pressure through the area and to maintain the harvest at desired levels and composition.

Hunting of Delta bison usually begins in September and continues through November. Hunting is controlled by permit. In recent years, nearly 4,000 persons have annually applied for 35-50 bison hunting permits. Participation by permittees has been high, and hunter success has been virtually 100 percent. Bison are relatively accessible to hunters using highway vehicles. Most hunters come from the Fairbanks and Anchorage areas. Local residents usually receive 8 to 10 percent of the bison permits. Very few nonresidents have taken bison from the Delta herd and virtually no professional guiding activities have been involved in the Delta bison hunts.

Hunters are required to attend an orientation course on land ownership, hunting techniques, and identification of bison

sex and age classes. The permit system allows the degree of control necessary to harvest selected sex and age components of the herd while directing hunter effort to areas which minimize conflicts between hunters, between hunters and private landowners, and between bison and farmers.

Encourage public viewing and photography of bison and enhance viewing facilities.

Delta bison provide for considerable viewing and photographing opportunities for residents and visitors alike. During the fall and winter, roadside observation of bison is possible on highways near Delta. Summer observations require use of binoculars and spotting scopes because bison are on summer range across the Delta River from vantage points on the Richardson Highway.

Interpretative signs will be placed and maintained on the Richardson Highway overlook and at a pullout near the Delta Bison Range. As the Bison Range is developed, other interpretative materials should be produced to aid bison viewers in locating bison and understanding their biology.

Maintain an active cooperative management program with State, Federal, and private landowners.

During their seasonal movements, the bison cross State, Federal, and private lands. Successful management of these animals as a wild, free-ranging herd will require close cooperation between the Department of Fish and Game and various landowners. For example, use of private lands for hunting is important in maintaining the desired herd size and as a means of discouraging bison use of farmlands before crops are harvested, and habitat improvement and trail development on Fort Greely would be valuable adjuncts to habitat enhancement efforts on the Delta Bison Range.

Maintain informed public involvement in Delta bison management issues.

Although the Delta bison herd has traditionally been managed as a free-ranging herd, alternative management strategies have been and will be promoted which would change the nature of public benefits derived from the herd. Public sentiment has been strong for maintaining a free-ranging herd, as demonstrated in the Delta Land Management Planning Study recommendations and in more recent public meetings on bison issues. Statewide interest in hunting Delta bison is evidenced in the large number of applications received annually for hunting permits. At the same time, there are legitimate interests in using all arable lands in the Delta area for State-supported agricultural development and competing demands for use of bison for domestic purposes.

Management decisions that provide optimum public benefits require the informed participation of all interested segments of the public. The Department has advocated public involvement in bison management decisions through the public review of management plans, in the Department's participation in the Delta Land Management Planning Study, through the annual regulatory process, and by conducting numerous public meetings regarding Delta bison. It is important that such efforts be continued in order that divergent public interests are represented in management decisions.

Maintain inventory and assessment programs which provide the information necessary to manage the bison population, its habitat, and the various public uses of the herd.

Post-hunting winter sex and age composition counts have been conducted each year to determine the status of the herd and, when combined with data on known winter mortality, have provided the basis for the subsequent year's harvest quota recommendations. Additional assessments of population status may become necessary.

Periodic aerial reconnaissance has been used, particularly in late summer, fall, and winter, to determine bison distribution. This information has been useful in directing hunting activity or harassment efforts to farm areas where crop damage may occur.

Information is limited on soil potentials, vegetative response to habitat manipulation efforts, and forage utilization by bison. Additional information along these lines is necessary if management programs are to provide maximum benefits.

Assessments of human use are important in evaluating the impacts of use on the bison population, in determining the nature and adequacy of current use opportunities, and in recommending improvements to existing use patterns.

II. 5-YEAR OPERATIONAL PLAN

A. Objectives, Actions and FY Workplans

1. Population Assessment Program

a. Objectives

(1) *To annually determine the population composition and dynamics of the Delta bison population, including sex and age structure, productivity and mortality.*

(2) *To seasonally determine the distribution and movements of the Delta bison herd.*

b. Actions

(1) The Department will continue to conduct annual posthunting winter sex and age composition counts of the Delta herd.

(2) The Department will continue to monitor the seasonal distribution and movements of the Delta herd.

(3) Determination of bison mortality will continue. Data on the sex and age of dead bison will be used

to supplement composition count data in evaluations of the herd's population dynamics.

(4) Studies to identify and assess disease and other welfare factors that may influence the herd's health will be continued.

c. FY Workplans

2. Population Management Program

a. Objectives

(1) *To maintain the Delta bison population at a level which can be supported by available habitat.*

(2) *To maintain the herd in a healthy, productive condition.*

(3) *To influence herd movements to minimize conflicts with agricultural interests.*

b. Actions

(1) Considering the habitat now available for bison and the planned improvements of habitat on the Bison Range, a precalving population of approximately 275 bison with a sex and age composition of

approximately 45 bulls, 115 cows and 115 yearlings and 2-year-olds will be maintained by public hunting.

(2) If public hunting is not successful in controlling the herd, transplants, slaughter, or other means of disposal of excess animals will be recommended to the Board of Game.

(3) Efforts to alter bison movements to minimize crop damage will be continued. The methods used include the use of public hunting, noisemakers and other harassment techniques to discourage bison use of unharvested crops, and the use of salt blocks on summer ranges to delay fall movements into farming areas.

(4) The Department will, upon request, provide specifications for fencing to exclude bison from farming areas. Recommended fence specifications will follow those of the National Bison Association.

(5) Methods to reduce highway vehicle collisions with bison will be investigated to determine the most feasible means of minimizing bison mortalities and improving public safety.

c. FY Workplans

3. Habitat Assessment Program

a. Objectives

(1) *To determine specific habitat requirements and patterns of habitat use by Delta bison.*

(2) *To determine the suitability for and feasibility of habitat improvement or cultivation of Delta bison habitat.*

(3) *To assess the extent and intensity of utilization of areas cultivated or improved by habitat management programs.*

b. Actions

(1) Soils within the Delta Junction Bison Range will be evaluated as to suitability for cultivation.

(2) Test plantings of perennial grasses will be initiated to determine suitable alternatives to annual crop cultivation.

(3) Habitat improvement techniques will be tested to develop prescriptions for use of fire, herbicides, fertilizers and mechanical methods to improve bison habitat in the Delta area.

(4) Permanent transects, exclosures and other suitable range analysis methods will be used to determine long-term changes in bison habitat.

(5) Measurements of range utilization of natural and improved bison habitat will be initiated.

c. FY Workplans

4. Habitat Management Program

a. Objectives

(1) *To maintain suitable habitat capable of supporting a minimum precalving population of 275 bison in the free-ranging Delta herd.*

(2) *To develop and maintain sufficient bison winter range to minimize bison dependency on agricultural crops.*

b. Actions

(1) About 500 acres will be cleared and planted annually to provide winter range for bison on the Delta Bison Range. Approximately 2,500 acres should be under cultivation within 5 years. Initial planting

will be done in a series of 15- to 30-acre fields spaced from one-fourth to one-half mile apart and connected by trails along the east-west axis of the Range. This configuration should provide both winter forage and a distraction from farming areas. Plantings of barley have been used but perennial grasses may be used in succeeding years. Planting on the Bison Range may be through cooperative agreements between the Department and individual farmers.

(2) Prescribed burning to enhance grasslands and shrub habitats on the Bison Range will be initiated as soon as possible. These habitat types should benefit bison soon after clearing and the later shrub stages should benefit moose, sharp-tailed grouse, and other wildlife important to local people.

(3) Improvements to summer range will be initiated when management agreements among participating agencies are concluded. Habitat improvement techniques such as fire, mechanical brush removal, herbicide application and fertilization will be used.

(4) The Department will continue to work with the military to develop bison habitat on Fort Greely and to facilitate bison movement toward the Bison Range. The trail south of the Alaska Highway to the Bison Range boundary will be extended to the westernmost developed fields on the Range. This and other trails leading to the Range will be seeded and salted to attract bison to food plots on the Range.

c. FY Workplans

5. Use Assessment Program

a. Objectives

(1) *To annually determine the amount, types, timing, and distribution of human use of the Delta bison herd.*

b. Actions

(1) The Department will continue to annually obtain information on the location, chronology and composition of the harvest, hunter effort, success rates and residency of users. Conditions of hunting permits provide a convenient and effective means

of obtaining information on consumptive use, and this method will be continued.

(2) Assessments of nonconsumptive use of bison in the Delta area will be initiated. The need for development of facilities or aids to nonconsumptive uses will also be investigated.

c. FY Workplans

6. Use Management Program

a. Objectives

(1) *To provide the greatest sustained opportunity to participate in hunting bison.*

(2) *To provide opportunity to view and photograph bison.*

b. Actions

(1) The Department will recommend regulations to the Alaska Board of Game that will continue hunting of Delta bison under a lottery permit system with permit conditions similar to those established in 1979 and 1980. The recommended number of permits

to be issued will continue to be based on annual evaluations of herd status.

(2) The Department will seek military cooperation and participation in the development of a public bison observation site on the east side of the Delta River.

(3) The Department will work closely with the Division of Fish and Wildlife Protection to enforce regulations pertaining to bison.

(4) The Department will continue to recommend to the Alaska Board of Game that wild bison from Delta not be declared surplus for the purpose of granting them to private ownership.

c. FY Workplans

7. Public Information Program

a. Objectives

(1) *To inform the public about the history and requirements of the Delta bison herd, the issues involved in its management and the opportunities available for beneficial public use of the resource.*

(2) *To provide interested members of the public opportunity to participate in decisions affecting management of the Delta bison population.*

b. Actions

(1) A public relations program aimed at informing all segments of the interested public about issues affecting management of the Delta bison herd will be continued.

(2) The Department will continue to provide information on bison to the local Fish and Game Advisory Committee and any other interested organizations or individuals upon request. Public hearings or other appropriate forms of public input will be conducted when conflicts arise over management options.

c. FY Workplans

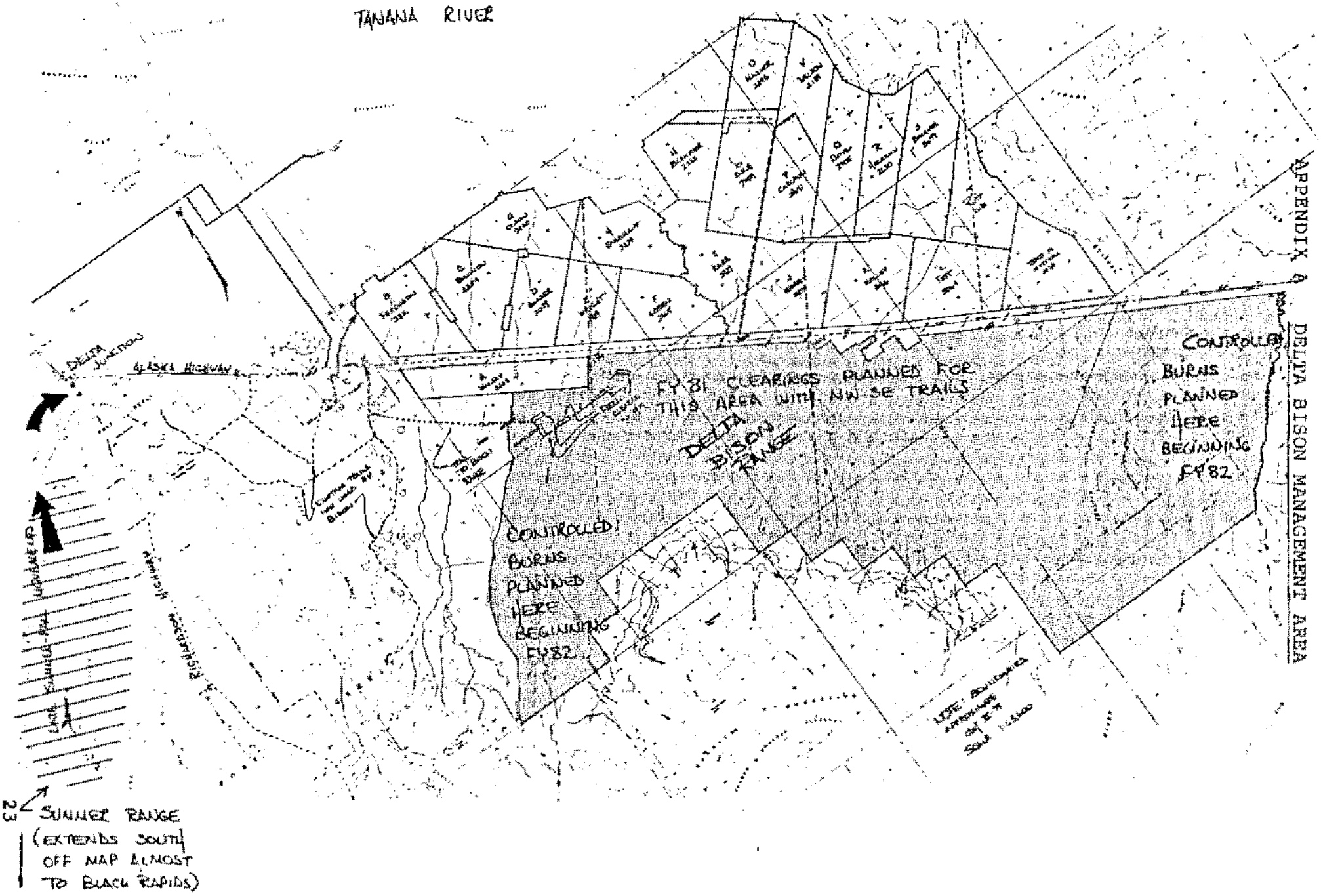
B. Schedule

Actions	Responsibility	Participating Agencies	Begin**	Complete**	FY81	FY82	FY83	FY84	FY85	Comments
Composition Counts	Area Office	ADF&G	0	0	1.0	1.0	1.0	1.0	1.0	
Distribution Surveys	Area Office	ADF&G	0	0	3.5	7.5	7.5	3.5	3.5	FY 82/83 includes expense to radio-collar female bison
Mortality Surveys	Area Office	ADF&G, ADPS	0	0	0	0	0	0	0	
Welfare Factors Assessment	Area Office, Region	ADF&G	0	0	0.5	0.5	0.5	0.5	0.5	Assistance from D&P Section
SUBTOTAL					5.0	9.0	9.0	5.0	5.0	
Permit Hunt	Area Office, Region Statewide	ADF&G	0	0	1.3	1.3	1.3	1.3	1.3	$5.0 required annually for permit hunt, depredation abatement and harvest monitoring. Cost difficult to separate among components and all are here assigned equally (1.3).
Depredation Abatement	Area Office	ADF&G	0	0	1.3	1.3	1.3	1.3	1.3	
Reduce Highway Mortalities	Area Office	ADF&G	0	0	0	0	0	0	0	
SUBTOTAL					2.6	2.6	2.6	2.6	2.6	
Soil Surveys	Area Office	ADF&G, SCS	1980	1983	3.0	3.0	3.0	0	0	

Actions	Responsibility	Participating Agencies	Begin**	Complete**	FY81	FY82	FY83	FY84	FY85	Comments
Test Plantings	Area Office	ADF&G, UofA	1981	1982	1.0	4.0	0	0	0	
Habitat Technique Development	Area Office	ADF&G, UofA	1982	0	0	2.0	2.0	1.0	0.5	
Range Analyses	Area Office	ADF&G, UofA	1982	0	0	1.0	0.5	0.5	0.5	Obtain assistance from Coop. Wildlife Research Unit to set up program
Range Utilization Measurements	Area Office	ADF&G, UofA	1982	0	0	1.0	0.5	0.5	0.5	
SUBTOTAL					4.0	11.0	6.0	2.0	1.5	
Winter Range Planting	Area Office	ADF&G, Coop. Ext., US Army, Private	0	1990	40.0	75.0	75.0	75.0	75.0	Possible participation of farmers on share crop basis.
Prescribed Burning	Area Office	ADF&G, ADNR USBLM, US Army	1982	0	0	2.5	2.5	2.5	2.5	
Summer Range Rehabilitation	Area Office	ADF&G, US Army USBLM	1982	0	0	2.5	2.5	2.5	2.5	
Military Habitat Improvement	Area Office	ADF&G, USBLM US Army	0	0	0	0	0	0	0	
SUBTOTAL					40.0	80.0	80.0	80.0	80.0	

Actions	Responsibility	Participating Agencies	Begin**	Complete**	FY81	FY82	FY83	FY84	FY85	Comments
Monitor Harvest	Area Office	ADF&G	0	0	1.3	1.3	1.3	1.3	1.3	See comments above for permit hunt
Nonconsumptive Use Needs Surveys	Area Office, Statewide	ADF&G	1982	1983	0	1.5	1.5	0	0	Assistance from nongame staff
SUBTOTAL					1.3	2.8	2.8	1.3	1.3	
Bison Observation Site Development	Area Office, Statewide	ADF&G, US Army, ADOTPF	1982	1982	0	2.0	0	0	0	
Enforcement	Area Office	ADF&G, ADPS	0	0	0	0	0	0	0	
SUBTOTAL					0	2.0	0	0	0	
Public Information Dissemination	Area Office, Region Statewide	ADF&G	0	0	1.5	1.5	1.5	1.5	1.5	Assistance from PC Section
Public Meetings	Area Office, Region Statewide	ADF&G	0	0	0	0	0	0	0	
SUBTOTAL					1.5	1.5	1.5	1.5	1.5	
TOTAL					54.4	108.9	101.9	92.4	91.9	

* Cost projections in 1980 dollars do not include salaries.
** "0" indicates ongoing project.



DELTA BISON MANAGEMENT AREA

APPENDIX B. BACKGROUND INFORMATION

General

The bison at Delta originated from a 1928 transplant of 23 animals from Montana to the Big Delta area. The animals thrived, growing to a herd of more than 500 during the 1950's. Subsequently, severe winters and decreased forage supply resulted in a lower bison population and lower range carrying capacity. Agricultural development in the area increased winter forage for bison and significantly improved the general condition of the herd and the over-winter survival of young animals. Since the early 1970's the herd has been maintained below 400 animals through closely regulated public hunting. The herd numbered about 280 animals in the winter of 1979 (Table 1).

During the period 1 April to 31 July the herd congregates on summer range along river terraces and gravel bars in the Delta River Basin where preferred forage such as grasses, legumes and other forbs are used. During August and September the herd migrates downstream to burns and farms near Delta Junction. Currently the herd spends 4 or 5 months on unfenced agricultural lands and is dependent on these areas for winter forage, primarily barley. During the late winter the bison move again, this time to sedge-covered ponds, generally within a 50 mile radius of Delta. As spring approaches, the herd begins a leisurely movement back to the summer range.

Before the advent of agriculture in the Delta area, lack of winter range was a severe problem. Heavy mortality commonly resulted when severe winters reduced available forage. Although forest fires in the 1940's and 1950's created sufficient new winter range to allow the herd to increase for several years, brush and forest gradually replaced grasses, and the capability of the area to support bison declined. Since 1960, agricultural development in the Delta area has provided bison with high-quality winter forage. Grazing on stubble fields after the harvest has caused few conflicts. However, crop damage has occurred when bison have arrived on farms before crops have been harvested. The potential of fencing by farmers to prevent crop depredation or to protect livestock operations makes use of agricultural areas uncertain.

Management of the Delta bison herd is a controversial topic which has attracted considerable public attention in recent years and which has been the subject of several legislative bills in recent sessions of the Alaska legislature. The strong public interest in the herd is generated by several concerns:

(1) Public interest in hunting bison at Delta has traditionally been strong. More than 3,000 Alaskans apply annually for approximately 50 hunting permits. Many hunters want to continue having the opportunity to hunt bison at Delta.

(2) Expansion of agricultural development near Delta has the potential for increasing conflicts with free-ranging bison. Agricultural interests have and will compete with bison for use of arable soils in the Delta area.

(3) Recently, interest has grown in domesticating and commercially raising bison. These uses would compete with traditional uses of the herd and would require management on a basis other than that of maintaining a free-ranging herd.

Management Programs

Depredation Relief

Various short-term actions have been taken to alleviate crop depredation by bison. Hunting pressure has been used in the farming areas to move bison out of these areas; seasons have been adjusted and hunting effort directed at problem areas. With varying degrees of success, herding bison on horseback has been attempted, and in 1979 carbide and propane cannon noisemakers were used to frighten bison out of fields until crops could be harvested. Salt in the form of 50 lb trace element blocks has been used along the Delta River to encourage bison to remain on summer range longer to delay the annual fall bison movements into the Clearwater farming area. Up to 1500 lbs of salt have been used annually. In addition, limited fertilization experiments were conducted

along the Delta River in 1974 and 1975 to improve forage quality and quantity as a means of delaying fall bison movements. Results of those studies were encouraging but the expense of large-scale application of fertilizer has precluded implementation of the technique.

A few of the farmers have fenced their property. Because fences would eliminate the herd's access to winter food, the Department has encouraged large farms to not fence their lands or else to open gates after crops are harvested, until such time as alternative winter habitat can be developed.

Habitat Improvement

Growing public recognition and concern for the fact that increased agricultural development would increase the conflicts between free-ranging bison and agricultural enterprises as well as adversely affect other species of wildlife important to local residents led to establishment of the 70,000 acre Delta Bison Range by the Alaska Legislature in 1979. The Range as established conformed to the recommendations of the Delta Land Management Planning Study (DLMPS), a study initiated in 1974 to plan for state land management in a 2,338,000 acre area in the Delta Junction area. This study was coordinated by the Alaska Division of Lands and involved 20 additional public and private agencies responsible for managing resources important to the Delta region.

Although the primary purpose for the Delta Bison Range is to provide fall and winter food sources sufficient to support the Delta bison population, the DLMPS emphasized the importance of the Range as mitigation for the loss of game habitat and public recreation resulting from agricultural development.

Establishment of the Delta Bison Range and planned habitat management programs on the Range (see Habitat Management Program) have as one important purpose the alleviation of conflicts between bison and agricultural interests. Development of cultivated food plots on the Range and construction of trails to lead bison to such areas and away from farmlands are the principal long-term solutions to existing conflict situations. Construction of a trail and accompanying food plots on the Ft. Greely military reservation was initiated in 1980 to entice bison to areas on the Bison Range slated for forage development.

Preliminary soil surveys by the Soil Conservation Service indicate adquate agricultural soils are available to support cultivated crops on portions of the Bison Range. In addition, water is available for bison on both ends and in the middle of the Bison Range. At no point throughout the range will bison be more than 5 miles distant from free water, which is well within the limits of daily movement patterns for bison in Alaska and elsewhere.

In 1979, five 14-acre fields on the Bison Range were cleared and planted to Weal barley and connected by trails. The fields begin on the western end of the Bison Range and continue east. (Fig. 1). In 1980, construction of an access trail was started to lead bison from summer range across the Ft. Greely military reservation to the developed fields on the Bison Range. Construction of the trail was pursuant to provisions of the Ft. Greely Bison Management Plan, to which the Department of Fish and Game is signatory as one of several cooperating agencies. The trail and the associated food plots, trail plantings, fertilization, and salt baiting are essential supplements to the Bison Range developments, in that without the interconnecting trail routes it is unlikely that bison could be diverted from their present movement patterns and habituated to newly developed Bison Range forage areas.

Although provision of winter range on Bison Range lands will be a major factor in alleviating conflicts between bison and agricultural interests, improvement of bison summer range would be important to efforts to delay bison movements toward agricultural areas until after crops are harvested.

The present summer bison range totals 15,000 acres. A properly planned and controlled fire could double this acreage. Most of the land conducive to a controlled burn is under Bureau of Land Management control. Lands that could

be sprayed and fertilized are under control of the military. Lands totaling 15,000 acres to be considered for summer range development lie within the Delta River flood plain west of the river in T 13S, T 14S and T15S R 9 E. Approximately 8,000 acres are within the Ft. Greely reservation and 7,000 acres are under the management of the Bureau of Land Management. Cooperative management agreements for summer range enhancement need to be established with these agencies and range improvement work should be initiated as soon as practicable.

Hunting

Public hunting has been used successfully to stabilize the Delta herd at a level supportable by the range.

Limited hunting for Delta bison began in 1951 and has been permitted in most years since 1961. Since 1975 the annual number of permits issued has varied between 25 and 70, depending on herd status.

Hunters have been selected at random from among permit applicants through the use of a computerized selection program. Between 3,000 and 4,000 applications have been received for each annual quota of hunting permits, reflecting the strong public interest in hunting bison. Most hunters have come from the Fairbanks and Anchorage areas.

Very few nonresidents have hunted the herd, and virtually no professional guiding activities have been involved in the hunts. A $5 permit application fee was instituted in 1977, providing a small but important source of revenue. In 1979 applications for the Delta bison hunt brought nearly $20,000 to the Fish and Game Fund. Most of these funds were used in administration of permit hunts, drawings and related activities.

Bulls and cows have been hunted, as specified by permit, to maintain the desired herd sex and age structure. Harvests have ranged from 25 to 75 bison, including crippling loss. Hunter success has been close to 100 percent. Since 1975, 132 bulls and 115 cows have been taken by hunters (Table 2).

The number of permits issued each season has been determined from population composition counts conducted during the preceding winter, with allowance made for known non-hunting mortality. Such mortality has ranged from 7 to 16 animals annually since 1975. Harvests in recent years have been directed toward the 2 to 3-year-olds among males and toward all female age classes in order to establish a bull age structure which assures adequate breeding of cows and still provides some adult bulls for hunters.

Hunting season timing has varied somewhat between years but generally has covered the period from mid-September to mid-November. Hunting effort has been distributed through

the season by assignment of hunters to specific two-week hunting periods. Hunters have been required to check into and out of the hunting area in person.

Hunters also have been required to obtain permission from land owners to hunt on private land. Farmers generally have been cooperative in allowing hunters access to their land, as hunting is important in discouraging bison from using farm fields.

Prior to 1975 hunters were accompanied by Department personnel to assure the harvest of animals of specific sex and age, to reduce crippling loss, and to facilitate hunter access to private lands. Hunting by unaccompanied hunters on a trial basis was successful in 1975, and by 1979 hunts by accompanied hunters were discontinued. A short hunter orientation course reviewing identification of bison sex and age classes, habits, bullet placement, hunter safety and land owner relations has been used to maintain a safe and successful hunting program. Crippling loss has been minimized by the requirement that hunters use a rifle which will propel a 200-grain bullet with a minimum of 2,000-lb. energy at 100 yards.

Other Uses

Delta bison have long been an attraction for visitors to the Delta area. They are relatively easy to view and photograph

in the late fall and winter when they are accessible near roads or in farm fields. During the summer the animals are more difficult to observe because of the inaccessibility of their summer range. They can, however, be seen with the aid of binoculars from a vantage point on the Richardson Highway near its junction with the Coal Mine Road where the Department of Fish and Game maintains a bison information sign. At that point the bison are about 5 miles away, across the Delta River. Improved opportunities to observe bison on their summer range could be provided with the development of an observation site on the bluffs above the east bank of the Delta River. Development of this site would need to be carefully planned and coordinated with the military and other participants in the Ft. Greely Bison Management Plan.

Bison have been commercially raised in several areas in other states, and there has been interest among some Alaskans in obtaining bison for this purpose. Bison is one of two species of big game animals (the other being muskoxen) for which specific legislative authorization exists for the Board to grant private ownership of animals (AS 16.40.010-030). Bison were given to a number of land owners in Interior Alaska in 1962; however, no viable commercial enterprises resulted. Interest has increased lately, with requests being reviewed in 1978-79 from about 10 individuals for varying numbers of bison for private ownership. In addition, members of the House Special Committee on Agriculture have publicly suggested that some bison from Delta be given to

private ownership, both to alleviate the agricultural damage problem around Delta and to encourage a new form of Alaskan agriculture.

Because domesticated bison are readily available outside of Alaska and the public support for maintaining this public resource in a wild, free-ranging state has been overwhelming, requests for bison for private ownership have not been granted by the Board of Game.

The Delta Bison herd has also served as the source of animals for transplanting to other areas of Alaska. Transplants from Delta resulted in populations established near Farewell and along the Copper and Chitina Rivers. Preliminary reconnaissance surveys in the 1960's indicated that suitable sites for additional transplants were limited in number and in their capability to support large numbers of bison. No transplants have been conducted since the Farewell herd was established in 1965-68.

Public Information Program

The Department has advocated involvement in management of Delta bison by an informed public on both local and statewide levels. A draft management plan for the herd emphasizing bison range development was presented to and reviewed by the public, and public concerns have been incorporated in revisions to management recommendations. In addition the

Department was an active participant in the 4-year Delta Land Management Planning Study in cooperation with the Alaska Division of Lands, other agencies and the public. More recently, the Department conducted a series of public meetings in 1979 to determine public sentiment regarding transfers of wild bison to private ownership and management of the Delta herd on an other than free-ranging basis.

Information on Delta bison is available in a brochure entitled The American Bison in Alaska, prepared by the Department in 1980 for general public information. Additional information is available in the proposed Alaska Wildlife Management Plans, published in 1977, and in the Department publication Alaska's Wildlife and Habitat published in 1973.

Assessment Programs

Habitat Assessment

Limited habitat assessment work has been done on Delta bison range. In 1974-75 range utilization measurements were made with exclosure plots on the bison summer range. Results indicated an average utilization of 49 percent of available forage. In addition, potential increases in summer range forage production by the use of fertilizer was measured in 1974 and 1975 using paired plot tests. Forage production on the Delta River bar was increased an average of 195 percent

in 1974, and an average of 234 percent in 1975, in comparison to forage yields on plots not fertilized.

Summer range utilization surveys were conducted in 1976 and 1978 with the use of the Ocular Estimate Method. In those years 50 percent of the available summer range forage was estimated to have been removed by bison.

In preparation for proposed cultivation of winter forage on the Delta Bison Range in 1980, the Department contracted with the Soil Conservation Service for a survey of soils near the western boundary of the Range. Approximately 5 sections of land were surveyed. Surveyed lands were classed in land capability Classes IV and VI, soils generally unsuitable for cultivation.

Population Assessment

Posthunting winter sex and age composition counts have been conducted each year to determine the status of the herd and, when combined with data on known winter mortality, have provided the basis for the subsequent year's harvest quota recommendations. Table 1 summarizes data collected since 1975.

Table 1. Delta Bison Winter Population Composition and Mortality 1975-1979

Year	Bulls	Cows	Yearlings	Calves	Total	Mortality
1975	43	113	56	79	291	9
1976	65	94	70	92	321	9
1977	46	76	80	84	286	16
1978	58	102	57	60	277	7
1979	62	101	52	69	284	11

Periodic aerial reconnaissance has been used, particularly in late summer, fall and winter to determine bison distribution. This information is useful in directing hunting activity or harassment efforts to farm areas where crop damage may occur.

Use Assessment

Conditions of the hunting permits have provided the means to assess consumptive use. Currently information is obtained on the sex and age of animals harvested, hunter success rates, timing and duration of hunts and residency of hunters. The number of applications for permits serves as an indication of demand for hunting the herd. Table 2 summarizes information on the Delta bison hunts compiled since 1975.

Table 2. Delta Bison Permit Hunt Statistics 1975-1979.

Year	No. Applicants	No. Hunters	Harvest* ♂	♀
1975	3662	50	23	12
1976	3694	50	26	25
1977	2121	70	38	47
1978	3555	50	31	20
1979	3930	25	14	11

* Includes crippling loss.

Little effort has been made to assess nonconsumptive use of Delta bison. Local residents and other Alaskans have clearly expressed the high value they place on nonconsumptive use of the herd. There is a need to determine if and to what extent the Department will direct its programs to provide or enhance nonconsumptive uses of the herd.

THE DELTA LAND MANAGEMENT PLANNING STUDY

PART VII: WILDLIFE

CITIZEN COUNCIL OPINION

Several wildlife issues were discussed at the Citizen Council's February meetings. Regarding bison, most Citizen Council members wanted special areas set aside for bison habitat management, and a majority of these people agreed with proposals for three management areas: one south of the Alaska Highway and two along the Delta River. Citizen Council members thought these areas ought to be managed by the Department of Fish and Game, but wanted to hear specific plans.

A majority also approved proposals for habitat manipulation on three old burns: at Jarvis Creek, Ninetyeight Creek and Flat Creek. (Habitat manipulation is intervention in natural processes to favor a particular species. For instance, an old burn starting to grow back in black spruce might be re-burned to encourage new growth of willows, a preferred browse for moose.)

A majority of the Citizen Council also agreed that the Goodpaster Flats, Shaw Creek Flats, and the entire Macomb Plateau (not just the part that lies within the study area) should be managed for wildlife habitat.

PLANNING TEAM RECOMMENDATIONS

BISON. The Delta bison herd is the largest and most viable in Alaska. It is felt that the herd should be maintained as wild and free-ranging, with its numbers being controlled by annual public hunting.

It is recommended that three bison habitat management areas--south of the Alaska Highway, gravel bars and lowlands of the Delta River north of Black Rapids, and the west side of the Delta near Rainbow Lake--be established. (See map.) The Division of Lands should classify these areas immediately to facilitate their management by the Department of Fish and Game.

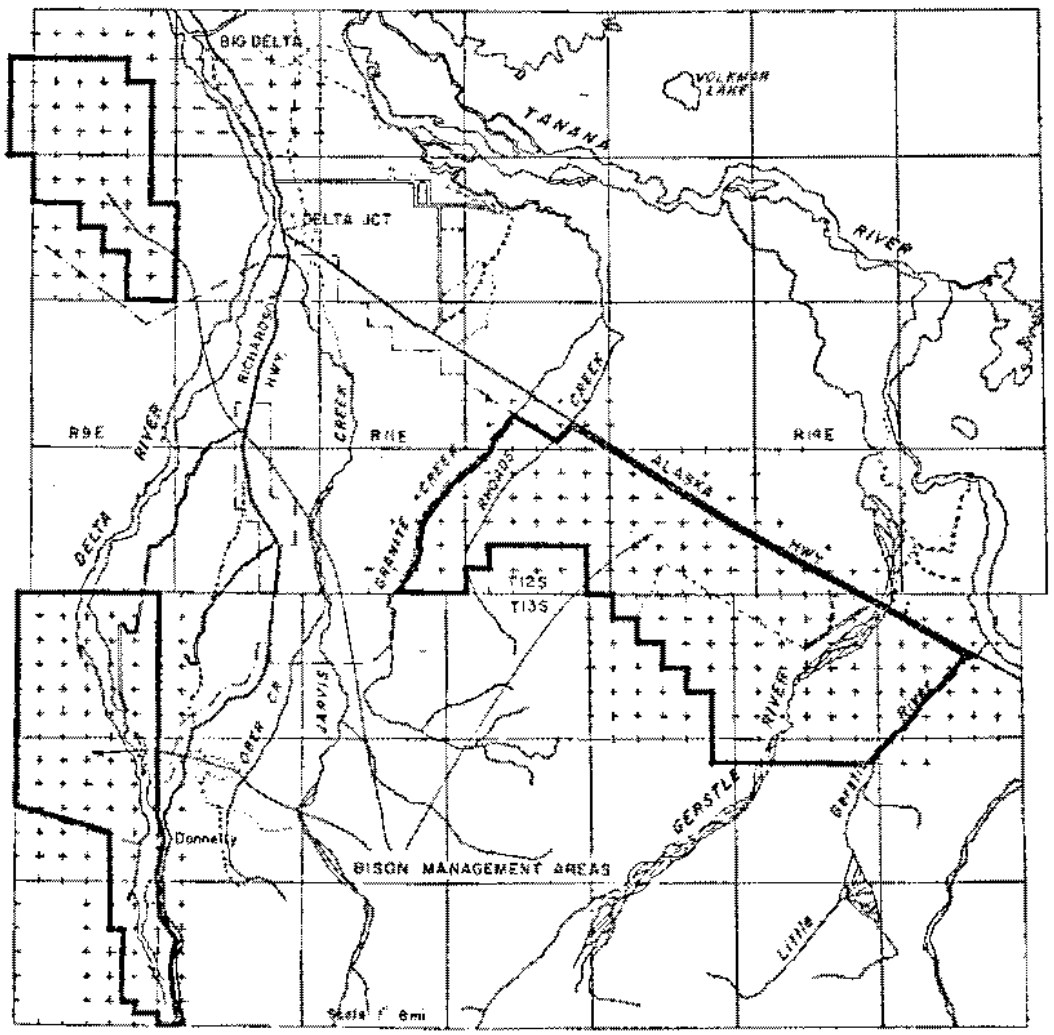
One of the areas--grassy bars and adjacent lowlands on the west bank of the Delta River near Black Rapids--is on Fort Greely military lands. Essentially all bison calving occurs in this area, and it serves as summer habitat for most of the herd. Because it is so important, the Planning Team recommends that the State attempt to acquire the area. If this is not possible, the State should seek a cooperative management agreement with the military. To insure that this bison calving and summering grounds receives adequate protection, it is recommended that the state legislature designate it as critical habitat.

From early September through February, the bison herd is in or near the Clearwater farming district. To assure that the bison continue to have adequate winter range and in an attempt to keep the bison out of fields that have not yet been harvested, it is recommended that the legislature establish a wildlife management area on state lands south of the Alaska Highway to the foothills of the Granite Mountains, from Granite Creek on the west to the Little Gerstle River on the east. This area should be administered for the benefit of all its wildlife, not only bison, and with due consideration given to timber, recreation, and other resources found there. The Department of Fish and Game should develop a management plan for the area and present it to the public before any habitat manipulation is undertaken. (Tentative plans call for a total of 5,000 acres to be planted in grains for wildlife forage; in addition, each year some 2,000

to 5,000 acres--possibly up to 10,000--would be burned. However, the pace and scale of habitat manipulation depend to some extent on the pace and scale of agricultural development in the Clearwater farming area.) It is further recommended that the military be encouraged to return lands it has disturbed within this area to their original condition.

As an aid to habitat management, it is recommended that the existing soil survey along the Alaska Highway be extended south to the limit of the Class II and III soils.

In all three bison areas, hunting, fishing, and trapping should be allowed to continue, along with any other use that does not interfere with the maintenance of the habitat's productivity. Intensive development would not be consistent with the purposes for which these bison areas are recommended.



BURNS. (See maps.) It is recommended that the Jarvis Creek, Ninetyeight Creek, and Flat Creek burns be classified to protect wildlife habitat and to allow the Department of Fish and Game to undertake habitat manipulation. Hunting, fishing, and trapping would be compatible uses of these areas.

Article 6. State Range Areas.

Editor's note. — Section 1, ch. 39, SLA 1979, provides: "It is the purpose of AS 16.20.300—320 to perpetuate free-ranging bison on the land described in this Act by management of the habitat to provide an adequate winter range for the bison. It is also the purpose of AS 16.20.300—320 to alter seasonal movements of bison herds on the land in order to diminish the damage caused by the herds to agriculturally developed land."

Section 3, ch. 39, SLA 1979, provides: "The provisions of section 1, ch. 39, SLA 1979 and AS 16.20.300—320 terminate three years from August 1, 1979 unless the legislature provides otherwise by law."

Sec. 16.20.300. Delta Junction Bison Range Area [Terminates August 1, 1982]. The following described areas, excluding valid existing rights, are established as the Delta Junction Bison Range Area:

(1) Township 11 South, Range 12 East, Fairbanks Meridian

Section 28: S 1/2 SW 1/4, SW 1/4 SE 1/4 and that portion of the NW 1/4 SW 1/4 east of the west bank of Granite Creek excluding A.S.L.S. 78-93, Tract A, Unit 1

Sections 29, 32: those lands east of the west bank of Granite Creek

Section 33: all, excluding A.S.L.S. 78-93, Tract A, Unit 1

Section 34: S 1/2 NW 1/4, excluding A.S.L.S. 78-93, Tract A, Unit 1, S 1/2

Section 35: S 1/2, S 1/2 NW 1/4, that portion of the NE 1/4 lying south of the Alaska Highway excluding a corridor extending 1320 feet from the center line of the highway

Section 36: that portion lying south of the Alaska Highway excluding a corridor extending 1320 feet from the centerline of the highway

(2) Township 12 South, Range 11 East, Fairbanks Meridian

Sections 13, 24-26, 35, 36: all

Sections 1, 11, 12, 14, 22, 23, 27, 34: those lands east of the west bank of Granite Creek

(3) Township 12 South, Range 12 East, Fairbanks Meridian

Sections 1-4, 7-25, 30, 36: all

Sections 5, 6: those lands east of the west bank of Granite Creek

(4) Township 12 South, Range 13 East, Fairbanks Meridian

Sections 5, 6, 9: that portion lying south of the Alaska Highway excluding a corridor extending 1320 feet from the centerline of the highway

Section 7: all

Section 8: all, excluding a corridor extending 1320 feet from the centerline of the Alaska Highway

Section 10: that portion of the SW 1/4 lying south of the Alaska Highway excluding a corridor extending 1320 feet from the centerline of the highway

Section 14: S 1/2 S 1/2 SW 1/4

Section 15: S 1/2, NW 1/4, excluding a corridor extending 1320 feet from the centerline of the Alaska Highway

Sections 16-22: all

Section 23: S 1/2, NW 1/4, S 1/2 NE 1/4, S 1/2 N 1/2 NE 1/4

Section 24: SW 1/4, S 1/2 NW 1/4, excluding a corridor extending 1320 feet from the centerline of the Alaska Highway, S 1/2 S 1/2 SE 1/4

Sections 25-36: all

(5) Township 12 South, Range 14 East, Fairbanks Meridian

Sections 19, 28-30, 33-35: that portion lying south of the Alaska Highway excluding a corridor extending 1320 feet from the centerline of the highway

Sections 31, 32: all

(6) Township 13 South, Range 13 East, Fairbanks Meridian

Sections 1-5, 9-15, 23-25, 36: all

(7) Township 13 South, Range 14 East, Fairbanks Meridian

Section 1: that portion lying south of the Alaska Highway excluding a corridor extending 1320 feet from the centerline of the highway

Sections 2-36: all

(8) Township 13 South, Range 15 East, Fairbanks Meridian

Sections 5, 6, 8-10, 15: that portion lying south of the Alaska Highway excluding a corridor extending 1320 feet from the centerline of the highway

Sections 7, 16-20, 30: all

Sections 21, 22, 28, 29, 31, 32: that portion lying west of the east bank of the Little Gerstle River

(9) Township 14 South, Range 14 East, Fairbanks Meridian

Section 1: that portion lying west of the east bank of the Little Gerstle River

Sections 2-6: all

(10) Township 14 South, Range 13 East, Fairbanks Meridian

Section 1: all

(11) Township 14 South, Range 15 East, Fairbanks Meridian

Section 6: that portion lying west of the east bank of the Little Gerstle River. (§ 2 ch 39 SLA 1979)

Sec. 16.20.310. Game management plan [Terminates August 1, 1982]. (a) The commissioner of fish and game 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 AS 44.62.310 and 44.62.312, the commissioner shall implement the game management plan.

(b) The game management plan shall 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 of fish and game 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. (§ 2 ch 39 SLA 1979)

Sec. 16.20.320. Activities on range area [Terminates August 1, 1982]. Nothing in AS 16.20.300 — 16.20.320 shall be construed as prohibiting activities on land described in AS 16.20.300 which 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. (§ 2 ch 39 SLA 1979)

Chapter 73

AN ACT

Relating to the Delta Junction Bison Range area.

---

* Section 1. Section 3, ch. 39, SLA 1979 is amended to read:

* Sec. 3. The provisions of secs. 1 and 2 of this Act terminate 10 [THREE] years after the effective date of this Act unless the legislature provides otherwise by law.

APPENDIX E. FORT GREELY BISON MANAGEMENT PLAN

A BISON MANAGEMENT PLAN FOR FORT GREELY, ALASKA

May 1980

Prepared by:

EDWARD B. KIKER
Natural Resources Specialist
Fort Greely, Alaska

PAUL C. FIELDER
Brigade Fish and Wildlife Biologist
Fort Richardson, Alaska

Reviewed by:

WILLIAM A. QUIRK
Chief, Land Management Office
Fort Richardson, Alaska

CONTENTS

PURPOSE

Those recommendations are made concerning present and future management of the Delta Bison Herd, inasmuch as the herd calves on Fort Greely and spends most of the summer on Fort Greely. Some members of the herd remain on Fort Greely throughout the year. This management plan is necessary because of concerns for herd size, migration routes, calving grounds, feeding grounds, food preferences, and hunting pressure, described in detail in succeeding sections.

These recommendations consistute the official position of the 172d Infantry Brigade (Alaska) as to what management actions should be taken on Army lands to meet specified objectives for the herd and its environment. They also provide for cooperative management by the signatories of the cooperative agreement.

AUTHORITY

The Army has a responsibility as a federal land manager to insure that installation wildlife resources are protected, improved, and maintained at optimum levels. Wildlife management programs will be developed and implemented by cooperating state and federal agencies who are a party to the Cooperative Plan for Management of Fish and Wildlife Resources on Army installations in Alaska, revised February 1979. The Bison Management plan contained herein will be approved and signed and will become a part of the cooperative agreement.

THE DELTA BISON HERD

A. History - The herd originated from 23 Montana bison which where brought to Alaska in 1928 by what is now the U.S. Fish and Wildlife Service. They were released in the vicinity of Big Delta-Delta Junction at the site of a then recent, large wildfire. The area had a very sparse human population with large acreages of acceptable pasturage.

The herd grew and eventually portions of it were transplanted to Farewell and Chitina. During the 1950's, herd size was more than 500, but subsequent fluctuations due to severe winters and forage reductions have reduced the herd to about 300 bison. The population is currently maintained at this level through strict hunting regulations.

B. Herd Biology - Factors affecting the size, health, productivity, and mortality of the herd are basically two: range quality and hunting. As burned areas revegetated, range size was reduced and became a limiting factor on the herd. However, farming in the area provided the bison with a new source of food. The bison now spend much of the fall and winter in grain fields which have increased the carrying capacity of the area. With a good winter food source, the Delta Herd has a high birth rate (70%), low calf mortality (80% survival), and generally good health.

Hunting is the chief mortality cause, with 30-50 lottery-drawn permits issued each year. The number is revised annually to balance the number of calves, yearlings, and adults in the herd and also to allow for estimated poaching, winterkill, predation, and roadkill.

C. Current Land Use Areas By Bison - The Delta Bison Herd calves primarily in the Delta River basin along terraces and gravel bars on or near Fort Greely. The area extends from the vicinity of Texas and Washington Ranges to about two miles south of the southern reservation boundary. On the calving grounds, the groups vary in size from one to over 100 and may be spaced up to several miles. The herd congregates here during the period of 1 April to 31 July. An additional, minor calving area, near Healy Lake, occurs off the reservation and will not be discussed here.

During August to September, most of the herd migrates north and east, usually in groups of five to 30 animals. They move, generally across the Delta River onto Texas Range and then spread out onto a corridor tending north-east. Specific routes include: The Richardson Highway, the Old Richardson Highway, Meadows Road, Thirty-three Mile Loop, the Pipeline Corridor, the Delta River bed, Jarvis Creek and the various firebreaks and unnamed trails on the area. Nearly all of this activity occurs on Fort Greely.

Bison hunting causes the bison to redistribute over a large area, including northeastern Fort Greely (from Canister Lake and Allen Army Airfield to the eastern-most portion of Thirty-three Mile Loop) and adjacent farm lands on both sides of the Alaska Highway.

Winter, November to March, finds most of the bison within the Delta-Clearwater agricultural district, off of Fort Greely. However, some of the herd do frequent the Buffalo Drop Zone, Allen Army Airfield, and the cantonment area. The groups vary from ten to sixty animals.

The migration back to the calving grounds utilizes many of the same trails as in the northeastward movement. The bison tend to migrate closer to the Delta River, between it and the Richardson Highway, creating a somewhat counter-clockwise movement pattern over the year.

CONSIDERATIONS

A. Military - Testing by USACRTC is now primarily conducted during fall and winter months (usually November to March), so conflicts with the bison herd are limited. Occasionally, a few bison wander onto a hot test range, delaying the test until they leave the area. The calving area does partially overlap the Texas Direct Fire Range and the Washington Test Range, however, this has not yet posed a serious problem. Should Texas Range go to year-round testing, both ranges would be partially unusable during the calving season.

Wandering bison frequently appear down-range on ranges during training maneuvers and live-fire exercises. At these times, firing is halted until the animals move on. Occasionally, the exercises are moved to alternate ranges. Such interruptions are not conductiveto satisfactory maneuvers or firing exercises.

Bison periodically interfere with military traffic and airfield operations (described in succeeding sections).

Bison frequently wander onto the main post area of Fort Greely, grazing on lawns, ballfields, gardens, parade fields, and roadsides. They cause congestion of vehicles (often stopped to take photographs) and re-route pedestrians. Their droppings must be individually collected and disposed of each spring by troops.

B. Farming - Although no farming takes place on Fort Greely at the present time, conflicts between bison and grain farmers have indirectly affected the Army through requests and recommendations from the state.

C. Airfield Operations - Whereas Allen Army Airfield is open to civilian aircraft and periodic commercial flights, as well as military aircraft; the problem of bison grazing along runways, taxiways, approaches,

and recently cleared areas among the runways is critical. Unless they are encouraged to leave, bison may remain at the airfield for days. For this reason, airfield personnel are in favor of attracting the bison elsewhere as soon as possible.

D. Traffic - Bison roadkills along the local highways and roads average about seven annually. Most roadkills occur at known crossing sites, however, bison may cross anywhere, as they have many established trails.

E. Tourists - Bison are a major tourist attraction for the Delta/ Fort Greely area, although they are only occasionally seen along the road system in summer. One opportunity to view bison during the tourist season is a small hill on the east side of the Delta River overlooking the calving grounds. Development of this viewing site would have to be carefully. planned and coordinated with all members to the cooperative wildlife agreement.

F. Hunting - Bison hunting generally occurs in mid-October and lasts several weeks. While most of the animals are harvested off Fort Greely lands, several of the early kills occur on the reservation.

ARMY OBJECTIVES

The objectives of the U.S. Army, 172d Infantry Brigade in regard to the Delta Bison Herd include, but are not limited to:

A. Prevention of conflicts between the bison herd and various military missions on Fort Greely.

B. Insure that the bison have adequate habitat especially on the calving grounds for a healthy and productive bison herd.

C. Provide an opportunity to see, photograph, and enjoy bison.

D. Insure that all bison management programs initiated by the Army are harmonious with those of the State and in cooperation and coordination with the State.

SPECIFIC MANAGEMENT GOALS

The specific bison management goals of the U.S. Army, 172d Infantry Brigade for the Delta Bison Herd on Army lands include, but are not limited to:

1. Insure that military training and the military mission in Alaska is not limited or curtailed by bison management techniques.

2. Allow and/or assist the State to use or modify portions of Army lands to achieve state bison management objectives.

3. Minimize bison-vehicle and bison-aircraft conflicts and accidents.

4. Develop areas compatible with viewing, photography, research, and enjoyment of the bison herd.

5. Provide safe hunting conditions when bison harvest occurs within the reservation boundaries.

RECOMMENDATIONS

A. Management Prerequisites - Whereas the Delta Bison Herd migrates among Army, State, and private lands and it is infeasible to prevent this behavior, management must be a cooperative arrangement between the U.S. Army, State, and Federal agencies. Management plans must be coordinated to prevent conflicts between the military missions of Fort Greely and the desires of bison managers.

Whenever management proposals are made for Army lands, they shall be reviewed by relevant agencies prior to finalization and implementation. The cooperative agreement shall be the authority for joint management projects.

B. Plans To Meet Specific Management Goals - This bison management plan presents an overall view of U.S. Army bison management objectives for Fort Greely. Supplements to this plan which meet specific management goals may be developed in the future as needs, funds, and personnel permit. These supplements will deal with specific management goals and will address those goals with very specific objectives and techniques. The development of these supplements will be coordinated with relevant State and Federal agencies.

Supplement A "A MANAGEMENT PLAN TO REROUTE THE MIGRATION PATTERN OF THE DELTA BISON HERD" is attached as the first supplement to this plan. Supplement A addresses several problems discussed under Army Objectives which may be reduced in magnitude by its implementation. Supplement A will meet Specific Management Goal 2 (Allow and/or assist the State to use or modify portions of Army lands to achieve State bison management objectives.)

A MANAGEMENT PLAN TO REROUTE THE MIGRATION PATTERN OF THE DELTA BISON HERD

SUPPLEMENT "A" TO

A BISON MANAGEMENT PLAN FOR FORT GREELY, ALASKA

May 1980

Prepared by:

Paul C. Fielder

PAUL C. FIELDER
Brigade Fish & Wildlife Biologist
Fort Richardson, Alaska

Reviewed by:

William A. Quirk

WILLIAM A. QUIRK
Chief, Brigade Land Management Office
Fort Richardson, Alaska

CONTENTS

Acknowledgements

This management plan has been developed through a coordinated effort of State of Alaska and federal government agencies who have the responsibility for and/or an interest in the management of the Delta Bison Herd. These agencies include: State of Alaska Department of Fish and Game, State of Alaska Governor's Office, U.S. Fish and Wildlife Service, U.S. Soil Conservation Service, U.S. Bureau of Land Management, and the U.S. Army, 172d Infantry Brigade (Alaska).

Purpose of this Plan

This plan is designed to reduce conflicts between bison and military, farming, and public safety interests in the Delta-Clearwater-Fort Greely area. This plan seeks to encourage the bison herd to follow a little used portion of their migration corridor enroute to their winter range. This would slow down that migration and direct that migration through lands where conflicts will be at a minimum.

Background

The Delta Bison Herd originated from 23 bison brought to Alaska from Montana in 1928. Originally, the Territorial Legislature approved an elk transplant for the Delta area to introduce a species to hunt. The bison were substituted for the elk. Several bison were held at the University of Alaska (Fairbanks) and 19 were released near Delta Junction at the site of a then recent, large wildfire. The area had a very sparse human population and large acreages of acceptable pasturage. Three of the bison held at the University of Alaska were released at Delta Junction in 1930.

The herd grew and eventually portions of it were transplanted to Chitina and Farewell. During the 1950's the herd size exceeded 500 animals but severe winters and forage reductions reduced the herd to about 300 animals. The population is currently maintained at this level through selective hunting regulations.

The bison herd calves primarily along the Delta River on Fort Greely. During August and September, most of the herd migrates north along the river to about the area of Texas Range. Here they spread out onto a corridor tending north-east and continue their

migration to the Delta-Clearwater farming area. Some of the bison frequent the Buffalo Drop Zone, Allen Army Airfield, and the Fort Greely cantonment area.

Presently, several conflicts arise while the bison are enroute to their winter range and while there. The Delta-Clearwater farming area lies just north of Fort Greely. Crop damage occurs in the farming area when the bison reach the fields before farmers have harvested their grain. Generally, the farmers do not object to the bison using their fields after the harvest has been completed. If a red-meat industry develops in the Delta area, as proposed, fields would be fenced and their long term use by bison would be in question. Bison frequently wander onto the main post area of Fort Greely to graze. Here they cause congestion of vehicles, destruction of property, rerouting of pedestrians, and a problem because of their droppings. Bison graze along runways, taxiways, and approaches to Allen Army Airfield, causing a safety problem for aircraft. About seven bison roadkills occur each year along the local highways and roads.

Management Objectives

The objectives of this bison management plan are to slightly shift the bison migration pattern and to slow the bison migration. This will move the bison away from the Fort Greely cantonment area and Allen Army Airfield. It will also delay the bison's arrival in the Delta-Clearwater farming area until after the harvest has been completed. By promoting an "optimum migration route" bison road crossings should be reduced in number and easily identified. These crossings may then be posted with signs to warn motorists and/or steps may be taken to reduce vehicle speed at these points. However, the military mission in Alaska including training exercises, cannot be expected to change in relation to this management plan.

Techniques to Meet the Management Objectives

To shift and slow the bison's migration pattern, a cleared trail planted in high quality grasses and supplemented with food plots and salt blocks will be used. The trail will start north of Texas Range along the Delta River. The trail will run east to Jarvis

Creek and then follow the creek to the lakes area between Jarvis Creek and Thirty-three Mile Loop, southeast of the Fort Greely cantonment area. From here a trail will run southeast, directly to Section 12, T.12S, R.11E on the 70,000 acre Alaska State Bison Range where the Alaska Department of Fish and Game is developing a winter range for the bison. No other trails or pathways will be cut from Fort Greely to the bison range and any trails presently existing between the Jarvis Creek area and the bison refuge shall be bulldozed shut at the Jarvis Creek end of the trail in a very thorough manner. The trail from north of the Texas Range to the lakes area will be heavily salted with salt blocks to attract the bison to it and keep them moving along it. Scattered along the trail will be food plots at which the bison should stop and graze, thus slowing them down. In addition to the food plots, selected sedge meadows along the trail will be fertilized to enhance the value of natural vegetation along the trail. The trail itself will also be heavily fertilized and planted in high quality grasses to act as an attractant.

A. The Trail System - Map 1 shows the location of the trail system to be developed. The trail will be approximately one dozer blade width wide (14-16 feet). Vegetation will be cleared from the trail corridor and if possible, piled into a berm along the northern border of the corridor. A berm pile, so located, would encourage bison to stay on the trail rather than leaving it and traveling due north. The trail will be planted with perennial grasses of high nutritional value and hardiness, probably duar hard fescue. The trail will be fertilized and planted according to the recommendations of the U.S. Soil Conservation Service. It is anticipated that the trail will be fairly heavily fertilized the first year and then as needed in following years. Fertilization will increase the nutritional value of the vegetation established on the trail system. Bison tend to select the most nutritional forage available and will be more inclined to follow the trail. Salt blocks will also be placed along the trail at an application rate recommended by the Alaska Department of Fish and Game. Application rates of salt will be heavier at the head of the trail (Texas Range area) to initially draw the bison to the trail and start them moving along it.

B. The Food Plots - As indicated on map 1, food plots will be cultivated at areas along the trail where soils are adequate and where the food plots will benefit the overall management plan. These plots will be planted with barley and fertilized according to recommendations. Size of the plots will vary with soil conditions and the specific purpose of the plots on that section of the trail. The food plots north of the Texas Range should attract the bison migrating north along the Delta River to the beginning of the trail system. Salt and fertilized trails to these food plots from the Delta River will be established along trails presently used by bison. The food plots in the lakes area will be used as a final delaying area on Fort Greely before the bison move to the State Bison Range. Other food plots located along the trail will serve to keep the bison on the trail and also to slow their migration. A total of about 470 acres of food plots (and about 30 acres of trail) will be cleared and cultivated. About 100 acres of food plots, to be initiated the first year, are identified on map 1. The remaining acreages of food plots will be developed as funds, equipment availability, and personnel permit within the first three years. These will be located at areas along the trail and in the final holding area and will be determined later.

C. Enhancement of Natural Vegetation - Several sedge meadows occur along the proposed trail and in the lakes area. These can be easily fertilized to increase their nutritional value for bison. Many of the small lakeshores and meadows just north of Donnelly Dome along the trail should also be fertilized for the enhancement of existing vegetation. These areas will greatly add to the value of the trail system to the bison herd. Map 1 identified approximately 100 acres of natural vegetation along the trail system which should be fertilized during the first year.

D. Salted Trails - In addition to the salt blocks to be added to the main bison trail proposed above, several other existing trails just south of the Fort Greely cantonment area should be salted. These trails run roughly east to west from the Delta River to the lakes area. Also, some bison may start to follow the main bison trail and then leave it to head due north to the farming area.

The entire bison herd is not expected to suddenly shift its migration pattern in one year. However, it is expected that each year more and more bison will use the trail system being established. Hopefully, after several years most of the bison herd will use this slower migration route, which will lead them away from conflicts with man in the Delta Junction-Fort Greely area.

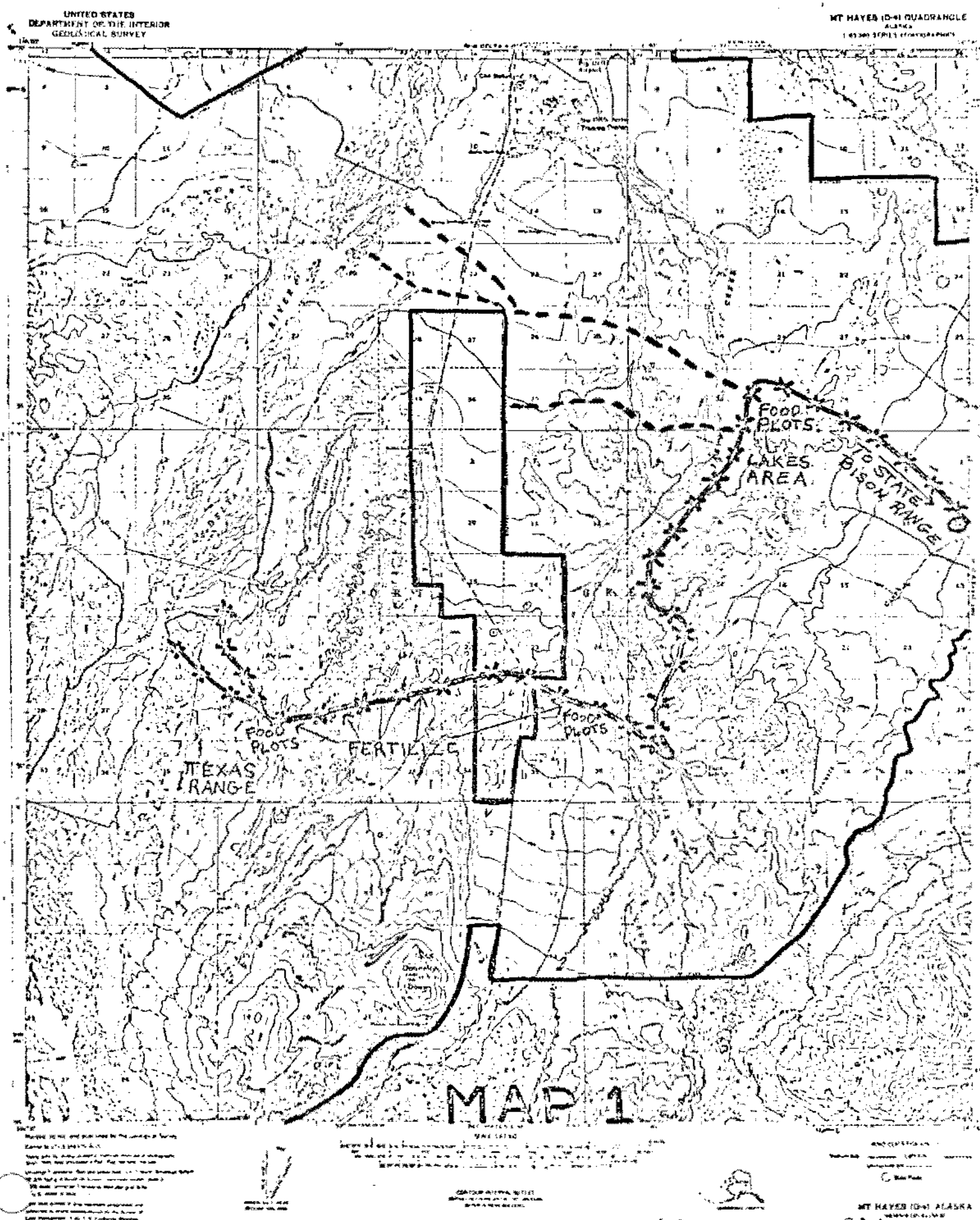
It is necessary to this plan that the State Bison Range east of Fort Greely continue to be developed. While the trail system will slow down the migration and lead the bison away from problem areas they must have an ultimate destination. This will be the State Bison Range. It will act as the last major holding area before the bison move into the farmers grain fields, as planned, after the harvest.

If the land use in the area changes in the future so that these fields are no longer available to the bison, winter range must be available for the herd to persist. This winter range must be a product of the State Bison Range and the bison range should be expanded and developed with this in mind. Due to the proximity of the agricultural area to the State Bison Range, development of that range should be very closely coordinated with agricultural officials.

Funding and Commitments

The Governor's office of the State of Alaska and the Facilities Engineer of the U.S. Army, 172d Infantry Brigade made commitments to fund some of the essential portions of this management plan. The Governor's office shall contribute the seed and fertilizer required for planting the crops. This contribution shall be no more than $30,000. Facilities Engineering will be responsible for the physical work required in clearing, seedbed preparation, and planting. A minimum of 100 acres of food plots will be planted in the spring of 1980.

Additional funding will be required for the salt needed for the trail system and salt trails. Also, after the initial 500 acres of trail and food plots have been planted, additional funds will be needed for fertilization, cultivation, and seeding in the following years. The sources of these funds must be determined by the cooperators of this management plan.


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
MT HAYES (D-4) QUADRANGLE
ALASKA
FOOD PLOTS
LAKES AREA
TO STATE BISON RANGE
FOOD PLOTS
FERTILIZE
FOOD PLOTS
TEXAS RANGE
MAP 1
MT HAYES (D-4) ALASKA
MAIN BISON TRAIL
SALT TRAILS
FORT GREELY BOUNDARY

Approval of the Bison Management Plan and Supplement "A" for Fort Greely, Alaska will become effective upon the date subscribed by the last signatory below. This plan when signed by all parties will become a part of the Cooperative Plan for Management of Fish and Wildlife Resources on Army Installations in Alaska, revised February 1979.

W. I. "BOB" PALMER
Special Projects Coordinator
Office of the Governor
Juneau, Alaska 99801
Date _____

RONALD O. SKOOG
Commissioner
Alaska Department of Fish and Game
Juneau, Alaska 99801
Date _____

WEYMETH E. LONG
State Conservationist
U.S. Soil Conservation Service
Anchorage, Alaska 99504
Date _____

KEITH M. SCHREINER
Area Director
U.S. Fish and Wildlife Service
Anchorage, Alaska 99503
Date _____

CURTIS V. MCVEE
State Director
Bureau of Land Management
Anchorage, Alaska 99513
Date _____

MAJOR GENERAL T. G. JENES, JR.
Commander
172d Infantry Brigade (Alaska)
Fort Richardson, Alaska 99505
Date _____

HAMMOND
GOVERNOR

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

April 9, 1980

Colonel Louis J. Bonito
Facilities Engineer
172nd Infantry Brigade
United States Army
Fort Richardson, Alaska 99505

Dear Colonel Bonito:

In response to your communication of February 20, we would agree with the proposed buffalo management plan with one major clarification. Apparently, the most feasible tract for planting a sizeable acreage is adjacent to Jarvis Creek and includes most of the east half of Section 5, T.12S., R.11E. Section 12 of the same township and Section 7, T.12S., R.12E. within the buffalo refuge will be utilized by the Alaska Department of Fish and Game for food plots. Therefore, we would like to specify in the management plan that "a trail will run from the feeding area of Section 5, T.12S., R.11E., directly to Section 12, T.12S., R.11E.; that no other trail or pathway be cut from the military reservation to the buffalo refuge; and that any trail presently existing between the Jarvis Creek area and the bison refuge shall be bulldozed shut, at the Jarvis Creek end of the trail, in a very thorough manner."

The above language in quotes would replace the first sentence at the top of page 3 of the management plan.

Also, in item 5, page 5, delete the words "toward the State Bison Range, as far as the Ft. Greely border." and replace with "to Section 12, T.12S., R.11E."

With these changes, we can support the plan as proposed.

W. I. "TED" PALMER
Special Projects Coordinator
Office of the Governor

Date: 4/14/80

RONALD O. SKOG
Commissioner
Department of Fish and Game

Date: 9 APR 80