

History and Management of the Farewell Bison Herd, Alaska

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Abstract

The Farewell bison herd was established in 1965 when 18 plains bison were translocated from a source herd at Delta Junction. The herd increased at an annual rate of about 10% and currently numbers 300-330. Limited harvests began in 1972. The herd is managed for a sustained yield while maintaining high quality hunting conditions. Bison inhabit a diverse range including mixed spruce-hardwood forest, burns, and riparian and mountainous habitat. The herd has become a valuable resource and now plays an important part in the economy of local communities.

Introduction

Eighteen plains bison (*Bison bison bison*) were introduced in western Alaska at Farewell Station, located at the northern edge of the Alaska Range in the South Fork Kuskokwim River drainage (62°30'N, 153°50'W) in 1965. The herd was supplemented with twenty additional bison in 1968. The original stock was obtained from a free-ranging herd at Delta Junction, Alaska, which was established in 1928 with plains bison transported from Montana. The Farewell Herd is managed by the Alaska Department of Fish and Game (ADF&G) with the goal of providing a sustained yield while maintaining uncrowded and aesthetic hunting conditions. The herd presently includes over 300 bison.

Methods

Aerial surveys are conducted annually to determine herd size and composition. All surveys have been conducted with fixed-wing aircraft (PA-18 Supercub), except during 1995 when a Robinson R-22 helicopter was used. Helicopter surveys allow more detailed enumeration of various sex and age categories than is possible using fixed-wing aircraft. Early summer flights are conducted to determine calf percentages and whether significant winter mortality has occurred. Additional surveys occur immediately prior to the autumn and spring hunting periods to determine bison distribution and habitat use. A preliminary investigation of range conditions and available habitat was conducted in summer 1995. Efforts to enhance habitat through the use of prescription fire are currently underway.

Population Biology

Between 1968 and 1988, the Farewell herd increased at an average rate of about 10 % annually. Although no complete population surveys have been accomplished since 1988, it appears that human harvest and other natural (predator) mortality have combined to slow annual population growth. The population numbered approximately 75 bison in 1971 and is currently estimated at 300-330 animals, with calves comprising 17-24% (\bar{x} =20.8%) of the herd each year.

Bison initially established a migratory pattern in which they wintered on glacial moraines north of Farewell Lake and summered along the floodplain of the glacially fed south fork of the Kuskokwim River. The herd winters primarily in the 540 square mile 1977 Bear Creek burn. Summer range for bison is presently limited to part of the Bear Creek burn, as well as river floodplains within the Alaska Range. Winter food habits were studied between 1978 and 1982 based on microhistological analysis of plant fragments in feces (Campbell and Hinkes 1983). Summer and fall food habits were studied in 1981 using similar techniques (Waggoner and Hinkes, 1986). These studies indicated that sedges (*Carex* spp.) and fescue (*Festuca* spp.) comprised more than 90% of the late winter diet of bison in the Farewell burn. Bison foraged extensively on willow (*Salix* spp.) in riparian habitat during early summer. In late summer and fall their diet included willow, silverberry (*Eleagnus commutata*) and buffaloberry (*Shepherdia canadensis*). Although a refined estimate of the area carrying capacity for bison has not been developed, a range inventory of selected areas indicated forage availability is presently adequate (Berger 1995). Cooperative agreements between the ADF&G, the Alaska Department of Natural Resources, and the US Bureau of Land Management provide for prescription fires to maintain productive bison range.

Regression analyses suggest there has been no significant change in horn size of male or female bison taken by hunters during the past 10 years. However, these analyses indicate a positive slope for both male ($n=112$, slope = 0.381) and female horns ($n=69$, slope = 0.404), suggesting a slight increase in horn size. This trend suggests that forage availability continues to be adequate. The opportunity to select large bison may have increased as a result of the larger bison population in recent years. Most hunters have little or no experience in hunting bison, and skill in selecting larger animals is probably not a factor. The recent increase in guided hunts probably affects the proportion of large bison in the harvest.

There appeared to be little natural mortality in the Farewell Bison Herd prior to 1988. However, since that time, 13 dead bison have been examined. Wolves had killed ten of these, one was wounded and lost and two died from unknown causes. Wolf predation appears to involve a disproportionately high number of yearling bison.

Hunt Management

Limited drawing permit hunts were begun in 1972, and from 1972 to 1996, a total of 381 bison were legally harvested. Hunters are primarily state residents but nonresidents are also represented. Hunts continue to be administered by lottery permit. All applicants are given an equal chance in a computerized drawing permit system. Permit holders are assigned to one of several 10- or 15-day hunt periods in September or March. In order to reduce crowding and provide a high-quality hunting opportunity, no more than 15 hunters are in the field during each period. Hunters are required to complete and return a mail-out questionnaire after their hunt. Questionnaires and personal interviews provide a basis for evaluating various aspects of the Farewell bison management program.

Between 1987 and 1996, there were 17 discrete bison hunting periods, with more than 14,000 applicants for 510 permits that have been issued. The majority of applicants are Alaska residents. Local residents (hunters residing in one of several villages in Game Management Unit 19) have obtained approximately 6% of the permits. Nonresident hunters have received about 3% of the permits issued. Foreign nationals make up less than one percent of the hunters.

Hunter success rates have varied greatly, depending on a variety of factors. Weather (and its effects on transportation and access), alignment of bison seasons with other big game seasons (thus, increases in disturbance), and number of permits allotted all affect the number of bison harvested each year. From 50-80 permits were issued annually from 1990 to 1995, with a bag limit of one bison. Annual harvests ranged from 14 to 36 bison. The number of permits issued was subsequently reduced to 40 to allow the population to increase.

The area is remote, and there is no road access to the bison range. During autumn, most hunters reach the area by aircraft. There are 4 designated airstrips in or near bison habitat, and several additional landing areas suitable for small aircraft flown by experienced pilots. All-terrain vehicles are used by about half of the hunters as a secondary access method in the fall hunting period. There has been a significant change in the means access used during March hunting periods. While aircraft access once predominated, the use of snow machines has increased, and over half the hunters (56%) used them as their primary means of access in spring 1996. Hunters that use aircraft to reach the hunting area in March generally use skis or snowshoes to stalk and retrieve bison.

Approximately 40% of the permit holders take a bison. However, 25% of the people who obtain a permit do not hunt, and the hunter success rate is greater than 50%. The success rate is generally higher in March than in September. Comments provided on the hunter questionnaire during 1987-1996 indicate that the proportion of hunters who were highly satisfied with their bison hunting experience was 77% in fall and 95% in spring.

Economics

The establishment and management of the Farewell bison herd has resulted in a number of economic benefits. Half of the \$10 application fee is allocated to bison management. With over 2,000 applicants each year, these funds support management of the herd. Local guides and outfitters are benefiting from the opportunity to provide services to bison hunters. During a six-year period a guiding business in the village of Nikolai has grown steadily and provides part or full-time employment for 6 to 8 residents. Nikolai is a small community located about 40 miles from the Farewell bison range. A local business provides guiding and logistics services for bison, moose, Dall sheep and bear hunters. Each year up to 10 bison hunters take advantage of this service, primarily during the March open season. Most are Alaska residents. This enterprise has brought substantial benefits to the community, which like many remote villages in Alaska had few economic opportunities. In addition to income derived from fees and gratuities, hunters often provide a substantial portion of the meat from bison and other big game to people in the community. Meat is regularly distributed to senior citizens, and each household that requests it usually receives meat. The community has also experienced a number of other benefits including a heightened sense of self-esteem, educational and job opportunities resulting from contacts with people from other areas, increased sales of local handicrafts, and a focus for cooperation among community members.

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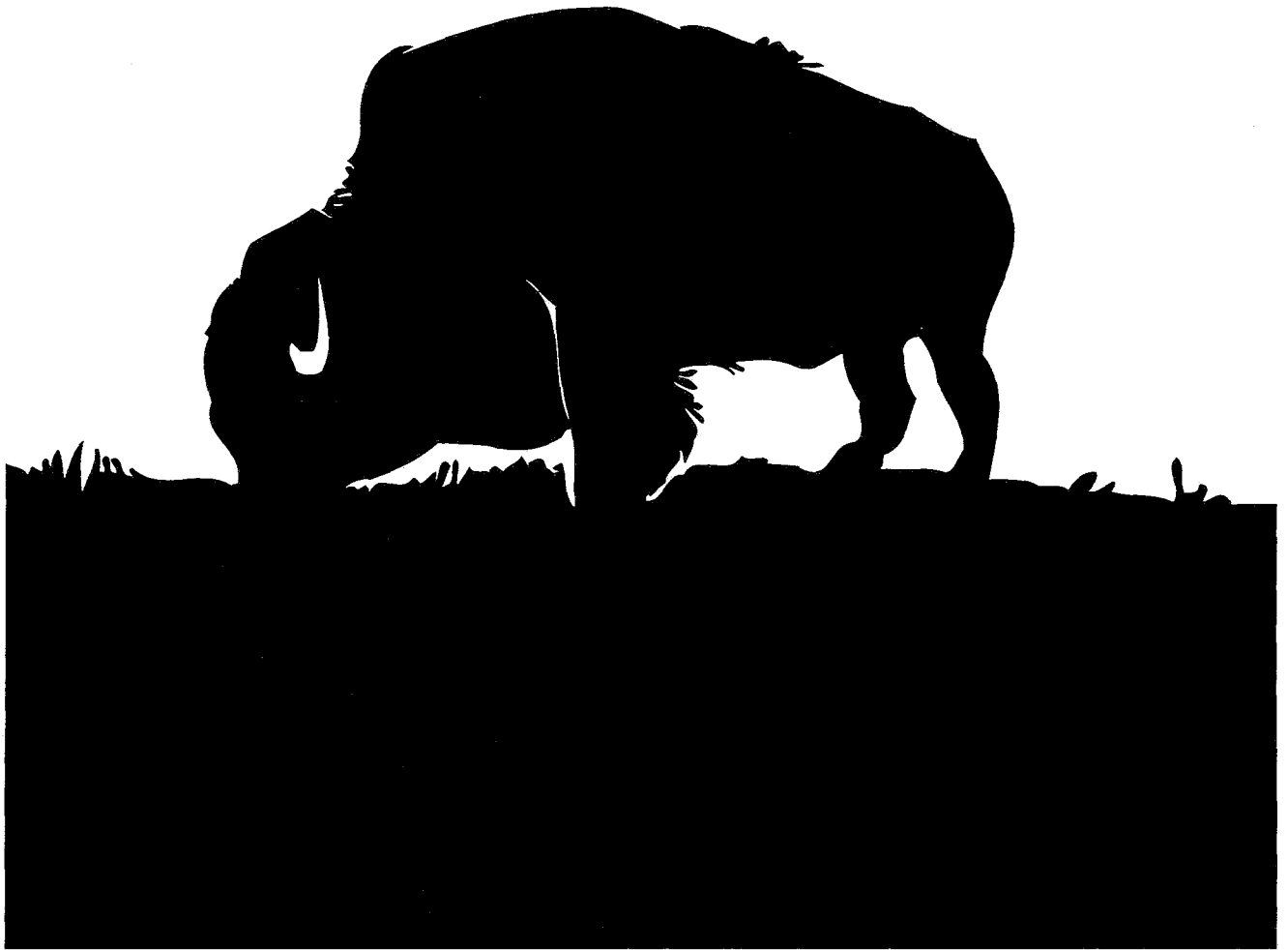
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