

The Military and Bison in Delta Junction

An analysis of the Delta Junction bison herd calving locations during April and May from 1997 - 2006

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Delta High School, March 2008



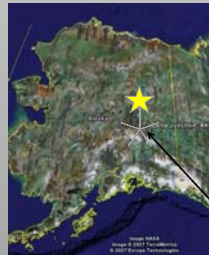
Overview

In 1928, 23 plains bison were transplanted from the National Bison Range in Montana to Delta Junction, Alaska. The bison were released on the Delta River near the mouth of Jarvis Creek. Herd size increased steadily and in 1950 a hunting season on the bison was implemented to stabilize the size of the herd. In 1979 the Alaska Legislature established 90,000 acre Delta Junction Bison Range (DJBR) on the south side of the Alaska Highway across from Delta Agricultural Project. The DJBR had two purposes: one, to provide adequate winter range for the Delta Bison Herd (DBH) and two, to diminish the damage caused by the herd to agriculturally developed land.

Allen Army Air Field was established in 1942 as part of the Lend-Lease Program to Russia during World War II. In 1955 Allen Army Air Field was officially renamed Fort Greely Army Base. It became home of the Northern Warfare Training Center and Cold Regions Test Center. In 2001 Ft. Greely was closed and The Donnelly Training Area was placed under control of Ft. Wainwright. Ft. Greely reopened in 2003 and assigned to the Strategic Missile Defense Command. Donnelly Training Area is no longer affiliated with Ft. Greely and is considered a separate installation. Because of its vast size, over 600,000 acres with 85,000 acres of impact zones, military testing, and large scale live-fire training still occurs on Ft. Greely and it's ranges.



Bison being transported along Original Richardson Highway to Delta



Location of Delta Junction, Alaska



Original herd along Jarvis Creek

Introduction

I met with game biologist Steve Dubois from Delta Junction in September of 2007 to discuss the project. We talked about the history of the Delta bison and issues with them. After discussing possible projects he provided aerial survey data of the Delta Junction bison herd. Most of the data was in a spreadsheet provided by Mr. Dubois. Mr. Dubois was extremely interested in exactly which ranges the bison spent the most time on during the calving season.

Hypothesis

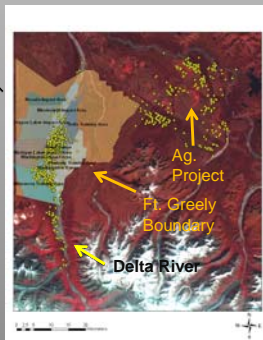
Bison calving occurs primarily on military ranges along the Delta River.

Methods and Materials

Data was acquired from Steve Dubois, but it did not include April and May data from 2005 and 2006. The most current data from 2005 to 2006 needed to be added to the spreadsheet. First all of the coordinates had to be converted from degree decimal minutes to decimal degrees. After it was converted it was entered into a new spreadsheet, then copied and pasted in with the rest of the data. Using ArcGIS a digital topographic map was used as a base map of the study area. The data from the spreadsheet was added as xy data to the base map in ArcGIS.

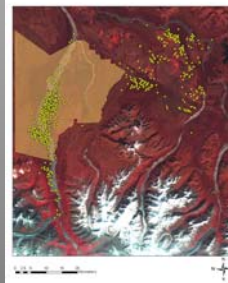
Additional Landsat and ALOS (Advanced Land Observing Satellite) imagery of the study area was acquired then added to the mapping process. A polygon shape layer was added to the project to outline the Ft. Greely boundaries. A map of the military ranges was scanned and georeferenced in ArcGIS. A polygon layer of the ranges was added. Used ArcGIS 'select by location' tool to select bison locations and data in each of the ranges and copied the data into an excel spreadsheet for analysis.

Data was analyzed to determine the location of the bison calving areas in military and nonmilitary lands. April and May data was made a separate layer to see the location of the bison during calving season. The non April and May data was also added to show where the bison are located at times other than calving season. Additionally, layers were made for all the April and May data individually as well as separated by years to look for trends and changes.



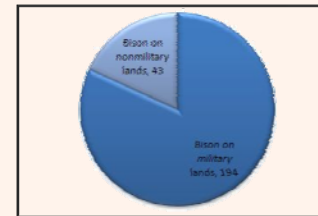
Above; Entire range of Delta Bison herd with outline of areas of importance with labeled landmarks

Below; Location of bison observations during April and May from 1997 to 2006

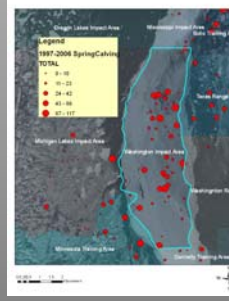
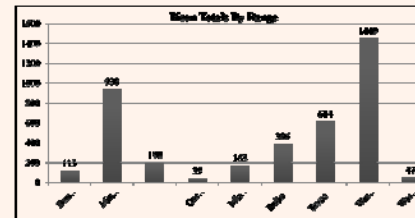


Data

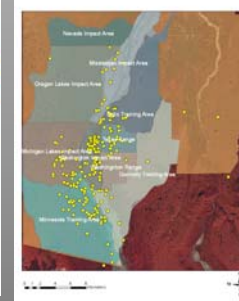
Data analysis showed that 82% of total bison observations were on military lands. Only 18% were on nonmilitary lands. Looking at all the April and May data I concluded that there were no evident trends in bison locations on the ranges. At any given time they could be anywhere along the Delta River between Black Rapids and Jarvis Creek, generally inside military ranges.



I next looked at which ranges specifically they could be found in. I concluded that the vast majority of bison were located within the Washington Impact Area and Minnesota Range.



Individual Group sizes on Washington Impact Area



Bison location on individual ranges

Conclusion

The Delta Junction Bison Herd is relatively small, numbering around 400 animals. This means that a successful calving season is a top priority to maintain the size of the herd. Any disruption to the calving process could have negative consequences for the herd.

The data analysis showed that the vast majority of the bison were located on military ranges along the Delta River during calving season. The majority of the bison on the ranges were grouped into two specific areas, the Washington Impact Area and Minnesota Range. Range Controls policy is to extensively check the ranges that are to be used for specific training exercises. Range Control personnel do extensive ground checks of the ranges prior to the training exercise. During the exercises, if any bison are spotted on the range an immediate cease fire is called and the training exercise is halted.

My hypothesis was correct, the majority of the bison are located on military lands during the calving season. Careful observation of the herd size and location needs to be continued so that the Delta Junction Bison Herd can continue to flourish for years to come. Also the military needs to continue its extensive field checks to insure that no bison are ever harmed or killed during a training exercise.

Literature

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