



## LANDOWNER ATTITUDES TOWARD ELK IN NORTHWEST MINNESOTA

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### SUMMARY OF FINDINGS

Managing the elk (*Cervus elaphus*) population in northwest Minnesota provides a multitude of challenges ranging from whether or not they should be present at all to how both private and public lands should be managed to benefit elk. This divisiveness has led to strong opinions about both elk and their management. Historically, there has been a lack of information about public attitudes toward elk in northwest Minnesota, which further complicates the issue. Long-term viability of the elk population in northwest Minnesota is largely dependent on public support and tolerance by private landowners. In collaboration with the University of Minnesota, we conducted a self-administered mail back questionnaire of landowners in northwest Minnesota to determine their attitudes and preferences for future elk management. We surveyed 3,000 private landowners in northwest Minnesota within the current elk range and the surrounding area to describe landowner attitudes toward elk and preferences for future elk population management. This report is a summary of activities to date. A more complete analysis and report will be provided in the future.

### INTRODUCTION

Minnesota's natural resources provide many benefits to the state's residents, including outdoor recreational activities such as hunting, fishing, and wildlife viewing. Elk are valued for aesthetic and intrinsic reasons, recreation including hunting and viewing, and for revenues derived from recreation associated with elk (Wisdom and Cook 2000). Prior to the 1900s, elk ranged over most of the state but were functionally extirpated due to overharvest and habitat loss (Hazard 1982). Restoration efforts near Grygla in the early 20<sup>th</sup> century and natural immigration from Manitoba and North Dakota into Kittson County have allowed the northwest elk population to increase to approximately 150 elk; however, this estimate fluctuates due to population movement across the International border (Minnesota DNR [MNDNR] 2016). Elk currently exist in 4 localized herds in 2 areas of northwest Minnesota, but the population is managed at low levels to reduce human-wildlife conflicts (MNDNR 2016). The long-term vision is to increase the population size and range of the elk population in Minnesota (MNDNR 2016).

We examined results from a 2016 survey of private landowners in northwest Minnesota to assess attitudes toward elk, preferences for elk population size, and tolerance of elk in northwest Minnesota. The objective was to determine the attitudes of private landowners toward elk and their preferences for future elk management.

### STUDY AREA

The overall population of interest were private landowners in parts of Beltrami, Kittson, Marshall, Pennington, and Roseau Counties. Our overall study area included, 1) current elk range (within), and 2) potential elk range (outside) (Figure 1).

## **METHODS**

Within our study area we defined 2 strata: 1) within the current elk range, and 2) outside the elk range. We identified the current elk range by using Global Positioning System (GPS) locations from radiocollared elk (Freeman et al. 2017), visual sightings by local MNDNR staff, and previous elk range estimates that were generated from aerial population surveys. We obtained GPS locations for 20 female elk in northwest Minnesota using location data obtained from February to August 2016. The GPS collars were placed on the female elk as part of a parallel research project conducted in northwest Minnesota (Freeman et al. 2017). We created Minimum Convex Polygons (MCP) within ArcGIS 10.4.1 (ESRI 2015) using Geospatial Modeling Environment (GME Version 0.7.4.0; Beyer 2015). We identified 2 main elk ranges in northwest Minnesota by merging MCPs of GPS locations and visual sightings of elk with estimated elk ranges based on past MNDNR surveys.

We delineated the outside elk range strata as land that contained habitat likely suitable for sustaining a future elk population, although elk are not currently present. We used major roads and the Minnesota border with Canada to delineate the area representing potential elk range. As expected, the potential elk range strata was larger than the current elk range (3,661 sq. miles vs 517 sq. miles).

For both strata, we surveyed individuals who owned at least 0.5 acres. We ultimately conducted a census of landowners within elk range (N = 768) and selected a random sample of landowners outside of elk range (n = 2,232) for a total sample size of 3,000. We obtained addresses through publicly available property tax identification lists. We surveyed landowners using a self-administered mail-back questionnaire based on an adapted Tailored Design Method (Dillman, Smyth, and Christian 2009). We contacted recipients 3 times between October 2016 and January 2017 using a full-length questionnaire with a cover letter. We mailed a shortened version of the survey questionnaire to non-respondents in February 2017, which served as a non-response check.

The survey design was a 12-page questionnaire that was divided into the following categories: (1) land ownership, (2) elk interactions, (3) elk population preferences, (4) attitudes toward elk, (5) tolerance of elk, and (6) recreation. We separated data from the 2 study groups due to differences in past interactions with elk. We did not include questionnaires returned after April 2017 in our analyses.

## **RESULTS**

Between October 2016 and April 2017, 134 surveys were returned due to incorrect addresses or deceased individuals; we received a total of 1,178 completed questionnaires for an adjusted response rate is 41%. Of the 1,178 completed surveys, 390 responses were completed by recipients within elk range (53% response rate) and 788 responses by recipients outside elk range (37%). A non-response check indicated that respondents were slightly older (Mean = 60 years old) on average than non-respondents (Mean = 58 years old) and more likely to be male (87%) than non-respondents (75%).

### **Attitudes Toward Elk**

Overall, a majority of landowners in northwest Minnesota had positive attitudes toward elk (66%; Figure 2). Landowners outside of the current elk range had slightly more favorable attitudes toward elk than landowners within elk range (67% vs. 64%). Landowners outside of elk range (72%) were slightly more supportive of having a wild, free-roaming elk population in northwest Minnesota than landowners within elk range (69%). Both groups were equally supportive of having wild, free-roaming elk living within 5 miles of their property (65% and 65%, respectively) or on their property (56% and 57%, respectively).

## **Population Size**

A majority of landowners (58%) believed that the elk population in northwest Minnesota was too small, 32% believed the population was about right, and 10% believed the population was too large. Less than half of landowners within elk range (46%) believed the elk population was too small, 31% believed the population was about right, and 24% believed the population was too large. A majority of landowners outside of elk range (58%) preferred increasing the elk herd size in northwest Minnesota over the next 10 years, 31% preferred no change, and 11% preferred decreasing the elk population. Less than half of landowners within elk range (49%) preferred increasing the elk population, 28% preferred no change, and 23% preferred decreasing the elk population.

## **Recreation**

A majority of landowners within elk range (53%) and outside elk range (61%) indicated they would be more likely to make a special trip to view elk in northwest Minnesota if the elk population increased. Many landowners both within (68%) and outside elk range (61%) indicated they would allow people other than family members to view elk on their land. Few landowners indicated they (7% and 6%, respectively) would charge people to view elk on their land.

As expected, a small number of landowners both within and outside elk range have hunted elk in Minnesota (6% and 0%, respectively); more have hunted elk elsewhere in North America (23% and 21%, respectively). Among landowners who have not hunted elk in Minnesota, less than one-third have applied for an elk permit in Minnesota (24% and 10%, respectively) or plan to do so in the future (32% and 28%, respectively). A majority of landowners were supportive of legal, regulated hunting in general (86% and 85%, respectively) and elk hunting specifically (83% and 80%, respectively).

Most landowners within (86%) and outside elk range (79%) indicated that they would likely hunt or allow immediate family members to hunt elk if there were elk on or within 5 miles of their land. A majority of landowners within elk range (55%) and less than half of landowners outside elk range (39%) indicated they would allow individuals other than immediate family members to hunt on their land. Overall, 25% of landowners within and 22% outside elk range indicated they would likely lease their land for elk hunting.

## **Depredation Within Elk Range**

Approximately one-third of landowners within elk range (31%) experienced damage from elk during the last year, with row crops (20%) and small grains (19%) reported most often as being damaged. Less than half of landowners (38%) indicated that they had ever experienced damage from elk. Similarly, row crops (22%) and small grains (24%) were the main types of damage the landowner had ever experienced. Landowners experienced relatively minor damage to non-agricultural land uses; however, fences were most frequently damaged during the last year (14%) or during previous years (19%).

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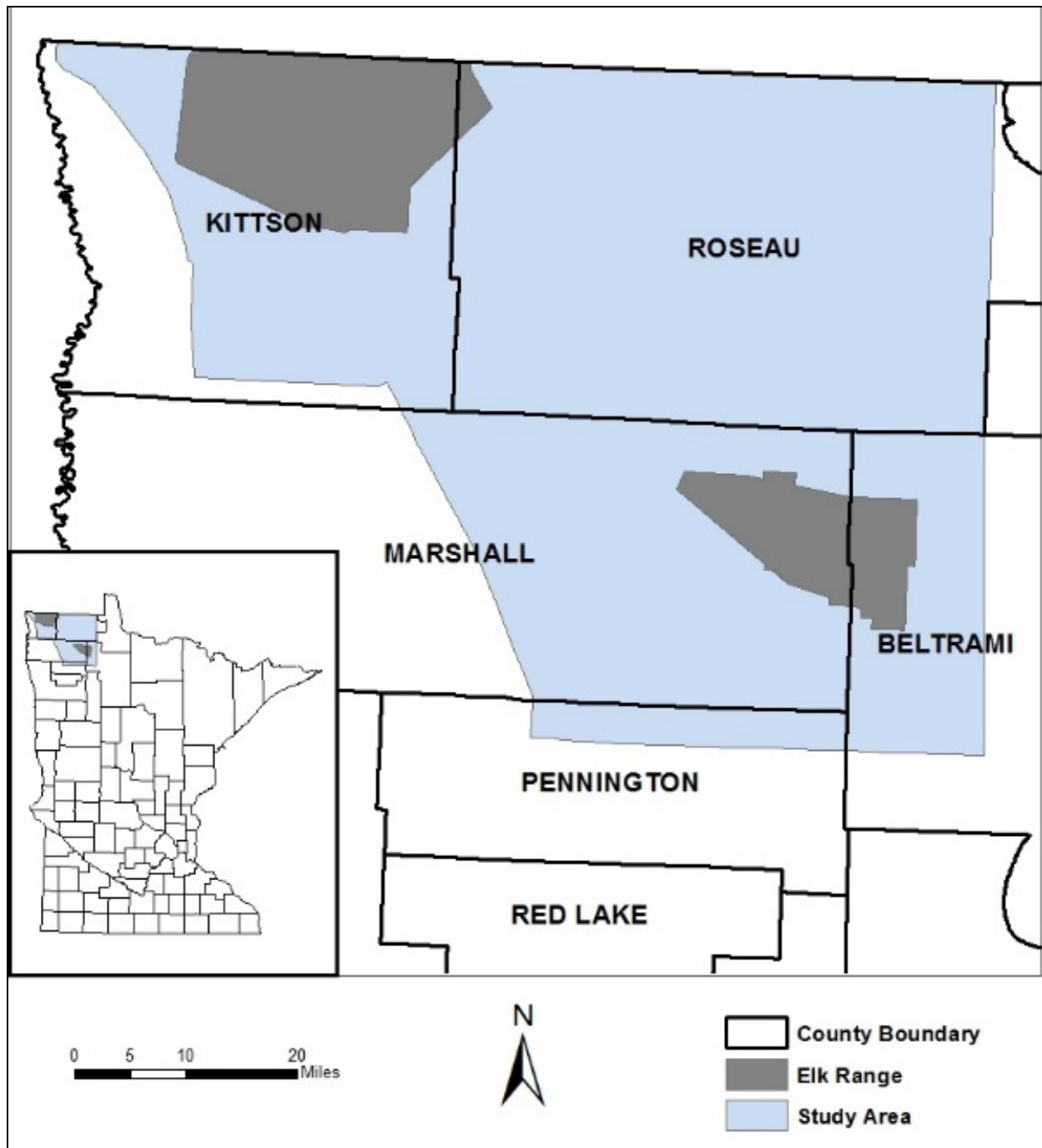


Figure 1. Location of study area in northwest Minnesota. Surveyed landowners to evaluate landowner attitudes toward elk and elk management in northwest Minnesota. Mail survey of 3,000 landowners in northwest Minnesota between October 2016 and April 2017.

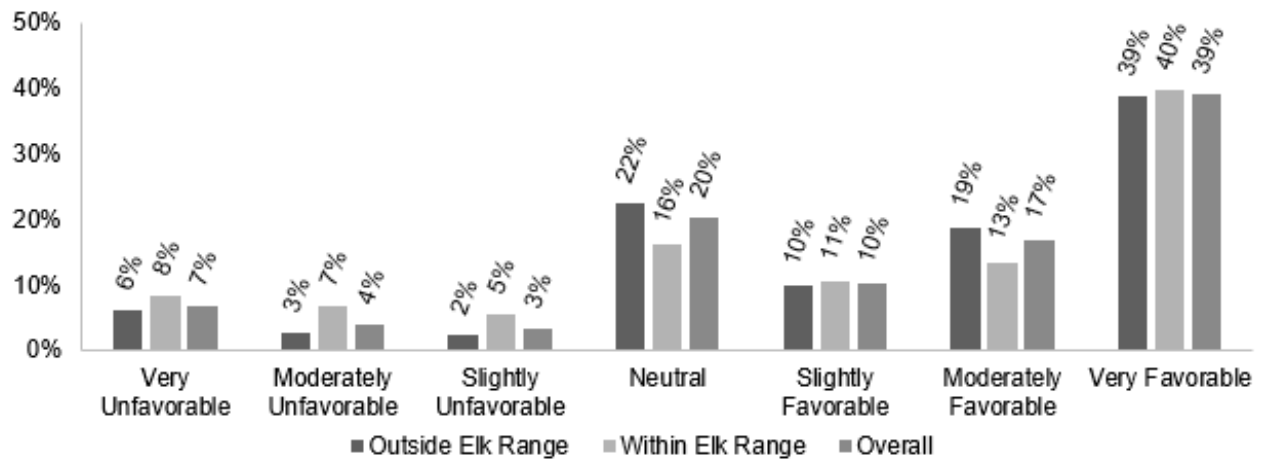


Figure 2. Landowner attitudes toward elk in northwest Minnesota. Mail survey of 3,000 landowners in northwest Minnesota between October 2016 and April 2017.