Observations of Wolf and Deer during the 2015 Moose Survey

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Introduction

Each year, we conduct an aerial survey in northeastern Minnesota in an effort to monitor moose numbers (DelGiudice, 2015). While the objectives of this annual survey are to estimate moose numbers and demographic information, since 2010, wolf and deer observations have been recorded as part of this survey and are summarized in this report. Observations of deer and wolves were recorded in years prior to 2010, but with less consistency, and changes to the methodology of the moose survey in 2004 and 2005 render comparisons with earlier years more difficult.

Methods

Moose survey plots are located across moose range in northeastern Minnesota (Figures 1). Since 2005 all moose survey plots have been rectangular (5 x 2.67 mi.) and oriented east to west with a total of 8 transect lines spaced 1/3 of a mile apart. Survey plots are stratified by expected moose density and are randomly selected. In 2015 a total of 52 moose survey plots totaling 694 mile^2 were flown during 13-29 January.

For the period of this report, the survey has been flown using 2 DNR Bell Jet Ranger (OH-58) helicopters. Transect lines are flown at an average of 250 feet above the ground at 58-63 miles per hour. In the OH-58s, the pilot is seated in the right front. One observer is seated in the left front, and one observer/recorder is seated in the rear directly behind the pilot. The program DNRSurvey, on Toughbook® tablet style computers, was used to record survey data in 2015 and provides real time location information.

Deer are tallied as they are observed incidentally on the survey plots by the pilot or either observer. Although effort is made not to double count deer, no extra effort is made to determine sex or age of deer or to verify if more deer were present than first observed. Locations of deer are not recorded except with reference to the survey plot.

Locations of wolf observations are recorded using DNRSurvey. In addition to wolves, observations of deer and moose carcasses judged to be wolf-kills are also recorded. Observations of wolves and carcasses have been recorded consistently on survey plots since 2010, but with less consistency as they are encountered outside of survey plots. Observations of wolf tracks are not recorded except once per survey plot if encountered during years when the Minnesota DNR is conducting statewide wolf population and range estimates. The last moose survey when wolf tracks were recorded was 2013.

Snow depth were estimated by a combination of aerial observation and local knowledge of snow measurements. Snow depth estimates are recorded at the time the plot is flown.

Deer Observation Results

A total of 254 deer were observed during the 2015 moose survey and 29% (15 total) of survey plots were occupied by 1 or more deer. The locations of 2015 moose survey plots and the number of deer observed on each plot are shown in Figure 1.

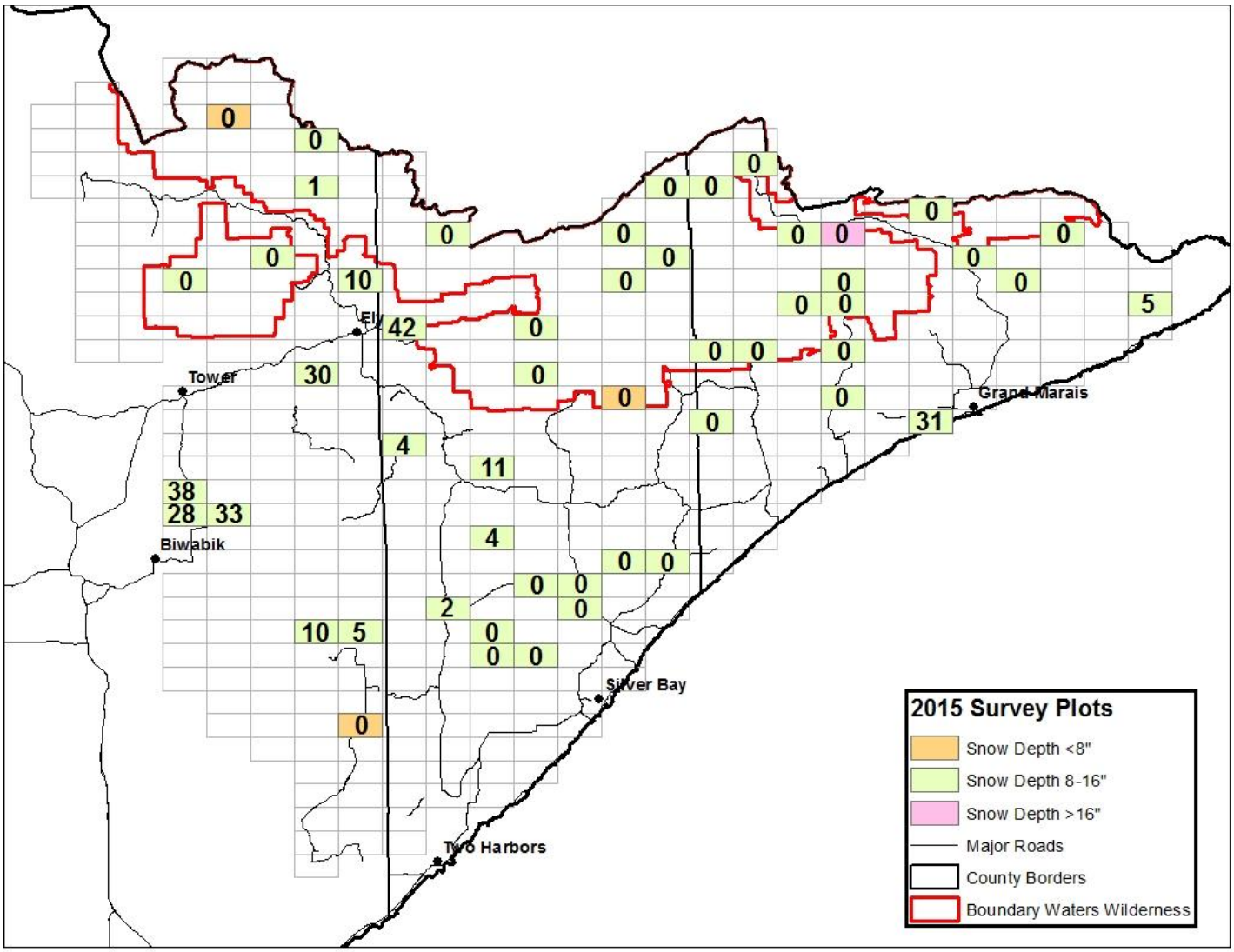

Figure 1. Deer observations on moose survey plots 13–29 January 2015.

Although the percentage of moose survey plots occupied by deer may be somewhat influenced by snow depths at the time of the survey, the percentage of occupied plots declined to 29%, the lowest since this survey began in 2010. On plots occupied by 1 or more deer, deer numbers averaged 17 per plot (range = 1–42), unchanged from the previous 2 years (Figure 2). The number of deer observed during the moose survey was the lowest since these observations began in 2010 (Figure 3). Total deer numbers are partly influenced by the random selection of moose survey plots; however, lower deer numbers in 2015 also were likely a consequence of the harsh winter of 2013-14 when the winter severity index for deer exceeded 180 points across moose range (MNDNR, 2014).

Across all years, a geographic distribution of deer is evident with the majority seen along the western edge of moose range and along the shore of Lake Superior (Schrage, 2014). Smaller numbers of deer are regularly

observed in the Isabella area and near Poplar Lake along the Gunflint Trail. These last two concentrations are believed to be the result of local deer feeding efforts.

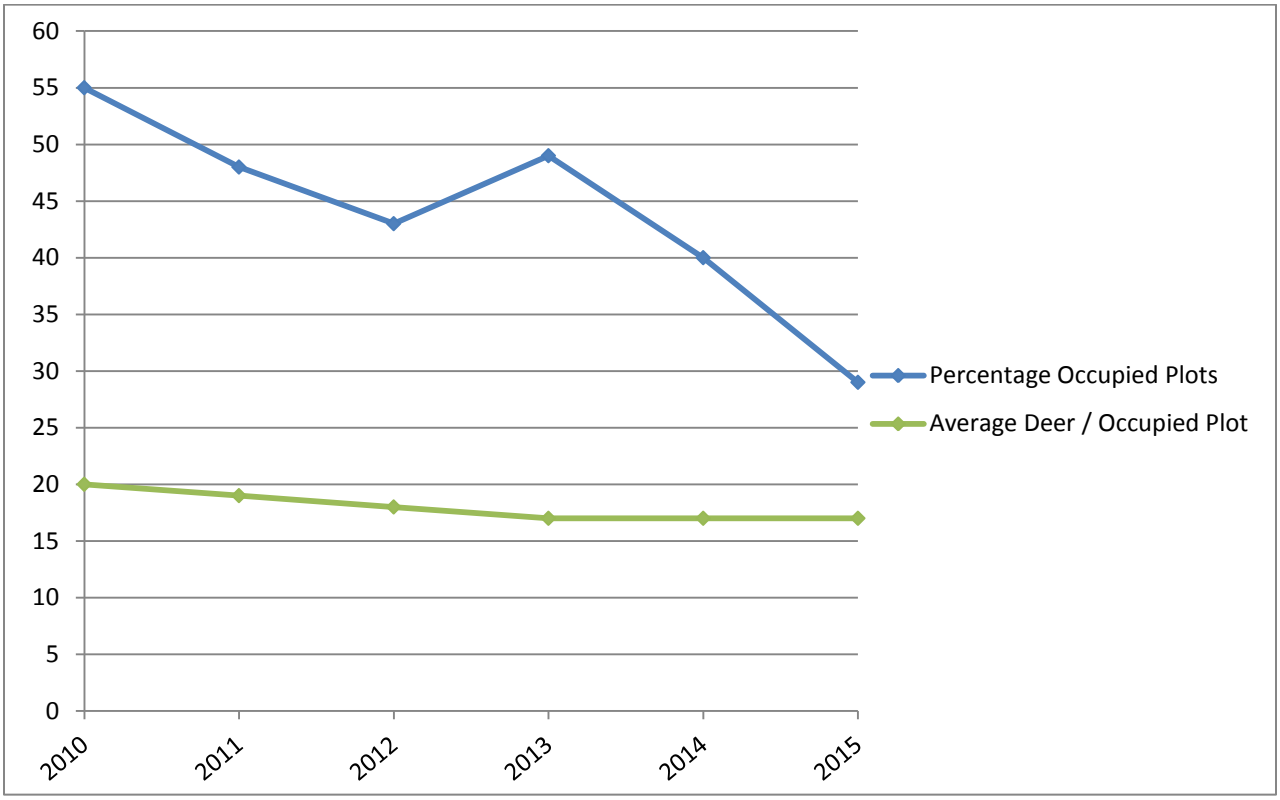

Figure 2. Percent of moose survey plots occupied by deer and average deer numbers per occupied plot.

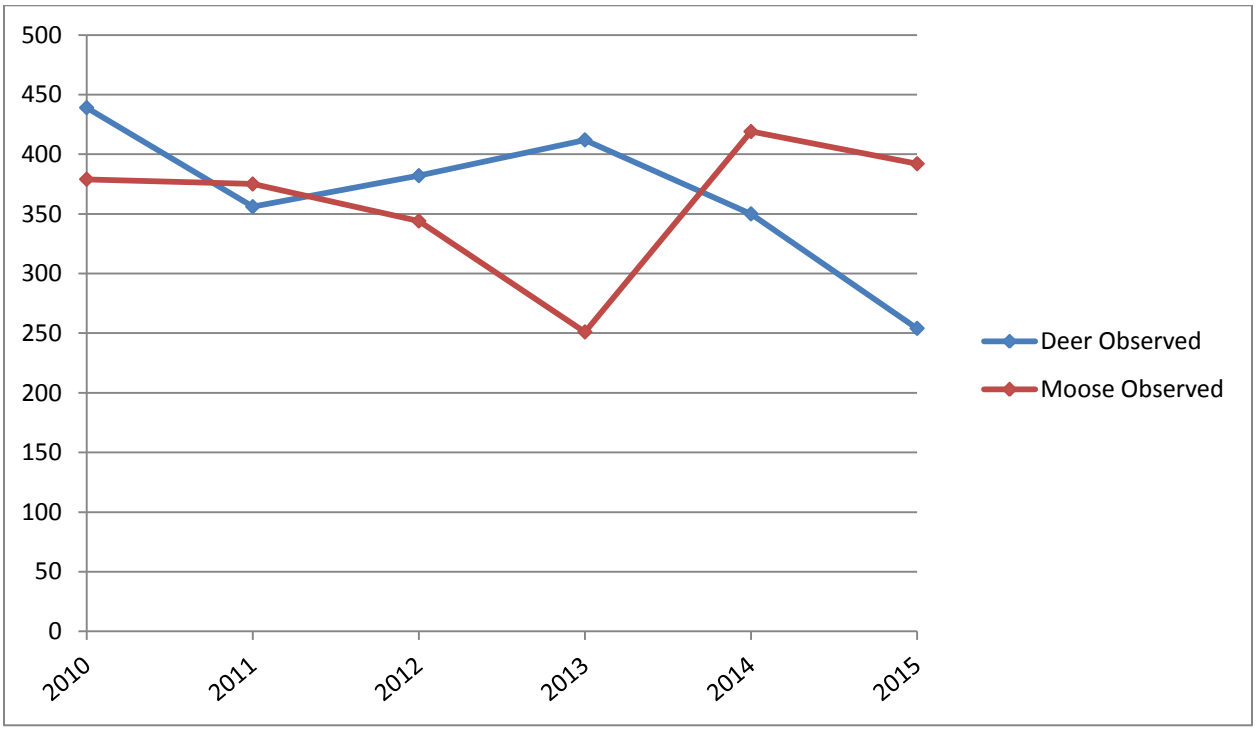

Figure 3. Numbers of deer and moose observed during the moose survey 2010-2015.

Wolf Observation Results

All of moose range in northeastern Minnesota is considered occupied wolf range (Erb and Sampson 2013). In 2015, wolves were observed on survey plots on 6 different occasions. A pack of 11 animals was observed on plot 347 on Alpine Lake, Packs of 2 animals were observed on Big Moose Lake in plot 99 and on plot 358 near the Sawbill Trail. Single wolves were observed on plots 70 (twice) and 445. An additional single was observed on the runway at the Cook County Airport. Pack observations represent minimum pack size as some animals may have been missed. Considering only observations of 2 or more wolves, the average minimum pack size observed from 2010-2015 has been 4.7.

No deer or moose carcasses attributed to wolf predation were observed on survey plots in 2015. One deer carcass, which appeared to be a wolf-kill, was observed during a ferry flight on Flat Horn Lake southeast of Ely. Carcass observations of deer or moose which appear to be wolf-kills are based on the judgment of the survey crew. However, these judgments can be somewhat subjective. Research on moose in Minnesota indicates some moose die from other causes and are merely scavenged by wolves. Wolf and wolf-kill observations are summarized in Table 1. Data displayed in Table 1 has been recalculated from last year's report to include only observations on survey plots.

Survey Year	2010	2011	2012	2013	2014	2015
Number of wolf sighting events	3	1	2	3	1	6
Total wolves seen	19	1	4	12	3	18
Range of group sizes observed	5-8	1	1-3	3-6	3	1-11
Number of deer carcasses	3	0	0	1	1	0
Number of moose carcasses	1	0	1	2	0	0

Table 1. Summary of wolf and wolf-kill observations observed on moose survey plots from 2010-2015.

Acknowledgments

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Figure 4. Wolves on the ice of Big Moose Lake, 15 January 2015. Photo by Andy Edwards.

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