Observations of Wolves and Deer during the 2016 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, 2016). 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 2016 a total of 52 moose survey plots totaling 694 mile^2 were flown during 4-15 January.

In 2016, the survey was 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 2016 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 deviations from the transect lines are 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 range estimates. The last moose survey when wolf tracks were recorded was 2013.

Snow depths were estimated by a combination of National Weather Service snow depth data, aerial observation and local knowledge. Snow depth estimates were recorded at the time the plot was flown.

Deer Observation Results

A total of 356 deer were observed during the 2016 moose survey and 31% of survey plots (16 total) were occupied by 1 or more deer. The locations of 2016 moose survey plots and the number of deer observed on each plot are shown in Figure 1.

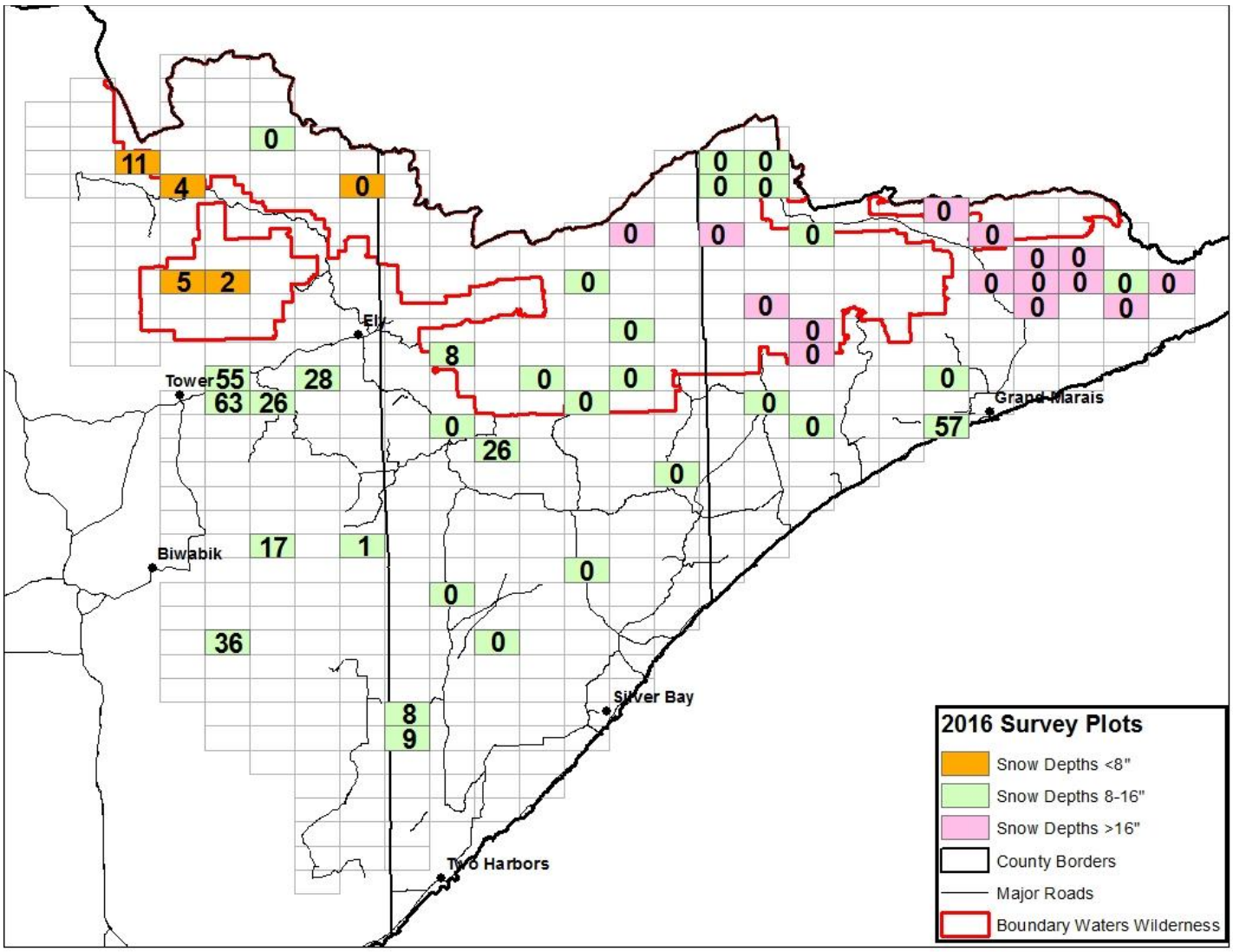

Figure 1. Deer observations on moose survey plots 4–15 January 2016.

Although the percentage of moose survey plots occupied by deer may be influenced by snow depths at the time of the survey, the percentage of plots occupied by 1 or more deer increased slightly to 31% in 2016 as compared to 29% in 2015, the lowest since this survey began in 2010. On occupied plots deer numbers averaged 22 per plot (range = 1–63), the highest recorded since this survey began in 2010 (Figure 2). The total number of deer observed during the 2016 moose survey increased substantially from 254 deer in 2015 (Figure 3). Like occupied plots, total deer numbers are also influenced by the random selection of moose survey plots; however, higher numbers in 2016 were also likely a consequence of the mild to moderate winter of 2014-15 when the winter severity index for deer ranged from 51-159 points across moose range (MNDNR, 2015).

From 2010-2016, a geographic distribution of deer is evident with the majority seen in eastern St. Louis County, and along the shore of Lake Superior in Lake and Cook Counties where snow depth and winter severity are typically less (Schrage, 2014, 2015).

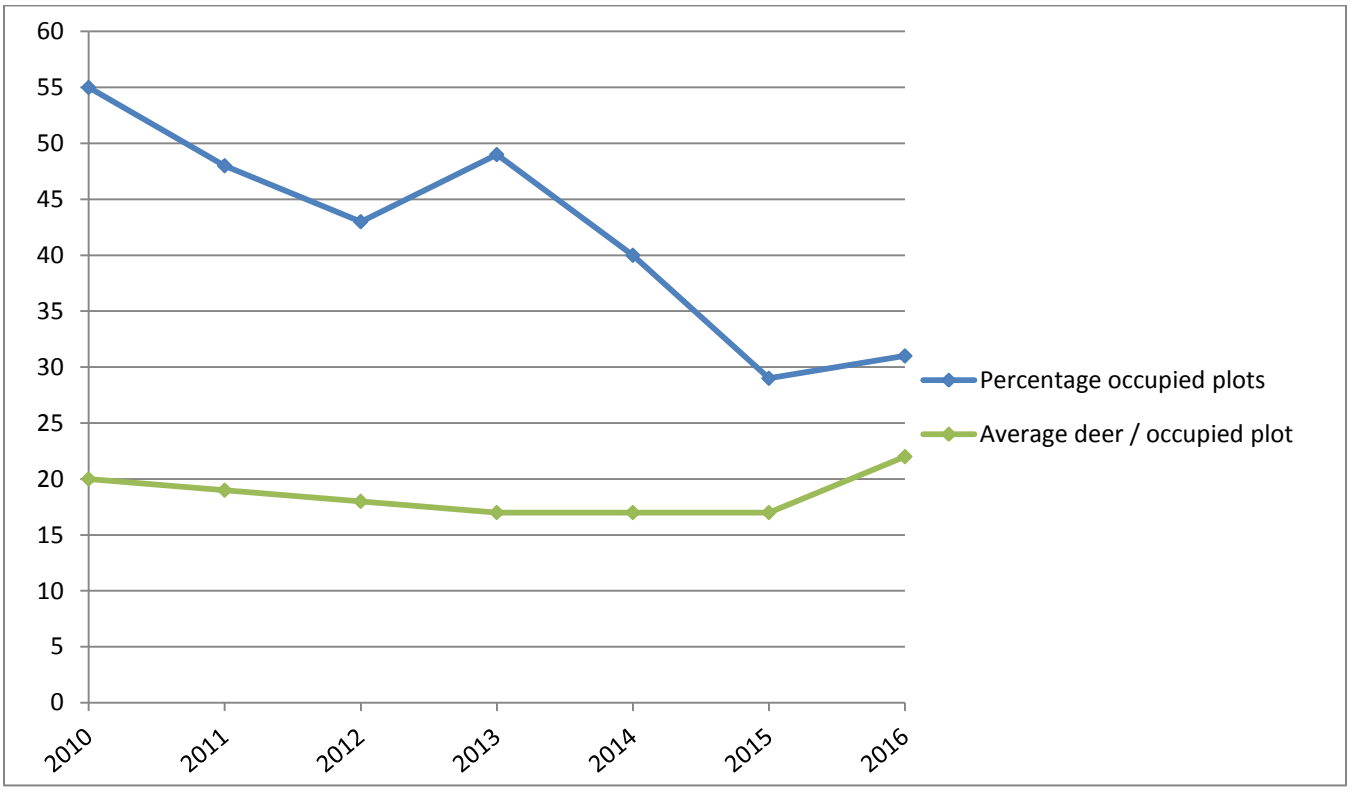

Figure 2. Percent of moose survey plots occupied by deer and average deer numbers per occupied plot, 2010-2016.

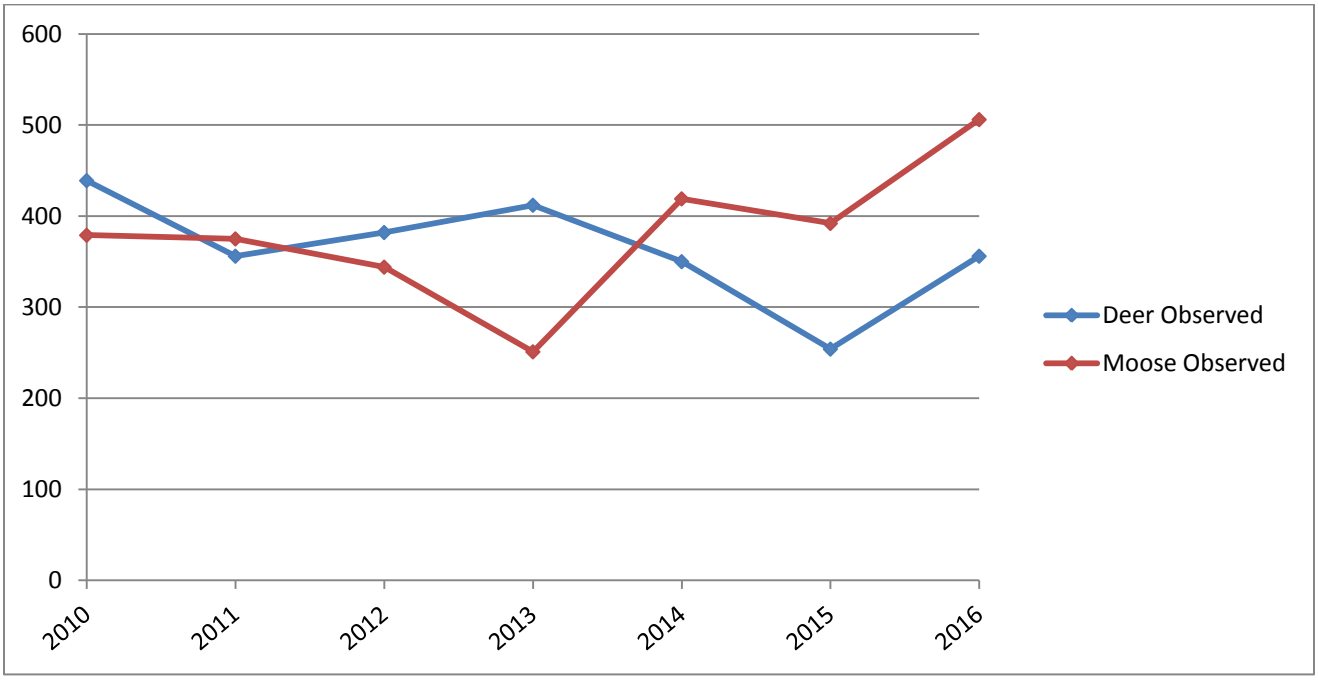

Figure 3. Numbers of deer and moose observed during the moose survey, 2010-2016.

Wolf Observation Results

All of moose range in northeastern Minnesota is considered occupied wolf range (Erb and Sampson 2013). In 2016, wolves were observed on survey plots on 3 different occasions. A pack of 4 animals was observed on plot 350 near the end of the Gunflint Trail, and a pair was observed on plot 64 just east of Tower. A single wolf was observed on plot 348 on Roy Lake. Considering only observations of 2 or more wolves, the average minimum pack size observed from 2010-2016 has been 4.5. Pack observations represent minimum pack size as some animals may have been missed.

One deer carcass attributed to wolf predation was observed on plot 412 in 2016 southwest of Grand Marais. Carcass observations of deer or moose which appear to be wolf-kills are based on the judgment of the survey crew. However, these judgments are subjective. Research on moose in Minnesota indicates approximately 2/3rds of adult moose die from causes other than direct predation, so evidence of wolf feeding may merely represent scavenging. Wolf and wolf-kill observations during plot surveys are summarized in Table 1.

Survey Year	2010	2011	2012	2013	2014	2015	2016
Number of wolf sighting events	3	1	2	3	1	6	3
Total wolves seen	19	1	4	12	3	18	7
Range of group sizes observed	5-8	1	1-3	3-6	3	1-11	1-4
Number of deer carcasses	3	0	0	1	1	0	1
Number of moose carcasses	1	0	1	2	0	0	0

Table 1. Summary of wolf and wolf-kill observations observed on moose survey plots, 2010-2016.

In addition to wolf observations while flying survey plots, single wolves were observed on Vern Lake and Long Island Lake in Cook County while shuttling between plots and one moose carcass was observed on the creek between Dawkins and East Dawkins Lake also in Cook County.

Acknowledgments

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Previous reports of wolf and deer observations during the moose survey for 2010-2015 can be found at

http://www.fdlrez.com/RM/wildlife.htm