Observations of Deer and Wolves during the 2017 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, 2017). While the objectives of this annual survey are to estimate moose numbers and demographics; since 2010, wolf and deer observations have been recorded as part of this survey and are summarized in this report. Over time these deer and wolf observations may provide useful trend data. 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. Most survey plots are stratified by expected moose density and randomly selected each year. In addition, 9 permanent plots are used to monitor the effects of large habitat changes on moose numbers over time. In 2017 a total of 52 moose survey plots (43 random and 9 permanent plots) totaling 694 mile^2 were flown from 5-14 January.

In 2017, the survey was flown using a Bell Jet Ranger (OH-58) and a MD 500E helicopter operated by the Enforcement Division of the Minnesota Department of Natural Resources. Transect lines are flown at an average of 250 feet above the ground at 58-63 miles per hour. The pilot is seated in the right front with an observer in the left front, and another observer in the rear directly behind the pilot. The program DNRSurvey, on Toughbook® tablet style computers, was used to record survey data in 2017 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 285 deer were observed during the 2017 moose survey and 23% of survey plots (12 total) were occupied by 1 or more deer. The locations of 2017 moose survey plots and the number of deer observed on each plot are shown in Figure 1. On those plots that were occupied by deer, numbers averaged 24 deer/plot (range = 1–64), the highest recorded since this survey began in 2010 (Figure 2). Conversely, the total numbers of deer fell substantially from the 356 observed in 2016 (Figure 3), and the percentage of moose plots occupied by deer in 2017 was the lowest recorded since 2010. However, the number of plots occupied by deer may be influenced by both the snow depths at the time of the survey as well as the random geographic selection of plots as part of a survey designed for estimating moose numbers, not deer. Therefore, the average number of deer/ occupied plot may be a better indicator of changes in deer populations on this landscape.

From 2010-2017, 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, 2016). Proximity to people and artificial feed sources in these areas probably influence deer distribution as well.

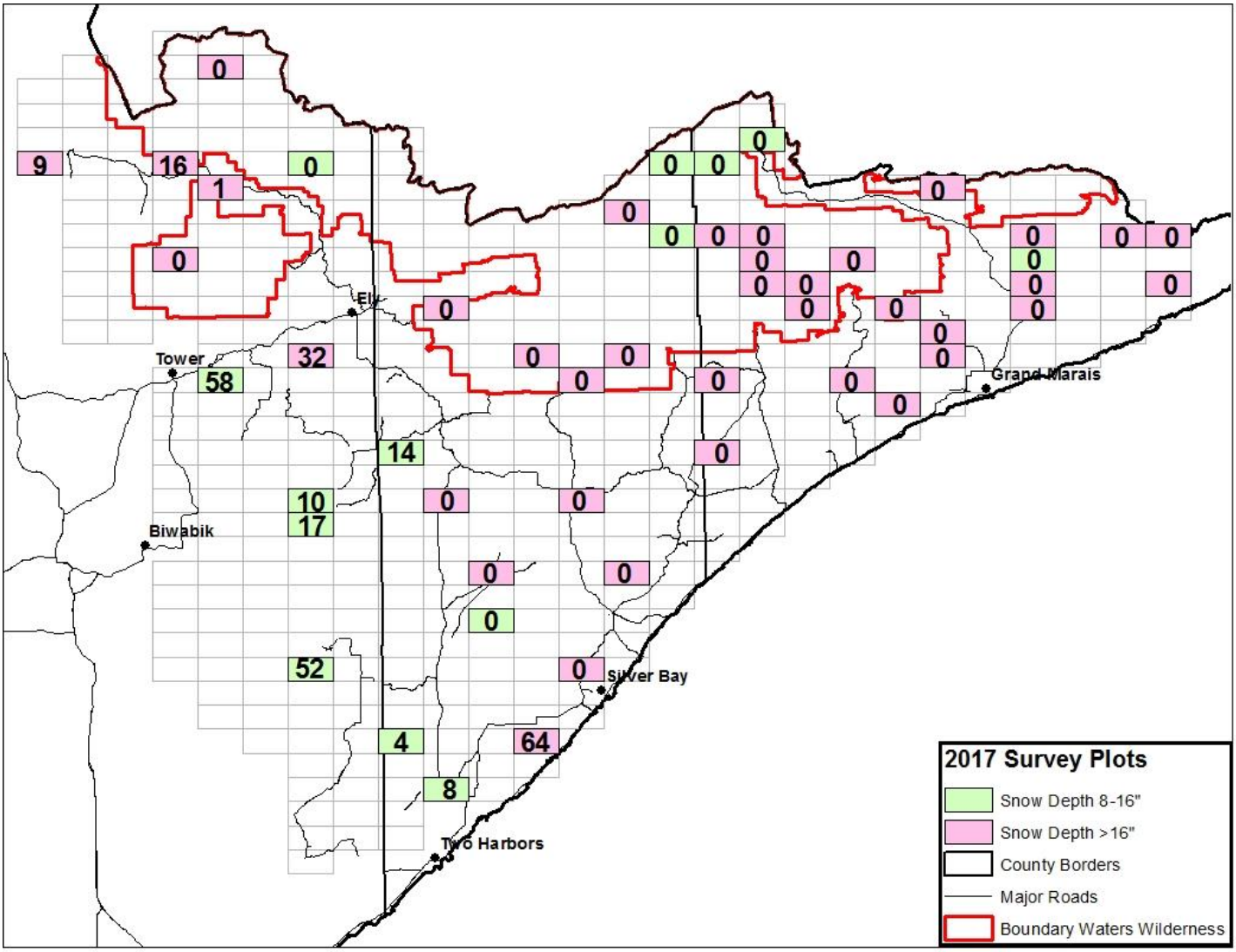

Figure 1. The number of deer observed on moose survey plots 5–14 January 2017.

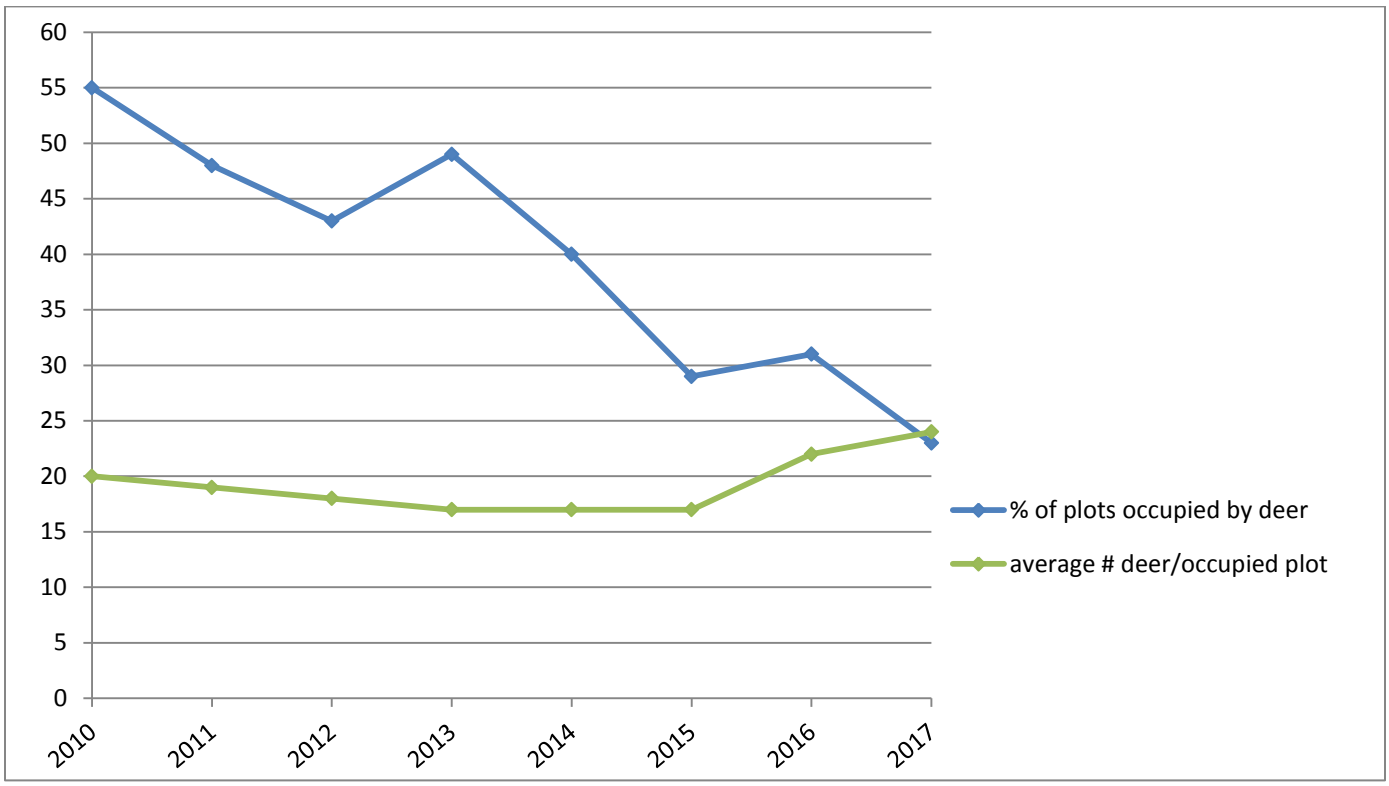

Figure 2. Percent of moose survey plots occupied by deer and average deer numbers per occupied plot, 2010-2017.

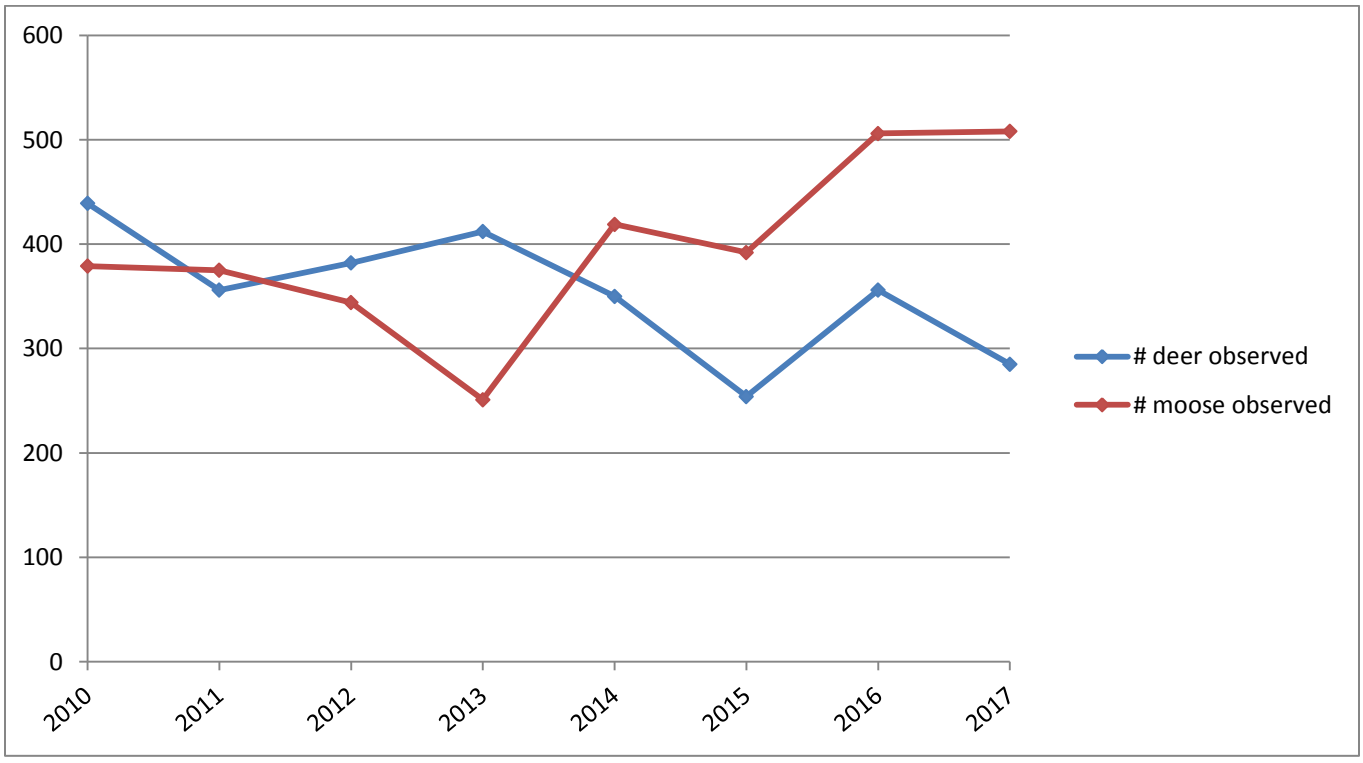

Figure 3. Numbers of deer and moose observed during the moose survey, 2010-2017.

Wolf Observation Results

All of moose range in northeastern Minnesota is considered occupied wolf range (Erb and Sampson 2013). In 2017, wolves were observed on survey plots on 6 different occasions. A pack of 4 animals was observed on South Temperance Lake, and a pair was observed near Split Rock Lighthouse. Single wolves were observed near Echo, Zoo and Deer Yard Lakes and near the headwaters of the Encampment River. Considering only observations of 2 or more wolves, the average pack size observed from 2010-2017 has been 4.3 wolves (n=15, range = 2-11). Pack observations represent minimum pack size as some animals may have been missed.

No deer or moose carcass attributed to wolf predation were observed in 2017. 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	2017
Number of wolf sighting events	3	1	2	3	1	6	3	6
Total wolves seen	19	1	4	12	3	18	7	10
Range of group sizes observed	5-8	1	1-3	3-6	3	1-11	1-4	1-4
Number of deer carcasses	3	0	0	1	1	0	1	0
Number of moose carcasses	1	0	1	2	0	0	0	0

Table 1. Summary of wolf and wolf-kill observations observed on moose survey plots, 2010-2017.

Acknowledgments

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Previous reports of wolf and deer observations during the moose survey for 2010-2016 can be found at

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