

# Beaver Population Analyses 2014

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## **Abstract**

A helicopter survey in 2014 produced estimates of approximately 4,980 and 4,811 active beaver colonies in Management Zones A and B, respectively. The estimated number of colonies in the northern third of Wisconsin was virtually unchanged between 2011 and 2014.

## **Background**

In 1989 the Wisconsin State Legislature provided funds for the WDNR to determine the feasibility of significantly reducing beaver numbers in problem areas. A portion of that money was used to develop a survey method for evaluating the effectiveness of various beaver control efforts. Initial development and testing during 1990-92 resulted in a helicopter survey capable of estimating regional beaver populations within  $\pm 20\%$  in northern Wisconsin (Kohn and Ashbrenner 1994). This survey was repeated in 1995, 1998, 2001, 2005, 2008, 2011 and 2014.

## **Methods**

Active beaver colonies within 41 randomly selected blocks in Beaver Management Zone A and 43 blocks in Zone B were counted from a Schweizer 333 (Fig. 1). The blocks ranged in size from 3.3 to 8.5 mi<sup>2</sup>, and averaged 5.5 mi<sup>2</sup>. The size and shape of each block was dependent upon locations of suitable boundaries (usually roads) which could be easily identified from the air. The total area surveyed was 224.4 mi<sup>2</sup> in Beaver Management Zone A and 238.6 mi<sup>2</sup> in Zone B.

Two observers plus the pilot were used to identify active colonies. Active colonies were identified by the presence of fresh feed piles, cuttings, and/or evidence that the lodge had been recently maintained. Each block was completely surveyed even though large portions of some blocks did not contain beaver habitat.

The estimated number of active colonies within each block was calculated by dividing the number observed by an observation rate of 0.81 (Payne 1981, Kohn and Ashbrenner 1994). Numbers of colonies within each Beaver Management Zone were then estimated by multiplying the estimated number of colonies per mi<sup>2</sup> in the survey blocks by the total area of the Zone.

## **Results**

The 2014 Beaver Helicopter Survey was conducted during October 16-30. The survey required 80 hours of flight time, and the total aircraft cost (flight time, per diem for pilot and crew member, and fuel truck) was \$60,800.

A total of 186 beaver colonies were observed, 83 in Zone A and 103 in Zone B. Expanding these observations to the area of each zone, and adjusting for the estimated detection rate resulted in estimates ( $\pm$  SE) of 4,980 ( $\pm$  884) active beaver colonies in Zone A and 4,811 ( $\pm$  623) colonies in Zone B. Beaver colony density in northern Wisconsin was estimated to be 0.49 colonies/mi<sup>2</sup> (0.19/km<sup>2</sup>) in 2014.

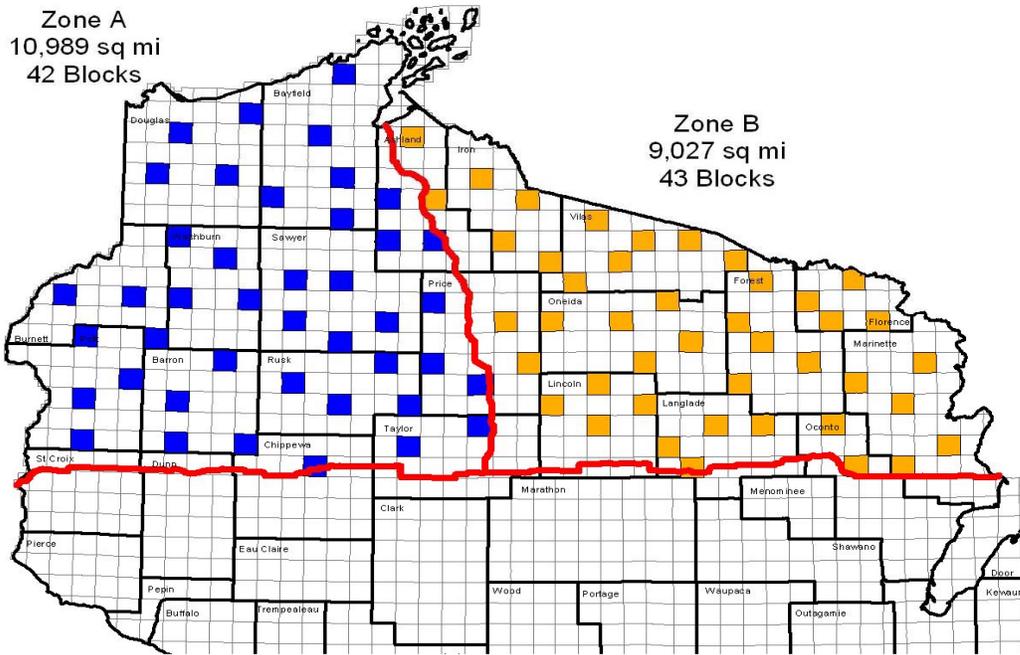
Surveys conducted periodically since the early 1990s show that the estimated number of beaver colonies in the northern third of the state decreased more than 50% between 1995 and 2008, but the 2 most recent surveys suggest that the population has stabilized (Figure 2). The estimated number of colonies in northern Wisconsin was virtually the same in 2011 ( $9,949 \pm 1,131$ ) and 2014 ( $9,791 \pm 1,081$ ). The estimated number of colonies in Zone A decreased 12% between 2011 and 2014, while the number of colonies increased 12% in Zone B.

### **Acknowledgements**

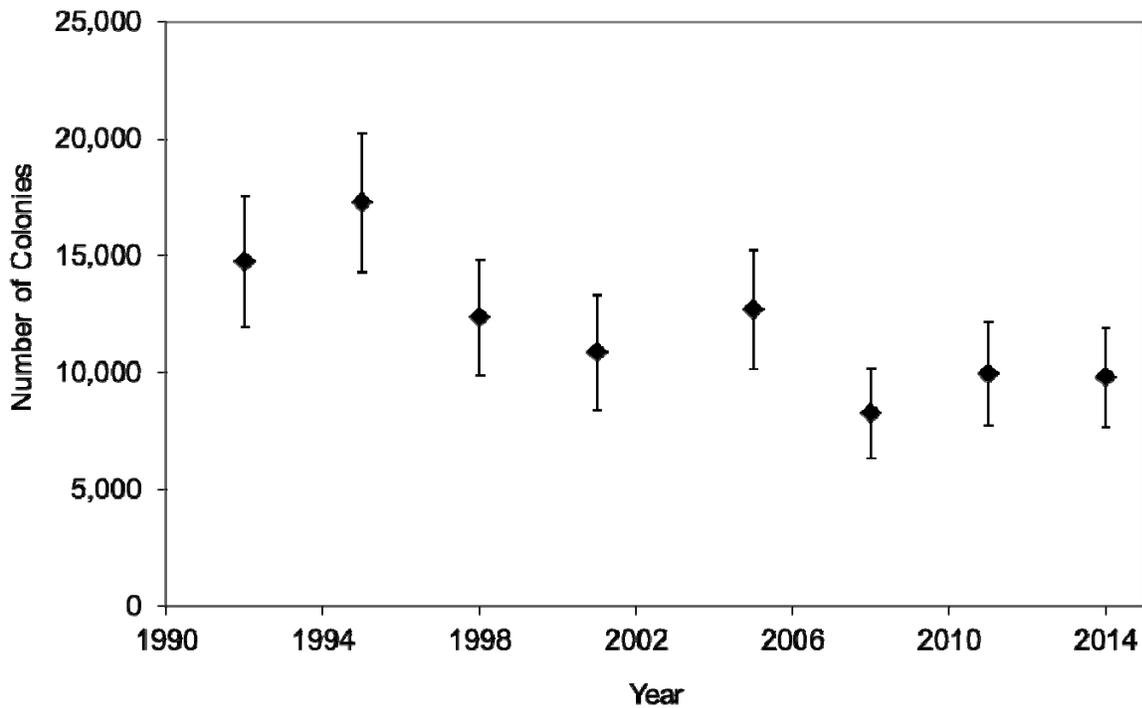
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### **Literature Cited**

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**Figure 1.** Wisconsin's Beaver Management Zones A and B and general locations of blocks surveyed.



**Figure 2.** Estimated number of beaver colonies ( $\pm$  95%CI) in northern Wisconsin, 1992-2014.