

Acoustic transect monitoring and White Nose Syndrome response plan for Iowa bats

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Goals and Objectives:

- Conduct acoustic surveys along drive transects to monitor bat activity
 - Prepare a White Nose Syndrome response and management plan for Iowa
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Progress:

White Nose Syndrome (WNS), a devastating disease associated with the mortality of millions of bats was first documented in New York during the winter of 2005-2006, and is now confirmed in numerous US states and Canadian provinces. The fungus that causes WNS was detected on a big brown bat hibernating in an Iowa cave in March 2012. The loss of large numbers of bats due to WNS is expected to have enormous economic impacts to agriculture. Knowledge of the abundance and distribution of bat species in Iowa is minimal, but is critically needed to understand the potential ramifications of WNS to Iowa.

Objective 1. Acoustic monitoring of Iowa bats

Establish and conduct acoustic surveys for bats along transects in eastern, central, and southern Iowa to document bat activity, abundance, and distribution.

Fifteen transects in eight counties in Iowa (two transects in Boone, Clayton, Dubuque, Jackson, Lucas, Story, and Warren and one in Hamilton) were driven twice during June-July 2013. Calls emitted during bat echolocation were recorded using an Anabat SD2 detector in 15s intervals using a vehicle-mounted microphone. Bats were most active 30 and 60 minutes after sunset. Nightly activity levels for each transect ranged from a minimum of 1.4% of recordings that contained bat activity in Warren County to a maximum of 22.9% of recordings that contained bat activity in Dubuque County, with a statewide mean of 11.3%. Calls were separated into two kHz groups (low and high); 54.9% of recorded call sequences were identified as belonging to the low kHz group while 42.5% were belonged to the high kHz group. We identified a small proportion of calls to species. The most frequently identified species were big brown, Eastern, and hoary bats. We also identified bats of the genus *Myotis* as a group.

Objective 2. White nose syndrome response and management plan

Develop an Iowa-specific white nose syndrome response plan containing WNS response objectives, management tools, management of contaminated environments, results monitoring, and restoration plans.

The Iowa “White-Nose Syndrome Response and Management Plan” was developed using Michigan’s plan as a model. A draft of the plan was shared with Iowa DNR and U.S. Fish and Wildlife Service for feedback, and the plan was finalized in December 2013.

A final report for this project was submitted to the IDNR in December 2013.

Conclusions and Recommendations:

Bat activity was generally higher in the eastern portion of the state. This difference may be tied to differences in habitat across the state. Qualitatively, the eastern counties appear to be more densely forested than any of the central or southern counties. Counties that had low activity levels seemed to be more heavily agricultural with only sparse patches of forested habitat.

The Iowa White-Nose Response and Management Plan will be shared with identified partners to guide their activities associated with WNS, such as research, teaching and educational outreach. As new information becomes available and as WNS eventually is documented in Iowa, the plan will periodically be reviewed and updated.

Funding has been secured to conduct additional bat acoustic monitoring in 2014. During summer 2014, acoustic drive transects established in 2013 will be re-surveyed. In addition, four new drive transects will be established in north-central Iowa. To complement these mobile surveys, we will establish three fixed-location sites in urban areas that are difficult to survey by vehicle as well as three fixed-location sites in agricultural areas for monitoring during times of intense insect activity. As in 2013, drive transects and fixed-location sites will be surveyed twice. The data from summer 2014 will be analyzed following methods used in 2013.