Environmental
& Statistical
Consultants

Northern Long-eared Bats: Forest Management and Policy

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Forest Bats

Eastern Red Bat in Flight

Insectivores

- Bats save the agricultural community roughly $3 billion dollars a year in pest control
- A single little brown bat, which has a body no bigger than an adult's thumb, can eat 4 to 8 grams (the weight of about a grape or two) of insects each night
- The loss of the one million bats in the Northeast has probably resulted in between 660 and 1320 metric tons of insects no longer being eaten each year by bats in the region

Bats of the Great Lakes Region

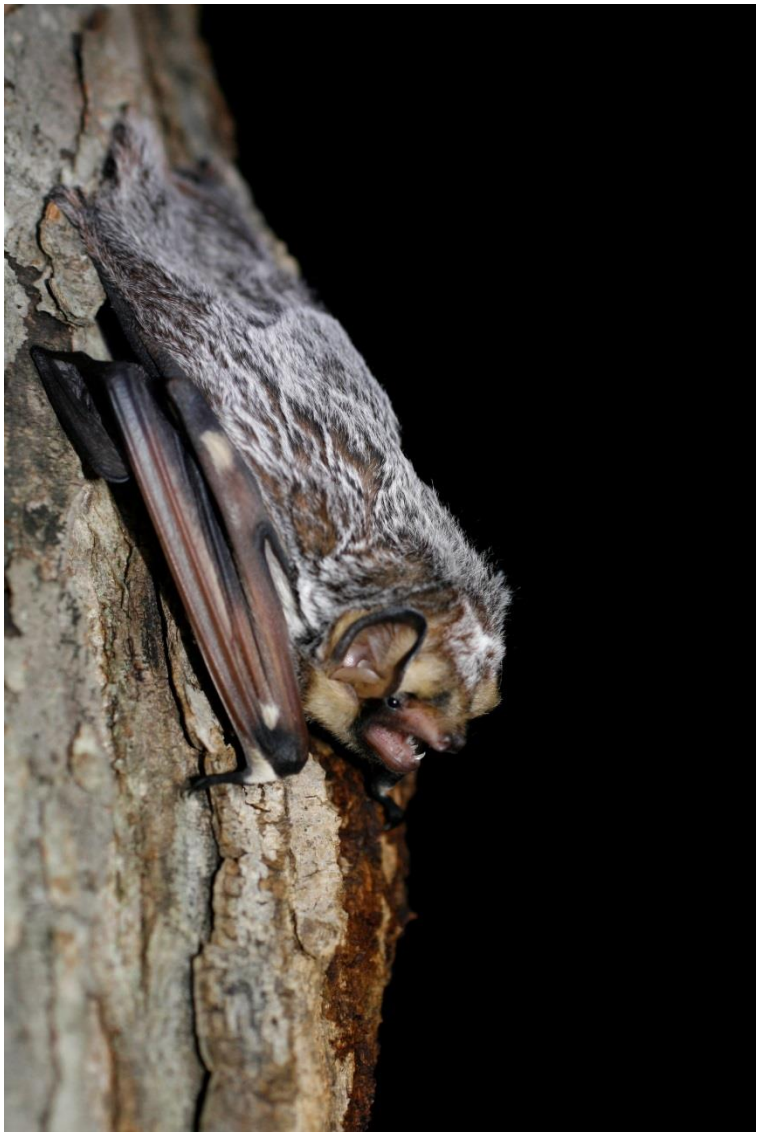
- Silver-haired bat
- Eastern red bat
- Hoary bat
- Big brown bat
- Evening bat
- Tri-colored bat
- Eastern small-footed bat
- Little brown bat
- Northern long-eared bat
- Indiana bat

Silver-haired Bat

Eastern Red Bat

Bats of the Great Lakes Region

- Hoary Bat



Bats of the Great Lakes Region

- Big Brown Bat

Bats of the Great Lakes Region

- Evening bat

Tri-Colored Bat

Bats of the Great Lakes Region

Eastern Small-footed Bat

Bats of the Great Lakes Region

- Little Brown Bat

Northern Long-eared Bat

Indiana Bat

Lifecycle of bat

- Fall
  - August 15 – November
  - Swarming and mating
  - Move towards hibernaculum

Fall Swarm

Lifecycle of bat

- Winter
  - October – April
  - Move into hibernating locations
  - Typically caves and mines
  - 1 to 1,000’s of bats together

Hibernating Indiana Bats

Lifecycle of bat

- Spring
  - April 1 to May 14
  - Begin migrating to summer maternity sites
  - Can travel between 8 – 350 miles to maternity sites

Lifecycle of bat

- Summer
  - May 15 – August 15
  - Females form maternity colonies (30 – 60 bats)
  - NLEB forage and roost mainly in upland, mature forests with occasional foraging over forest clearings, water and along roads
  - Give birth and raise pups
  - Pups able to fly within 3 – 5 weeks
  - At the end of season maternity colonies will begin to disperse to head to fall swarming sites

Maternity Roost

Foraging and Roosting Habitat

- NLEB foraging habitat:
  - Typically more cluttered, interior forest than other species
  - Smaller foraging range than other species (~1,000 ha in Indiana)
- NLEB roosting habitat:
  - Switching roosts ~ 3 trees every 5 days
  - Use a variety of different species of trees and different size trees
  - Smaller ranges than other forest bat species

Survey Methods

- Fall swarm and migration
  - Use harp nets around known swarm sites and hibernaculum to get a census of species using the hibernaculum
- Spring migration
  - Again use harp nets to capture bats exiting the hibernaculum and attach transmitters to know direction and distance for spring migration

Harp Traps

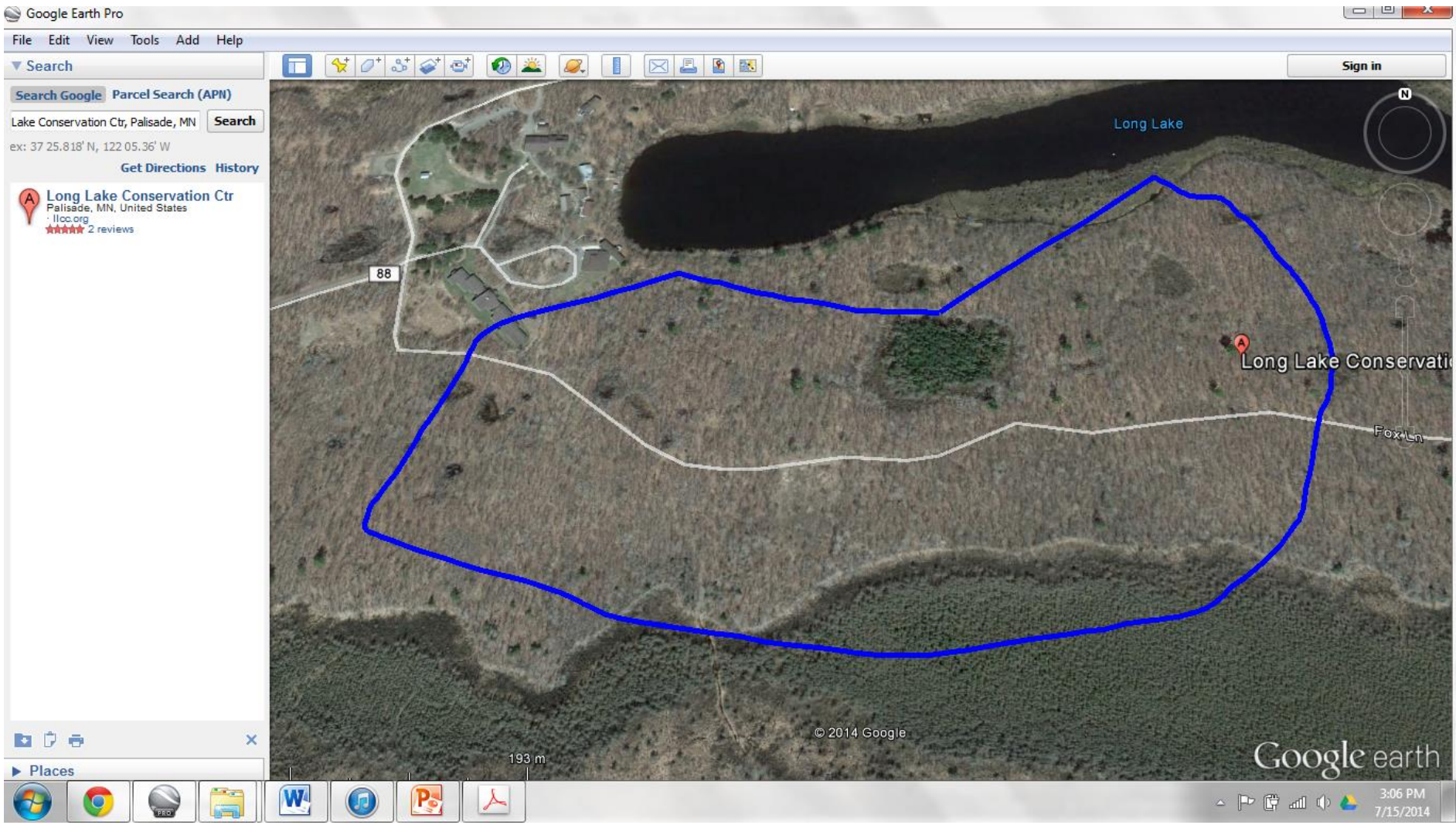
Survey Methods

- Winter hibernaculum
  - Full cave surveys to count and ID species present
  - Also check for presence of White Nose Syndrome (WNS)

Survey methods

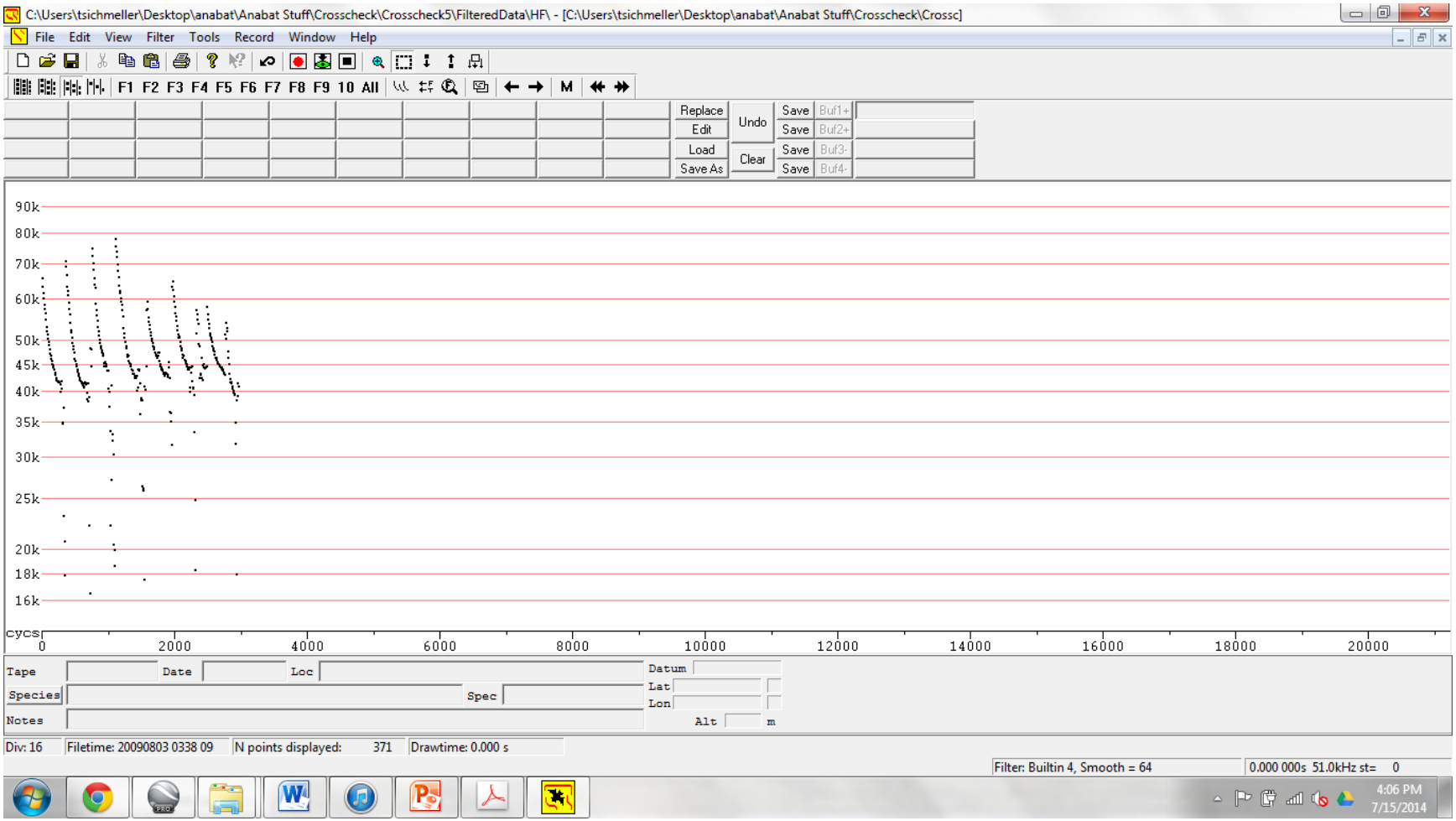
- Summer surveys
  - For NLEB and MYSO it is spelled out by USFWS
  - Surveys between May 15 and August 15
  - 1) Habitat assessment
  - 2) Acoustic surveys
  - 3) Mist-net surveys
  - 4) Radio telemetry

Summer Surveys



Summer Surveys

Summer Surveys



Summer Surveys

Summer Surveys

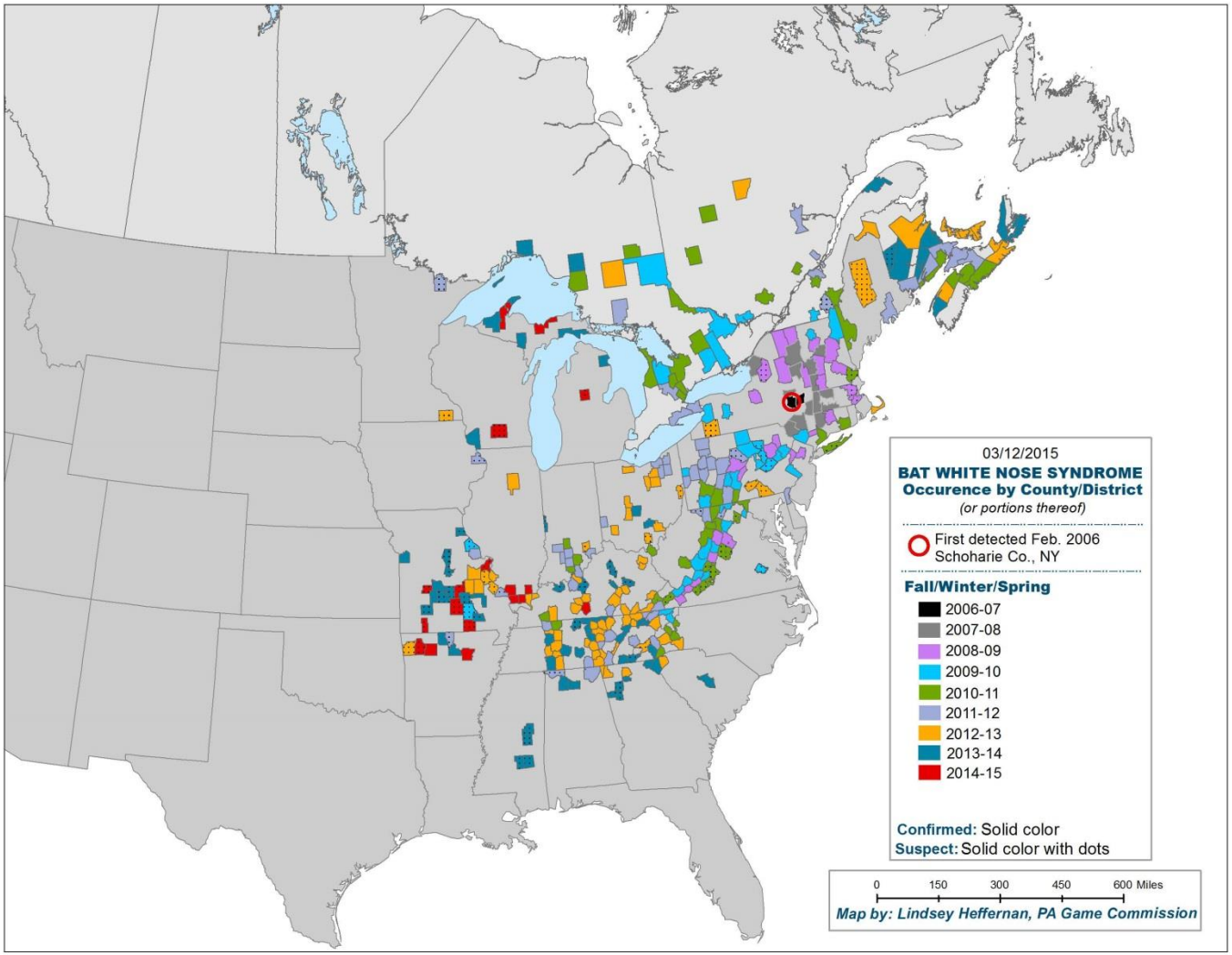
Summer Surveys

Threats to bats

- White Nose Syndrome (WNS)
  - Confirmed at Soudan Underground Mine State Park and Forestville/Mystery Cave State Park
  - Spreading west
  - WNS has killed more than 5.7 million bats in eastern North America.
  - In some hibernacula, 90 to 100 percent of bats have died

WNS

WNS


03/12/2015
BAT WHITE NOSE SYNDROME
Occurence by County/District
(or portions thereof)
First detected Feb. 2006
Schoharie Co., NY
Fall/Winter/Spring
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
Confirmed: Solid color
Suspect: Solid color with dots
0 150 300 450 600 Miles
Map by: Lindsey Heffernan, PA Game Commission

Threats to bats

- Other threats
  - Wind turbines
  - Habitat loss
  - Hibernaculum disturbance

Listing Decision for Northern Long-eared Bats

- On April 1, 2015 the U.S. Fish and Wildlife Service listed the NLEB as **THREATENED** under the Endangered Species Act
- Difference between Endangered and Threatened
  - Endangered: any species that is in danger of extinction throughout all or a significant portion of its range
  - Threatened: any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range

Listing Decision for Northern Long-eared Bats

- The rules applied to this listing become effective on May 4, 2015
- Interim Final 4(d) Rule Proposed
  - In NLEB range, all purposeful take is prohibited except:
    - Removal of NLEB from human structures
    - Actions relating to capture, handling, and related activities for NLEB by individuals permitted to conduct these activities for species of bats

Listing Decision for Northern Long-eared Bats

- *Incidental Take* – When take of bats is a side effect of otherwise lawful actions. An example of incidental take would be if bats roosting in a tree are killed when the tree is cut for harvest or clearing purposes.
- Areas not affected by WNS
  - 4(d) rule exempts incidental take from all activities

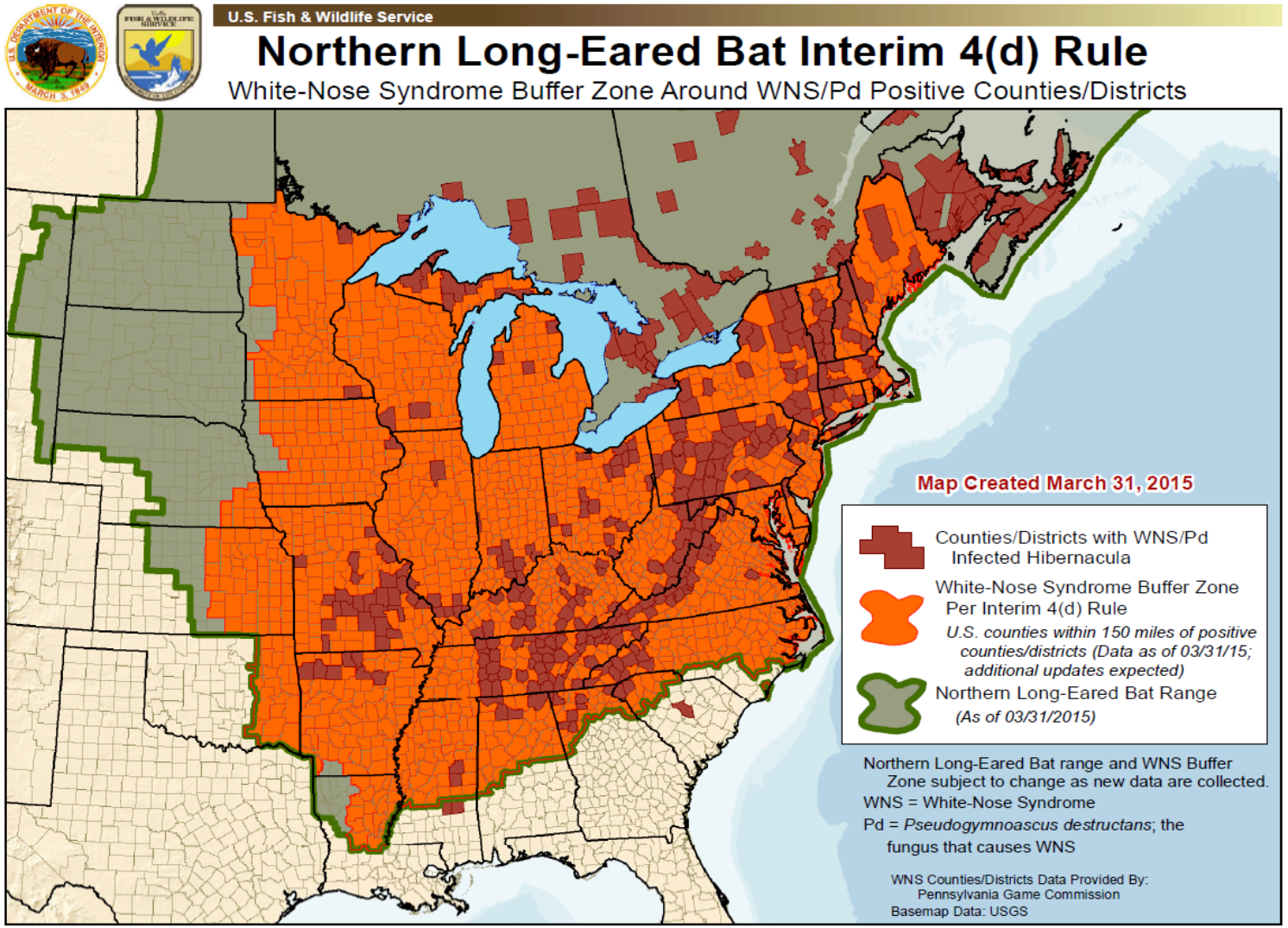
Listing Decision for Northern Long-eared Bats

- Areas affected by WNS
  - Exempted activities include:
    - Forest management practices
    - Maintenance and limited expansion of transportation and utility ROW's
    - Prairie habitat managament
    - Limited tree removal projects, provided these activities protect known maternity colonies and hibernacula

WNS Buffer Zone

- USFWS has identified areas within 150 miles of the boundaries of U.S. counties where the fungus *Pd.* or WNS has been detected

WNS Buffer Zone



Listing Decision Impacts on Forestry

- The Service considers forest management practices to include a suite of activities used to maintain and manage forest ecosystems, including, but not limited to, timber harvest and other silvicultural treatments, prescribed burning, invasive species control, wildlife openings and temporary roads
- The conversion of mature hardwood, or mixed forest into intensively managed monoculture pine plantation stands is not exempted under this interim rule, as typically these types of monoculture pine plantations provide very poor-quality bat habitat

FAQ for Forestry

- **7)** Has a northern long-eared bat maternity roost tree or hibernacula been documented on or near the project area?
- **YES** Continue to question 8.
- **NO**
- The incidental take that may result from your project is exempted by the 4(d) rule and no further action is necessary to comply with ESA prohibitions to protect northern long-eared bats.

FAQ for Forestry

- **I DON'T KNOW**
- We suggest that you contact the U.S. Fish and Wildlife Service Ecological Services Field Office nearest to your project area. Field Office locations and contact information may be found at www.fws.gov/offices. If you are in Wisconsin, please contact the Twin Cities Field Office.

FAQ for Forestry

- **8)**
  - Northern long-eared bats use their maternity roost trees and hibernacula repeatedly for many years. Unless a survey or other information indicates otherwise, if the habitat around a roost is intact and the tree is suitable, we would conclude that the tree is likely an occupied maternity roost during the pup season (June 1 - July 31). Similarly, we would assume that a hibernaculum remains occupied unless a survey or other information indicates otherwise.

Question 8 Continued

- Therefore, if you have a northern long-eared bat roost tree or hibernacula documented on or near your project area, any incidental take of bats will be exempted by the 4(d) rule if you follow these conservation measures:
- Do not conduct any activities within ¼ mile of known, occupied hibernacula;
- Do not cut or destroy a known, occupied roost tree from June 1 to July 31 (the pup season);
- Do not clearcut (and similar harvest methods that cut most or essentially all trees from an area, *e.g.*, seed tree, shelterwood, and coppice) within a ¼ mile of known, occupied roost trees from June 1 to July 31.

Definitions

- **“Known, occupied hibernacula”** - locations where one or more northern long-eared bats have been detected during hibernation or at the entrance during fall swarming or spring emergence. Given the documented challenges of surveying for northern long-eared bats in the winter (use of cracks, crevices), any hibernacula with northern long-eared bats observed at least once, will continue to be considered “known hibernacula” as long as the hibernacula and its surrounding habitat remain suitable for northern long-eared bat. However, a hibernaculum may be considered to be unoccupied if there is evidence (*e.g.*, survey data) that it is no longer in use by northern long-eared bats.

Definitions

- **Known roost trees** – trees that northern long-eared bats have been documented as using during the active season (approximately April – October). Once documented, a tree will be considered to be a “known roost” as long as the tree and surrounding habitat remain suitable for northern long-eared bat. However, a tree may be considered to be unoccupied if there is evidence that the roost is no longer in use by northern long-eared bats.

Listing Decision for Northern Long-eared Bats

- Additional information can be found at:

- www.fws.gov/midwest/endangered/mammals/nleb

west-inc.com

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