NORTHERN LONG-EARED BAT PROPOSED FOR LISTING AS ENDANGERED: IMPLICATIONS FOR WIND ENERGY DEVELOPMENT IN NEBRASKA

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Overview

- Bat Facts
- Northern Long-eared Bat
- Listing Status
- Recommendations

Bat Research
Credit: NEBRASKAland

Little Brown Bats
Credit: USFWS

What do you know about bats?

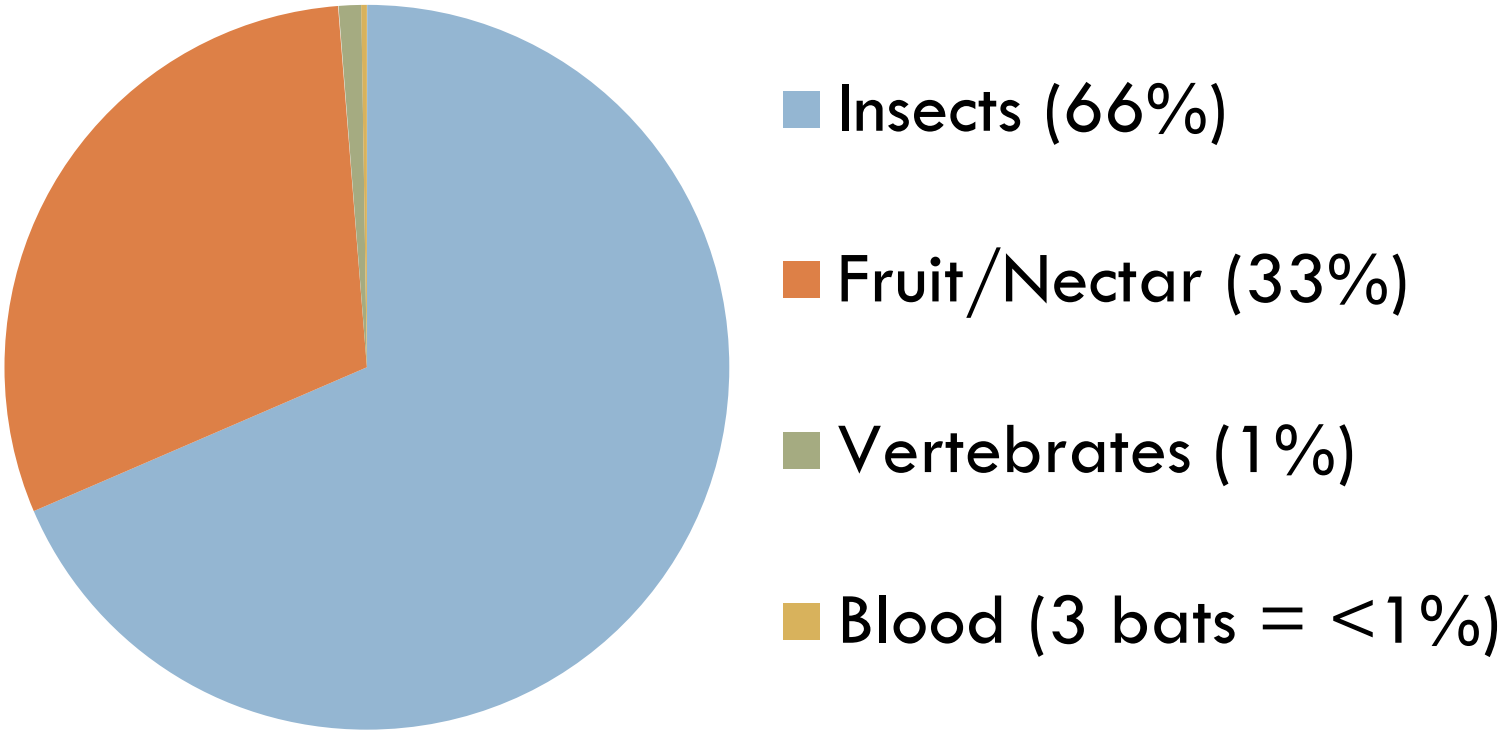
Bat Facts

- Order Chiroptera (*cheir* - hand; *pteron* - wing)
- Only mammal capable of sustained flight
- Typically one pup per year

Mexican free-tailed bats at Carlsbad Caverns
Credit: USFWS

Bat Facts

Percent of Bats with Specified Diet



(Data from: Bat Conservation International, www.batcon.org, Accessed November 2013)

Bat Facts

- $22.9 billion/year economic value to agriculture industry (Boyles et al. 2011)

Credit: Microsoft Clip Art

Bat Facts

Bat Facts

Hoary Bat
Credit: NEBRASKAland

- Nebraska
  - 13 species
  - 6 “at-risk”

Tri-colored Bat
Credit: USFWS

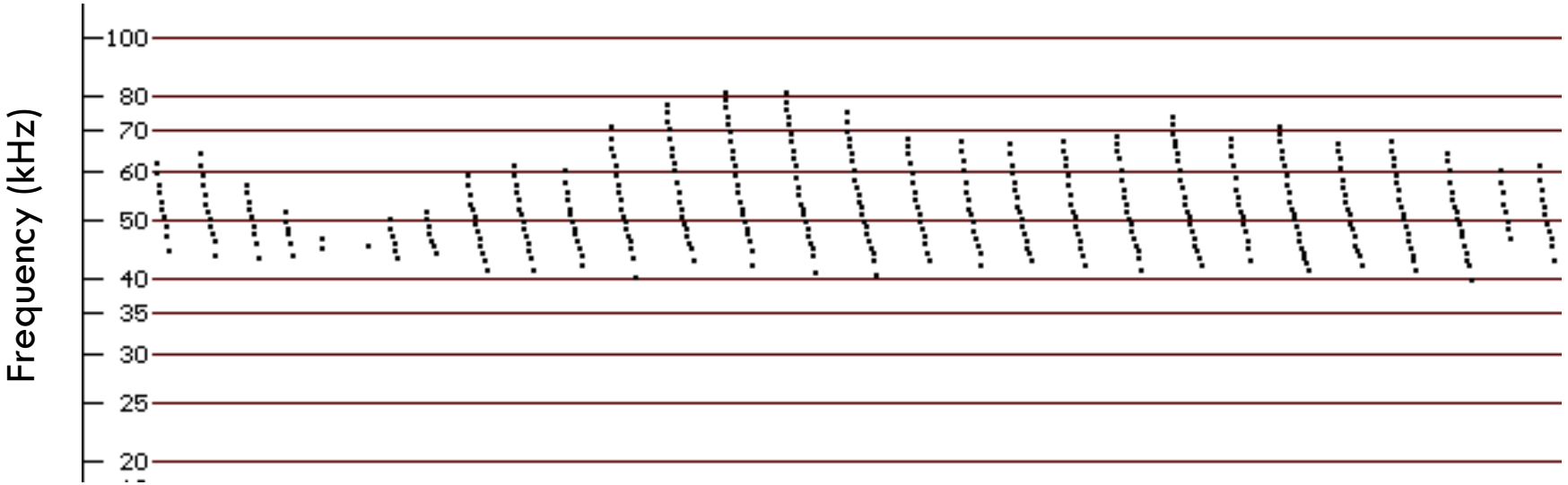
Northern Long-eared Bat

- *Myotis septentrionalis*
  - *myotis* - "mouse-eared"
- 3 – 4 inches long
- 9 – 10 inch wingspan
- Lifespan 20 years
- Eat insects
  - flight or gleaning

Credit: Jomegat, Wikimedia Commons
http://commons.wikimedia.org/wiki/File:Myotis_septentrionalis_1870.jpg

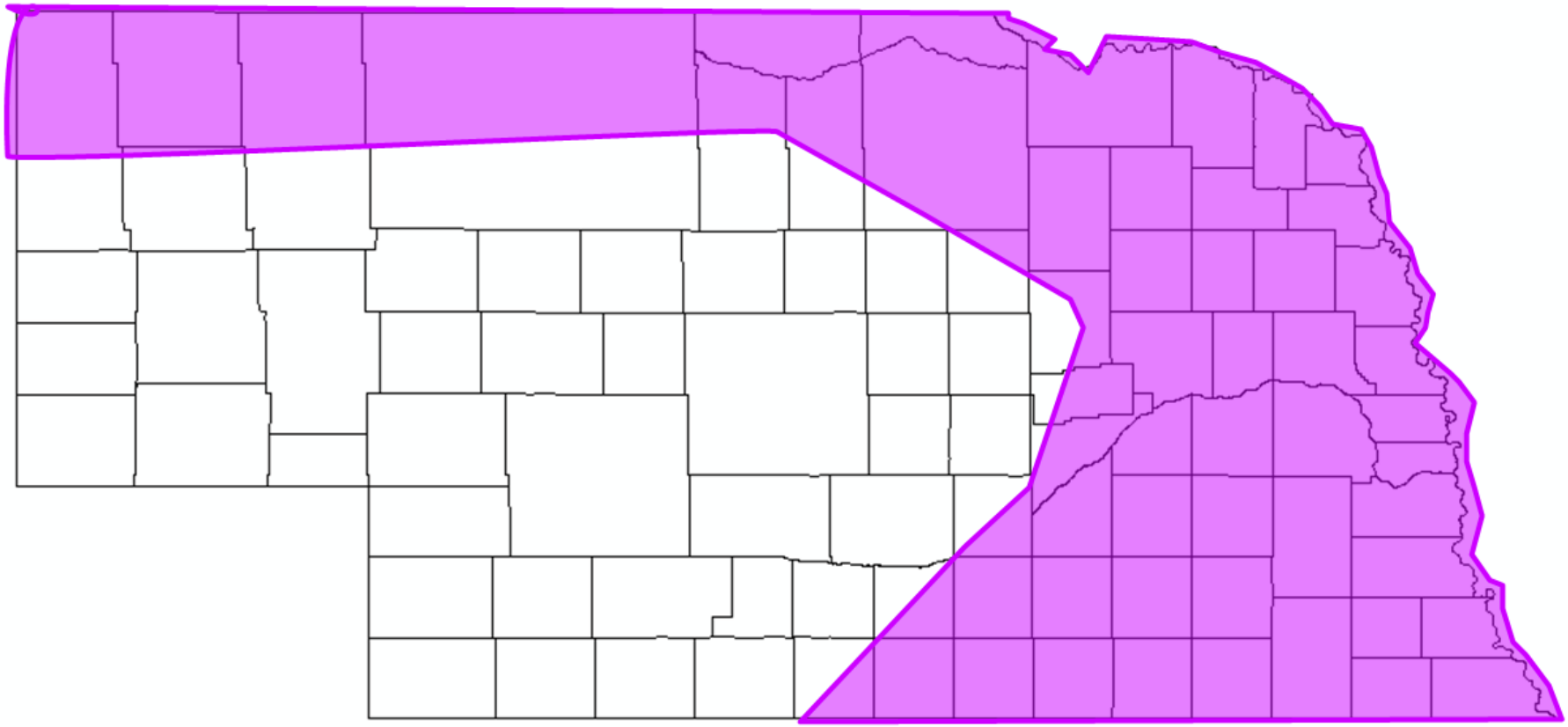
Northern Long-eared Bat

- Spectrogram



This is an example – not to be used for identification purposes
Credit: M. J. O'Farrell, BATTCALL: Acoustic Call Library and Species Accounts, (http://www.msb.unm.edu/mammals/batcall/html/speciesaccounts.html)

Distribution of Northern Long-eared Bat in Nebraska



created by: Caroline Jezierski

Northern Long-eared Bat

- Winter – hibernate caves/mines
- Summer – roost under bark or cavities
- Cracks and crevices

Wikipedia public domain photo

Northern Long-eared Bat

- Breed in late summer or early fall
- Delayed fertilization
- Give birth late May to late July
- Maternity colonies
- Fly 18 – 21 days after birth

Listing Status

- Timeline
  - January 21, 2010 – USFWS petitioned to list the bat
  - June 29, 2011 – USFWS determined listing may be warranted
  - October 2, 2013 – USFWS proposed listing as endangered
  - Final determination within 12 months

Listing Status

- Threats
  - White Nose Syndrome
  - Wind Energy
  - Habitat Destruction or Disturbance
    - hibernacula or roosts
  - Climate Change

Little Brown Bat with white nose syndrome
Credit: USFWS

Recommendations

- Siting – avoid key habitats and migratory corridors
- Feather blades
- Adjust cut-in speeds
- Additional post-construction monitoring
- Curtailment based on site specific information
- Invest in new technology
- Revise Guidelines

Big Brown Bat
Credit: NEBRASKAland

Recommendations

- Surveys and Research
  - will need more if bat is listed
  - call surveys and mortality
- Scientifically rigorous study design comparable to other studies
- Data needs to be available to contribute to broader understanding of turbine siting and operations

Bat Researchers
Credit: NEBRASKAland

Acknowledgment

Thank you, Caroline Jezierski!

THANK YOU!

QUESTIONS?

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Hoary Bat
Credit: NEBRASKAland

Recommendations

- Siting
  - avoid key habitats
    - roosting – forested/wooded areas, buildings, quarries, trees with loose bark, mines
    - frequently visited locations – water sources
  - buffer key habitats
  - avoid bat migratory or movements corridors – streams & ridge tops
- Adjust cut-in speeds and feather blades when wind speeds are less than the speed at shich electricity generation begins to reduce fatalities
  - consider "shut-down time" in PPA
- Additional post-construction mortality monitoring
- Shut down turbines
  - greatest amount mortality during low wind speed
  - wind speed at which bats fly differs regionally
- Invest in new technologies
- Site-specific studies & research needed

to guide siting & curtailment recommendations

curtailment: increase cut-in speed when turbines start to produce energy = reduce mortality


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