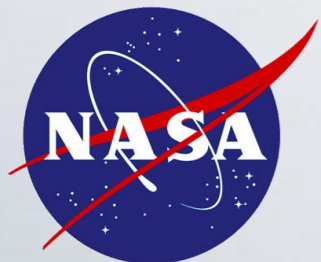


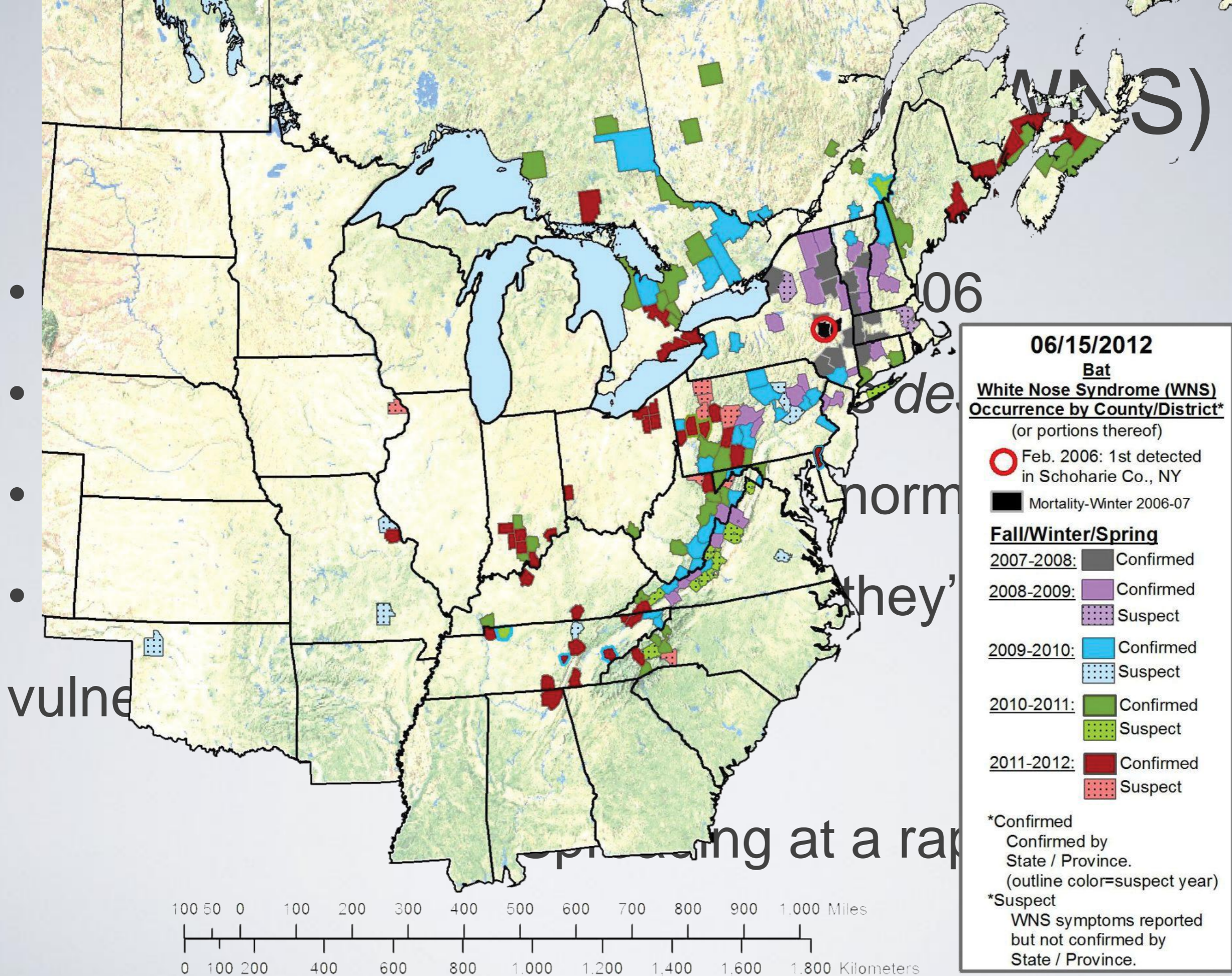
The Habitat Preferences of *Myotis* Bats in Western North Dakota: Using Land Cover to Predict Distribution Patterns

Steven Walker, Haskell Indian Nations University / UTTC
Monica Bailey, University of Minnesota
Nick Kludt, University of North Dakota



Value of Bats

- Keep balance in the ecosystem
- Currently, there is a lack of knowledge about the spatial extent of suitable bat habitat within North Dakota.
- Control insect population (Vector Control)
- The need to understand preferred bat habitat is the driving force behind this project.
 - Bat activity has been shown to reduce mosquito egg laying by 32%
- Lower crop damage from pests and decreases the need for pesticide
 - The goal of this project was to determine the spatial extent of general bat presence in North Dakota west of the Missouri River using Geographic Information Systems (GIS).
- Function as Pollinators
- The value of bats to the agricultural industry is roughly \$22.9 billion a year



Species of Concern

Myotis volans

Long Legged Bat

Myotis

Myotis evotis

Long Eared Bat

Myotis ciliolabrum

Western Small Footed Bat



Photo Credit: Fort Collins Bat Project

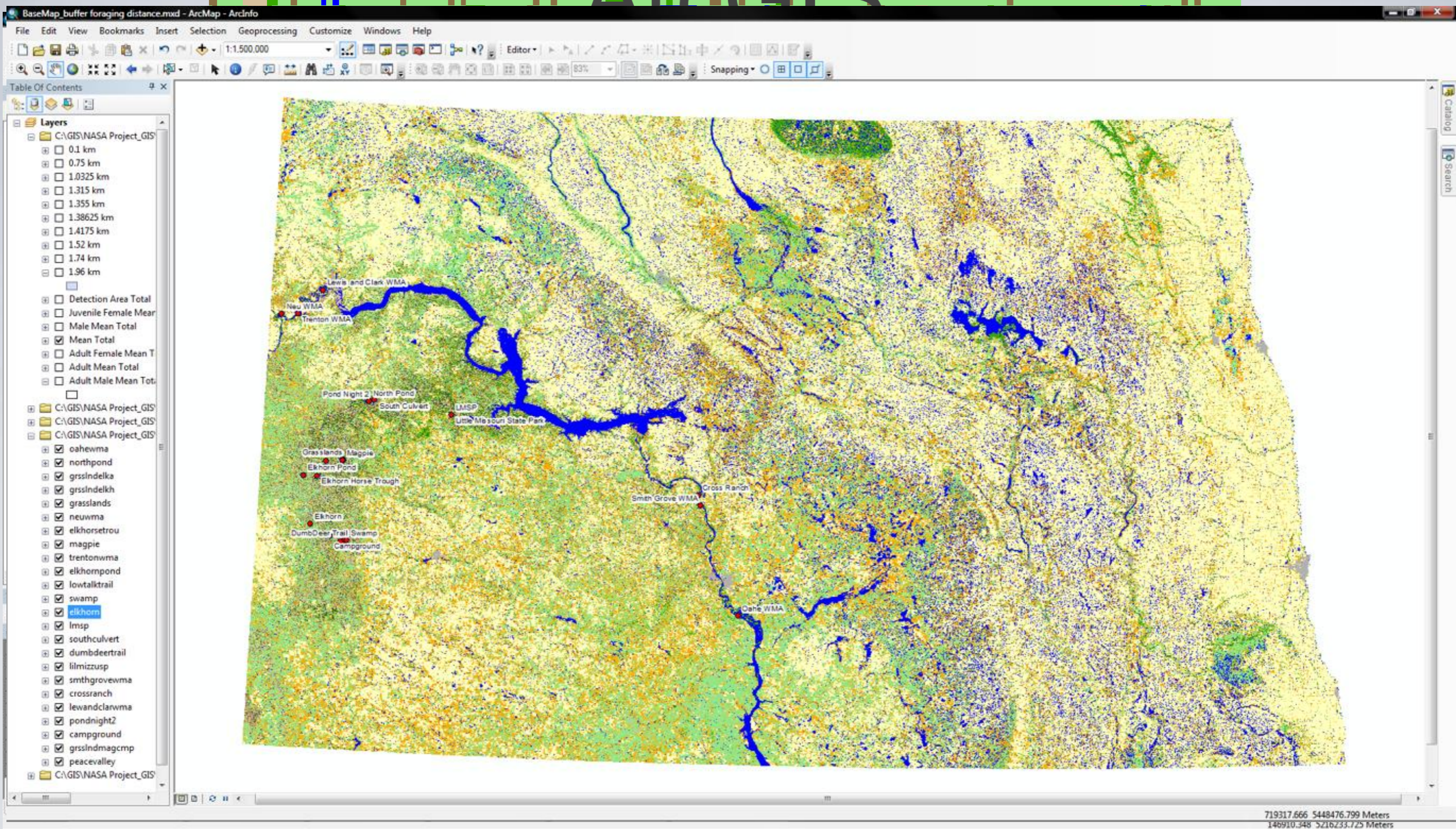
Photo Credit: eol.org

Photo Credit: eol.org

Methods

- Acoustic Capture Sampling
 - Pettersson D240x-Acoustic Capture
- Data Processing
 - SonoBat
 - ArcGIS 10.0
 - R Statistical Computing Package

ArcGIS



Acknowledgements

Conclusion

- We successfully identified a correlation between habitat types and abundances of the species of interest in the West-River region of North Dakota
- NASA Ames Research Center, Mountain View, CA
- NASA CIPAIR program
- Results were strengthened by consensus with the literature
- Paul Barnhart & Dr. Erin Gillam, NDSU
- The general distribution of critical habitat was successfully visualized using GIS
- Dave McDermott & Deborah Kirk, Haskel Indian Nations University
- Mandy Guinn & Rebekah Olson, United Tribes Technical College
- *Applications of Results*
- Cindy Schmidt, Bay Area Environmental Research Institute
 - Our spatial data can be used to help establish monitoring efforts for WNS in the West-River region
 - Advances the general body of knowledge about these species