Wind Energy and Potential Impacts to Bats in Ohio

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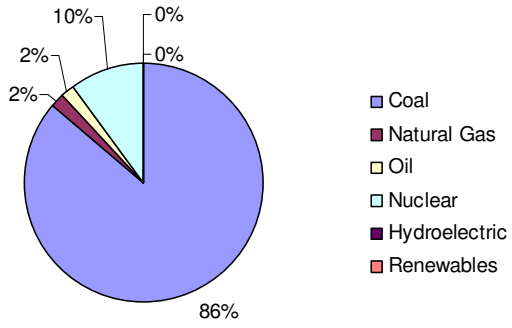
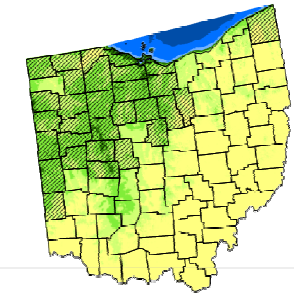
- **In 2008, 27th state to adopt a Renewable Portfolio Standard**
- **SB 221: 12.5% of Ohio's energy must come from renewable resources by 2025**
- **SB 562: OPSB regulatory authority wind facilities >5 MW**

Ohio's Sources of Energy



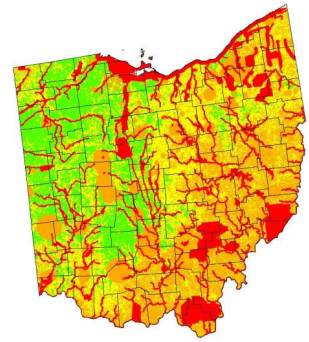
Ohio's Proposed Wind Energy Facilities

- **70** proposed wind projects
- **28** companies
- Turbine size 1.2 to 3 MW
- **~8,000 MW** of electricity, roughly enough to power **5 million homes**



ODNR Role

- Assess potential impacts
- Voting member of OPSB
- Evaluate impacts

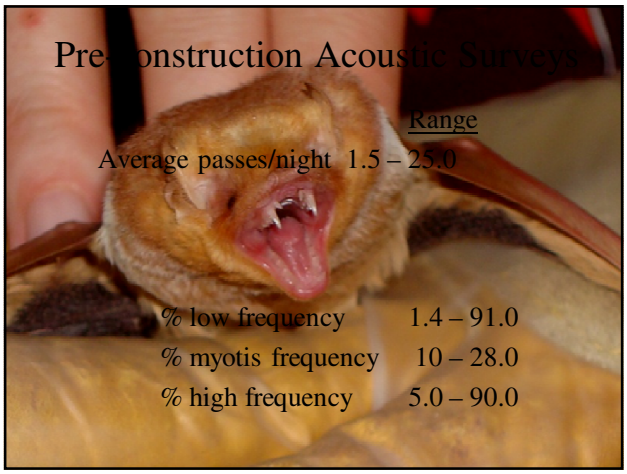


Minimum
- Breeding bird surveys
- Acoustic bat monitoring
- Raptor nest searching and monitoring

Moderate
- Passerine migration
- Diurnal bird/raptor migration
- Sandhill crane surveys
- Owl playback surveys
- Barn owl
- Bat mist-netting
- Nocturnal marsh bird surveys
- Waterfowl surveys
- Shorebird migration

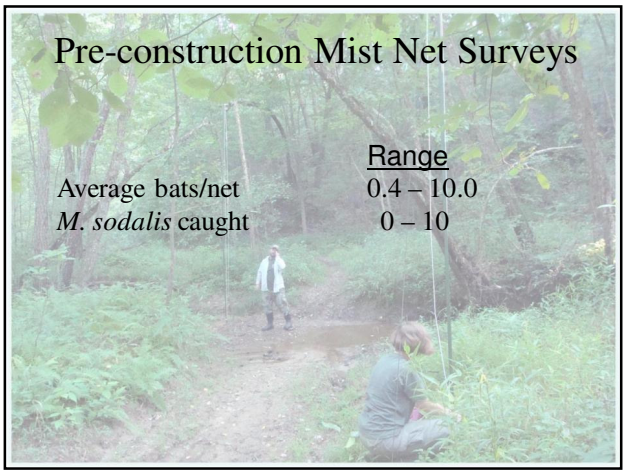
Extensive
- Radar monitoring

Pre-construction Acoustic Surveys



	Range
Average passes/night	1.5 – 25.0
% low frequency	1.4 – 91.0
% myotis frequency	10 – 28.0
% high frequency	5.0 – 90.0

Pre-construction Mist Net Surveys



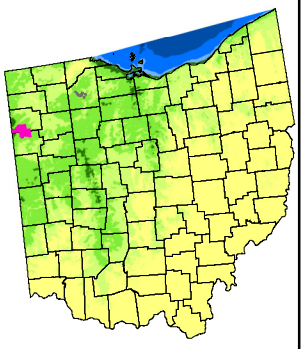
	Range
Average bats/net	0.4 – 10.0
M. sodalis caught	0 – 10

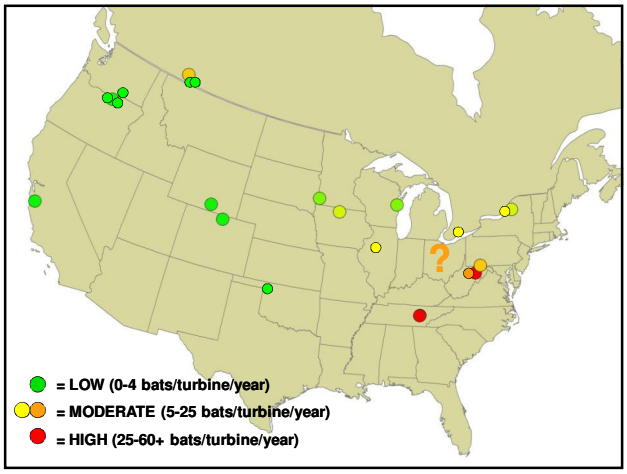
Siting

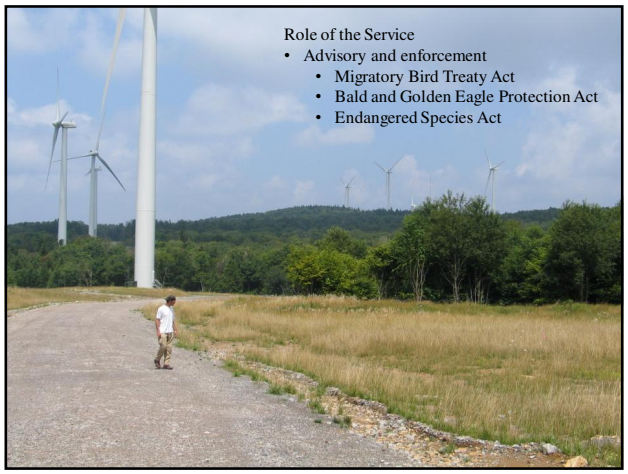
- Avoidance of areas where birds area known to concentrate
- Lighting
- Minimization of perches
- Removal of guyed structures
- Feathering
  - During periods of low wind speed seasonally
  - Has been shown to reduce mortalities
  - Impacts the bottom line of the facility

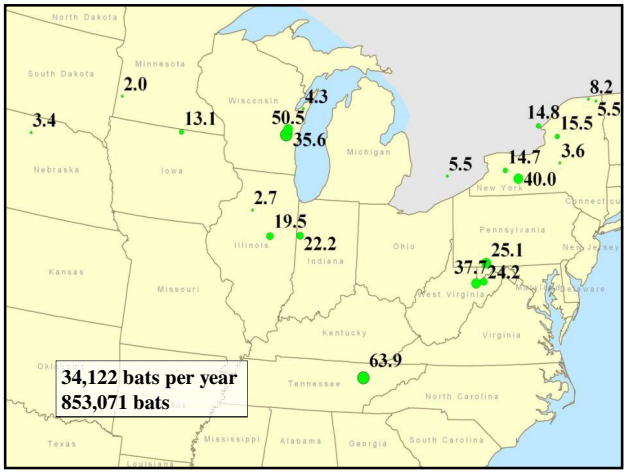
Ohio's Wind Facilities

- Prior to 2008: Bowling Green
- July 2011: EDP Renewables, Timber Road (59 turbines)
- Fall 2011: Iberdrola, Blue Creek (152 turbines)

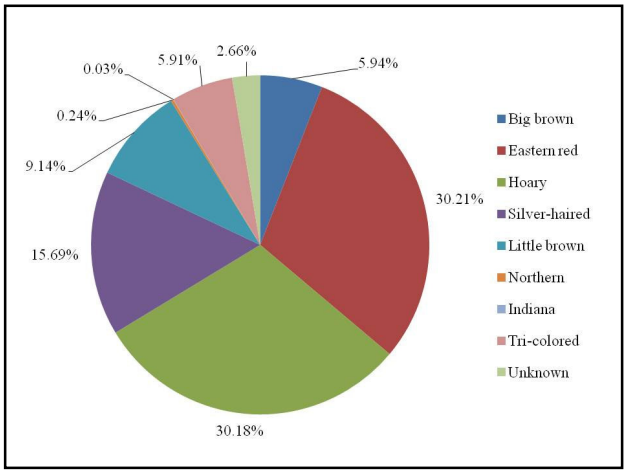


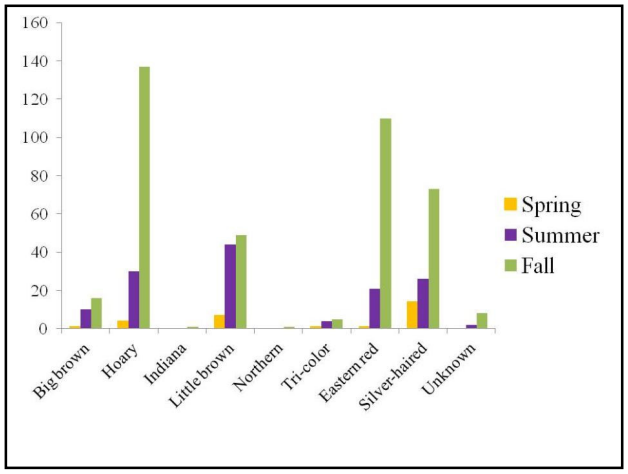


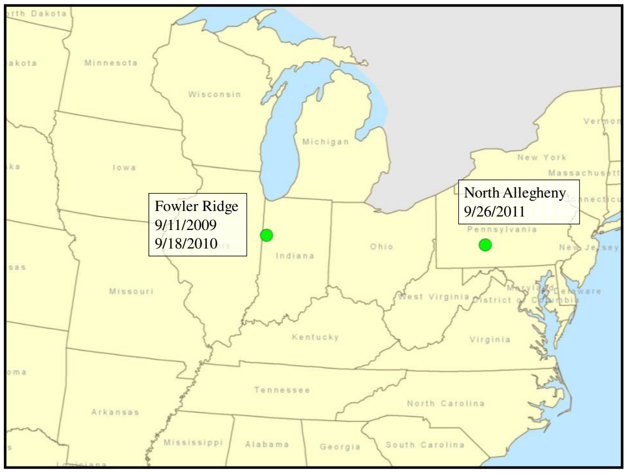

Role of the Service
• Advisory and enforcement
• Migratory Bird Treaty Act
• Bald and Golden Eagle Protection Act
• Endangered Species Act

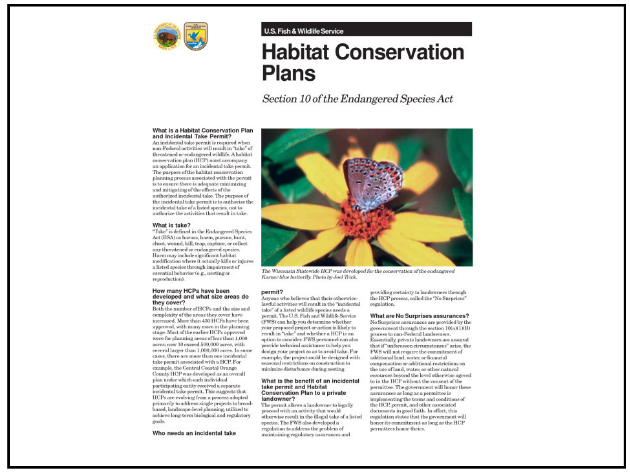

North Dakota
South Dakota
Minnesota
Wisconsin
Michigan
Nebraska
Iowa
Illinois
Indiana
Ohio
Kansas
Missouri
Kentucky
West Virginia
Virginia
Tennessee
North Carolina
South Carolina
Georgia
Alabama
Mississippi
Texas
Pennsylvania
New York
2.0
3.4
13.1
4.3
50.5
35.6
5.5
14.8
15.5
8.2
5.5
3.6
14.7
40.0
2.7
19.5
22.2
25.1
37.7
24.2
63.9
34,122 bats per year
853,071 bats

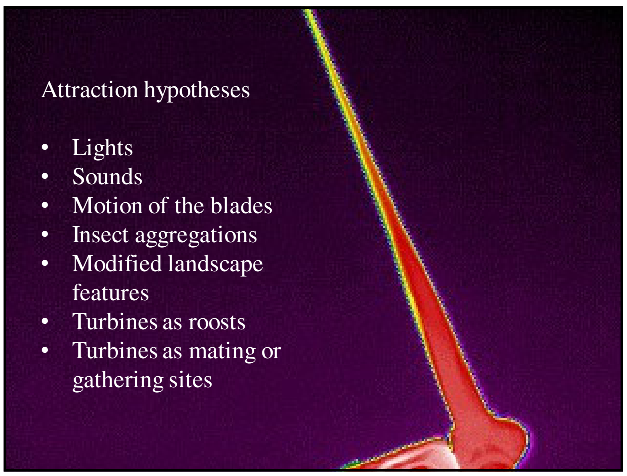

– Long lived species (6-12 years)
– Low reproductive rates (2-4 young)
– No population estimates
– No federal protection


0.03%
5.91%
2.66%
5.94%
0.24%
9.14%
30.21%
15.69%
30.18%
Big brown
Eastern red
Hoary
Silver-haired
Little brown
Northern
Indiana
Tri-colored
Unknown


160
140
120
100
80
60
40
20
0
Spring
Summer
Fall
Big brown
Hoary
Indiana
Little brown
Northern
Tri-color
Eastern red
Silver-haired
Unknown


Fowler Ridge
9/11/2009
9/18/2010
North Allegheny
9/26/2011
Minnesota
Wisconsin
Michigan
Iowa
Indiana
Ohio
Pennsylvania
New York
Missouri
Kentucky
West Virginia
Virginia
Tennessee
North Carolina
Arkansas
Mississippi
Alabama
Georgia
South Carolina


U.S. Fish & Wildlife Service
Habitat Conservation Plans
Section 10 of the Endangered Species Act


Attraction hypotheses
• Lights
• Sounds
• Motion of the blades
• Insect aggregations
• Modified landscape features
• Turbines as roosts
• Turbines as mating or gathering sites


The “F” word


Questions?