Wind Energy and Wildlife

Natural Resources Interim Committee

Thursday, March 29, 2018

Greg Link, Division Chief, Conservation and Communications

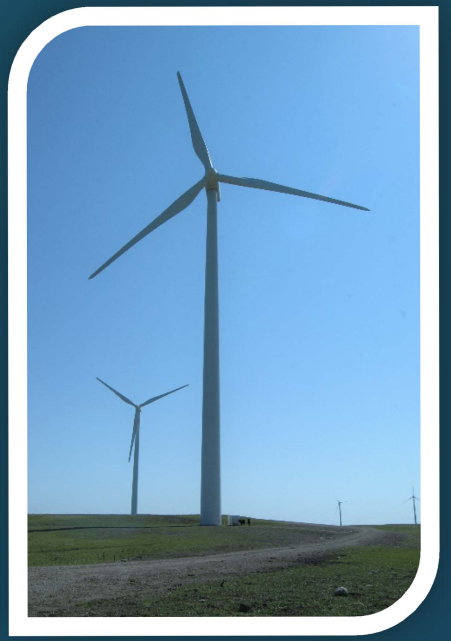
North Dakota Game and Fish Department

Wind and Wildlife

North Dakota Game and Fish Department

Topics

- Department Role and Responsibility in PSC Oversight
- State Wildlife Action Plan - Species of Conservation Priority
- Key Native Habitats
- Direct and Indirect Impacts
- Minimizing, Avoiding, and Offsetting Impacts
- Case Studies



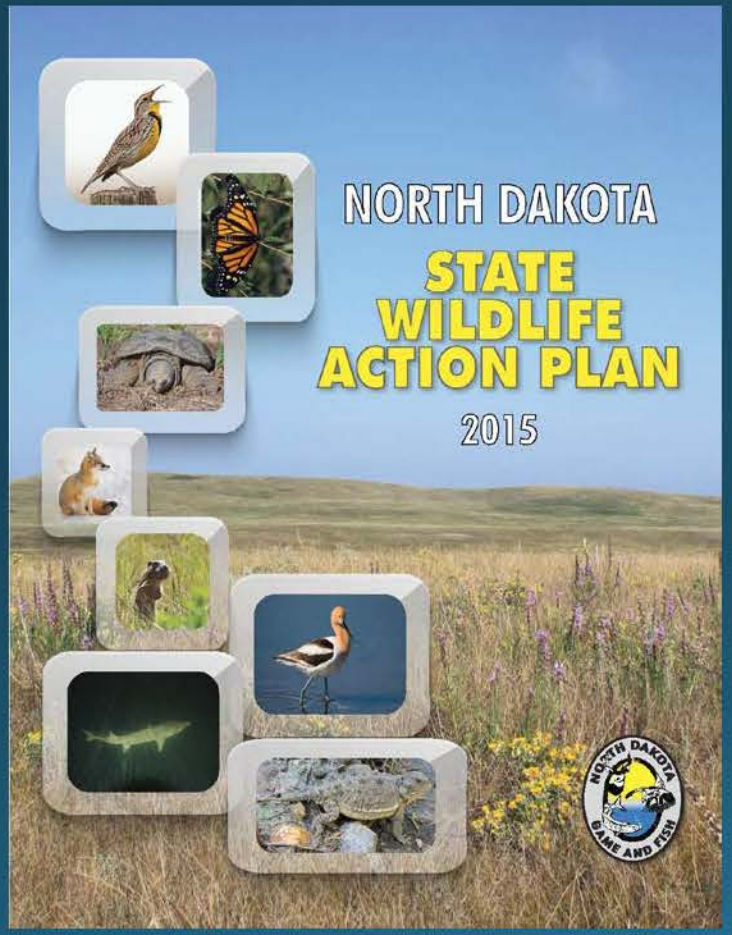
ND Game and Fish Department Roles and Responsibilities

- State's public trust responsibility for all wildlife
- Accountable not just for game populations, but also nongame species
- Special concern for rare, unique, and declining fish and wildlife
- Coordinating agency with PSC

Minimizing Impacts to Wildlife & Constituents

- North Dakota Administrative Rule Chapter 69-06-08
  - 1. **Exclusion areas**. The following geographical areas must be excluded in the consideration of a site for an energy conversion facility.
    - a. Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; historic districts; monuments; wilderness areas; wildlife areas; wild, scenic or recreational rivers; wildlife refuges; and grasslands
    - b. Designated or registered state: parks; forests; forest management lands; historic sites; monuments; historical markers; archaeological sites; grasslands; wild, scenic or recreational rivers; game refuges; game management areas; management areas; nature preserves
    - c. …hardwood draws; and enrolled woodlands
    - f. Areas critical to the life stages of threatened or endangered animal or plant species
    - g. Areas where **animal** or plant **species that are unique or rare to this state** would be irreversibly damaged
  - **3. Avoidance areas.**
    - e. Woodlands and wetlands
    - f. Areas of recreational significance which are not designated as exclusion areas

North Dakota State Wildlife Action Plan

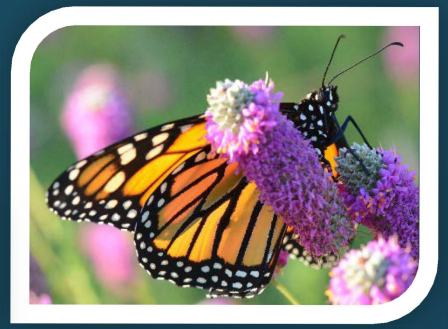


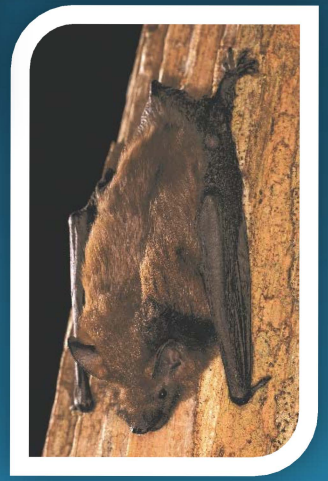
- Plan for sustaining ND's rare, unique, and declining Species of Conservation Priority
- Preserve the state's fish and wildlife resources for the foreseeable future
- Prevent further listings under the Endangered Species Act

Species of Conservation Priority

- Rare, declining, or at-risk species
- 115 species
  - 47 birds
  - 2 amphibians
  - 9 reptiles
  - 21 mammals
  - 22 fish
  - 10 mussels
  - 4 insects
- Mostly nongame species, but a few game



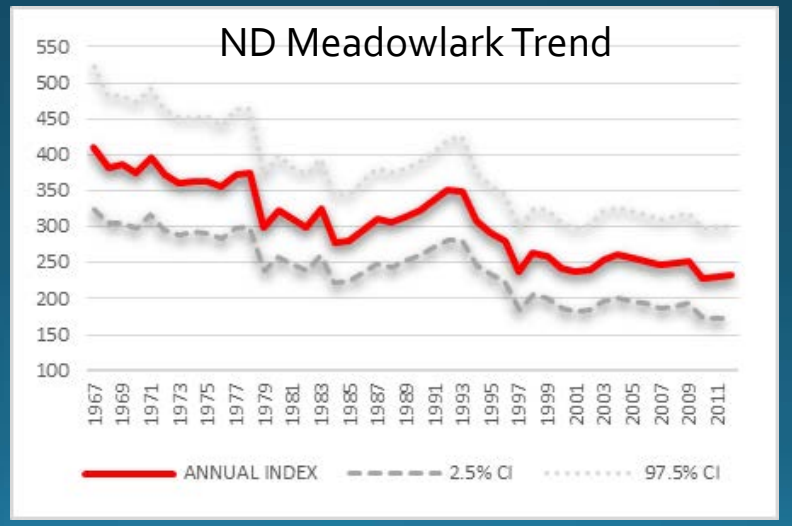




Species of Conservation Priority

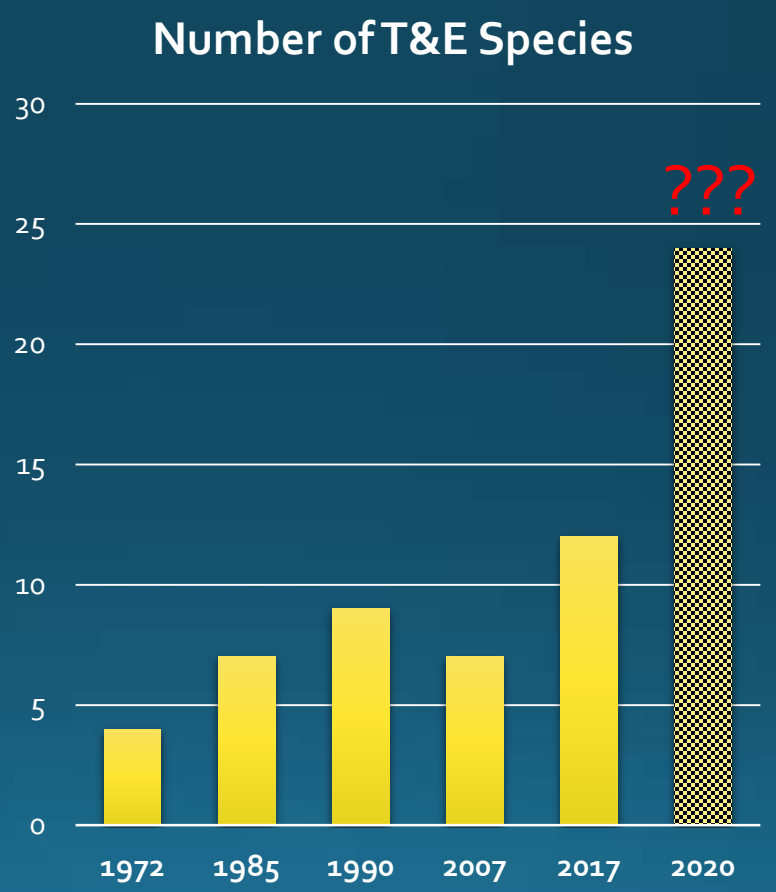
Western Meadowlark

- The State Bird is now rare in eastern 1/3 of the state.
- The population is steadily declining.
- Probably won't see an ESA petition, but meadowlarks are disappearing from ND.



Endangered Species

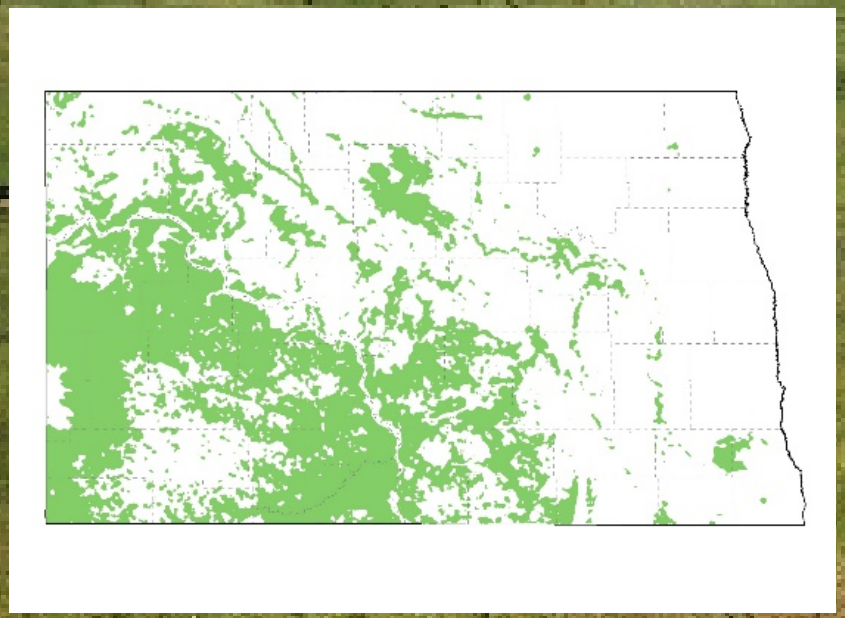
- U.S. Fish and Wildlife Service is the principal federal entity for administering the Endangered Species Act (ESA)
- 12 species currently listed as threatened or endangered in North Dakota
- 11 petitions/species that include ND are under review
- Anticipate more petitions and listings



Conserving Declining Species by Protecting North Dakota's Native Habitats

Native Prairie – Unbroken Grasslands

Support 48 Species of Conservation Priority



GRASSLAND (48)

American Kestrel
Baird's Sparrow
Bobolink
Brewer's Sparrow
Burrowing Owl
Chestnut-collared Longspur
Dickcissel
Ferruginous Hawk
Golden Eagle
Grasshopper Sparrow
Greater Prairie Chicken
Greater Sage-grouse
Lark Bunting
Le Conte's Sparrow
Loggerhead Shrike
Long-billed Curlew
Marbled Godwit
McCown's Longspur
Nelson's Sparrow
Northern Harrier
Peregrine Falcon
Prairie Falcon
Sharp-tailed Grouse
Short-eared Owl
Sprague's Pipit
Swainson's Hawk
Upland Sandpiper
Western Meadowlark
Willet
Wilson's Phalarope

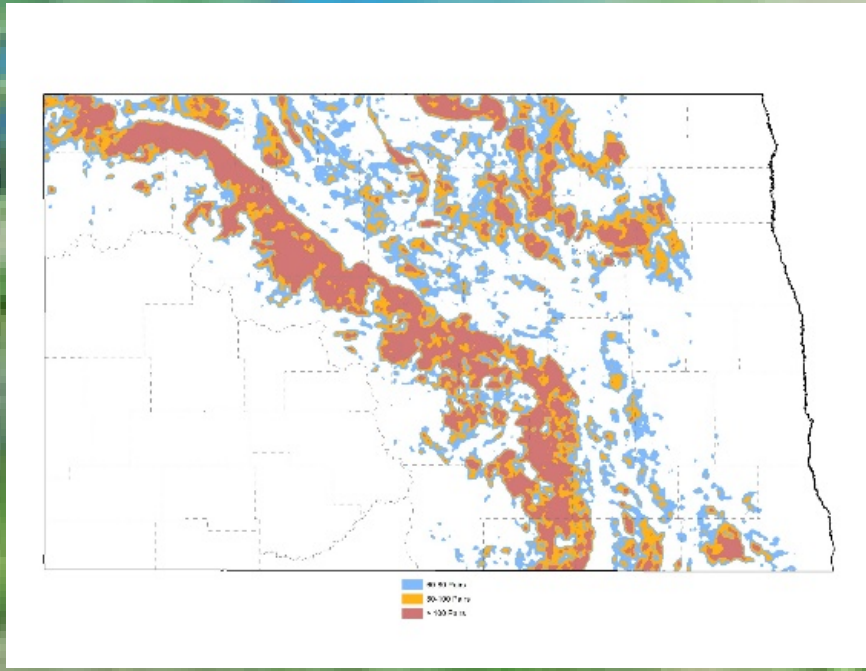
Northern Prairie Skink
Plains Hog-nosed Snake
Sagebrush Lizard
Short-horned Lizard
Smooth Green Snake

Black-footed Ferret
Black-tailed Prairie Dog
Hispid Pocket Mouse
Merriam's Shrew
Plains Pocket Mouse
Pygmy Shrew
Richardson's Ground Squirrel
Sagebrush Vole
Swift Fox

Dakota Skipper
Poweshiek Skipperling
Monarch Butterfly
Regal Fritillary

Wetlands

- Support 54 Species of Conservation Priority



WETLAND (54)

American Avocet
American Bittern
American White Pelican
Black Tern
Canvasback
Franklin's Gull
Horned Grebe
Least Tern (Interior)
Lesser Scaup
Northern Pintail
Piping Plover
Red Knot (Rufa)
Whooping Crane
Yellow Rail

Canadian Toad
Plains Spadefoot

False Map Turtle
Smooth Softshell
Snapping Turtle
Spiny Softshell

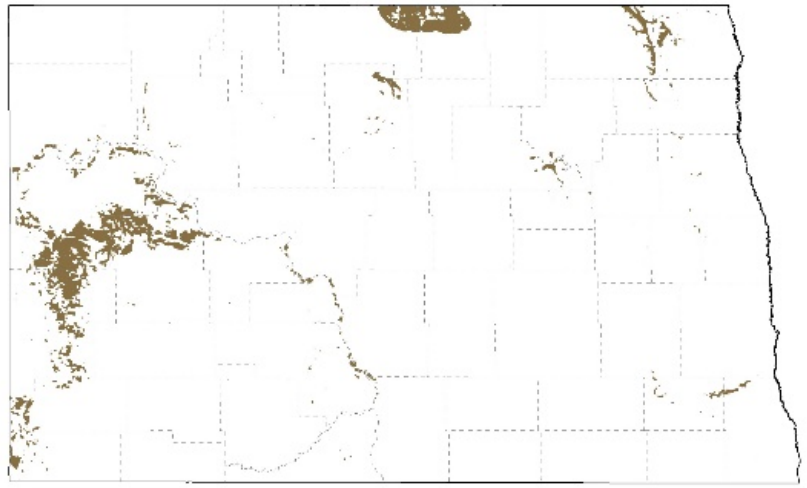
Arctic Shrew
River Otter

Blacknose Shiner
Blue Sucker
Burbot
Carmine Shiner
Chestnut Lamprey
Finescale Dace
Flathead Chub
Hornyhead Chub
Largescale Stoneroller
Logperch
Northern Pearl Dace
Northern Redbelly Dace
Paddlefish
Pallid Sturgeon
Pugnose Shiner
River Darter
Sicklefin Chub
Silver Chub
Silver Lamprey
Sturgeon Chub
Trout-perch
Yellow Bullhead

Black Sandshell
Creek Heelsplitter
Creeper
Deertoe
Fragile Papershell
Mapleleaf
Pink Heelsplitter
Pink Papershell
Threeridge
Wabash Pigtoe

Native Woodlands

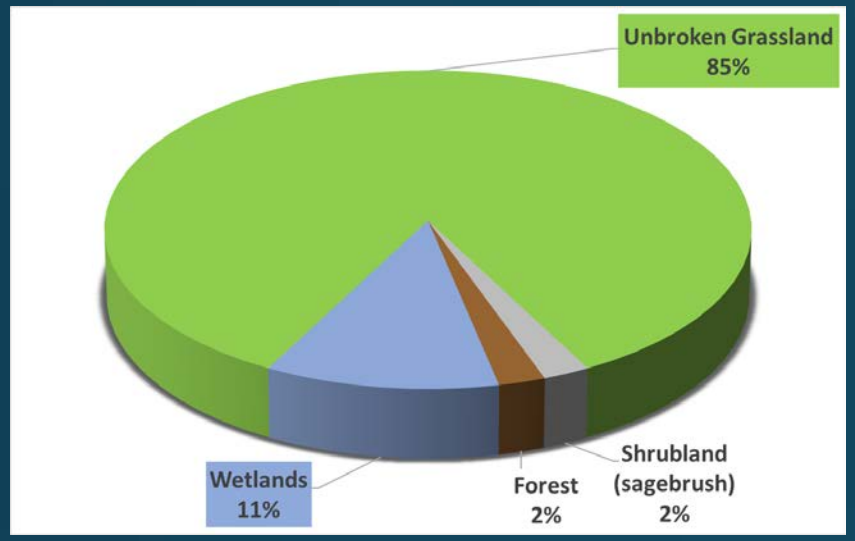
- Support 13 Species of Conservation Priority

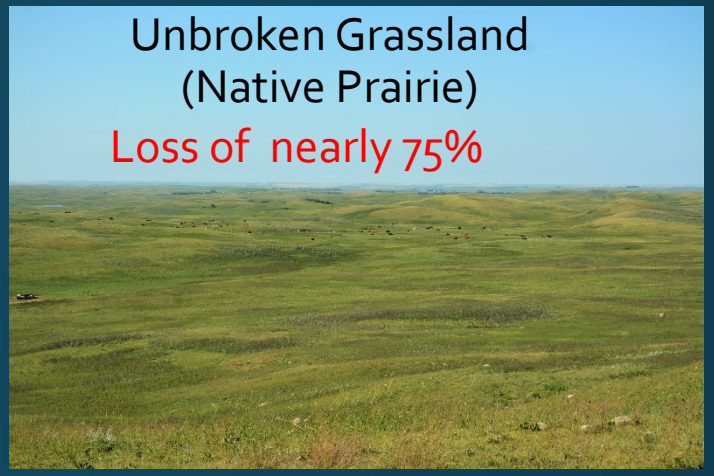


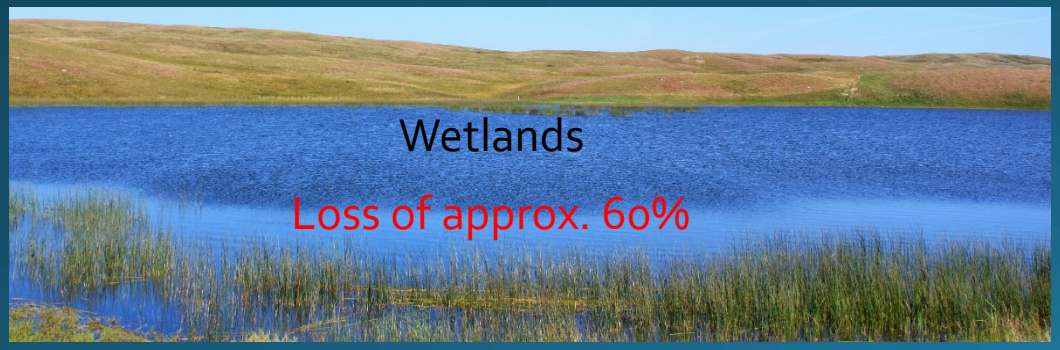
WOODLAND (13)
Bald Eagle
Black-billed Cuckoo
Red-headed Woodpecker

American Marten
Big Brown Bat
Eastern Spotted Skunk
Gray Fox
Little Brown Bat
Long-eared Bat
Long-legged Bat
Northern Long-eared Bat
Townsend's Big-eared Bat
Western Small-footed Bat

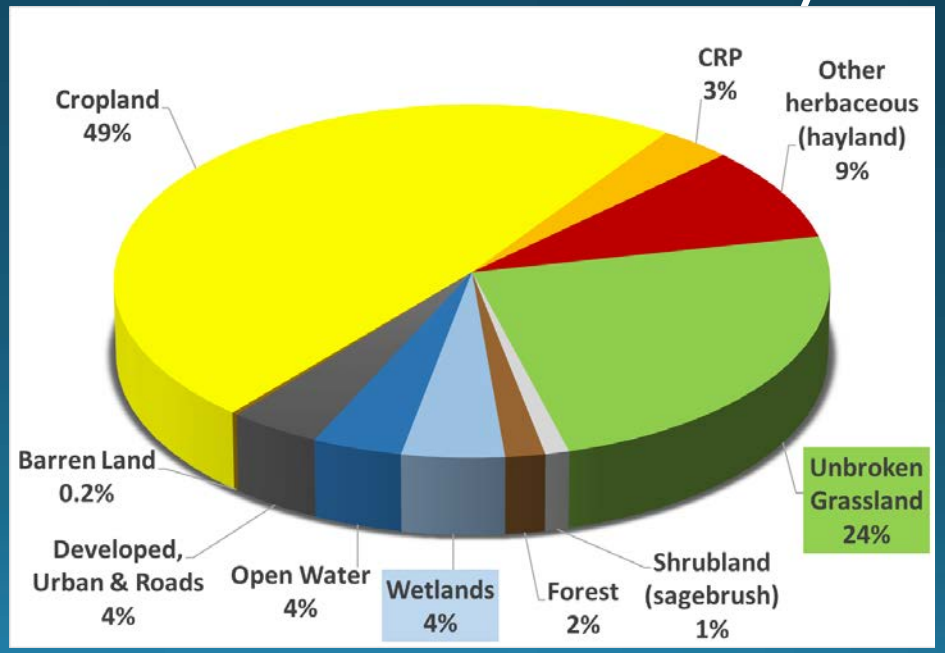
North Dakota 200 years ago…



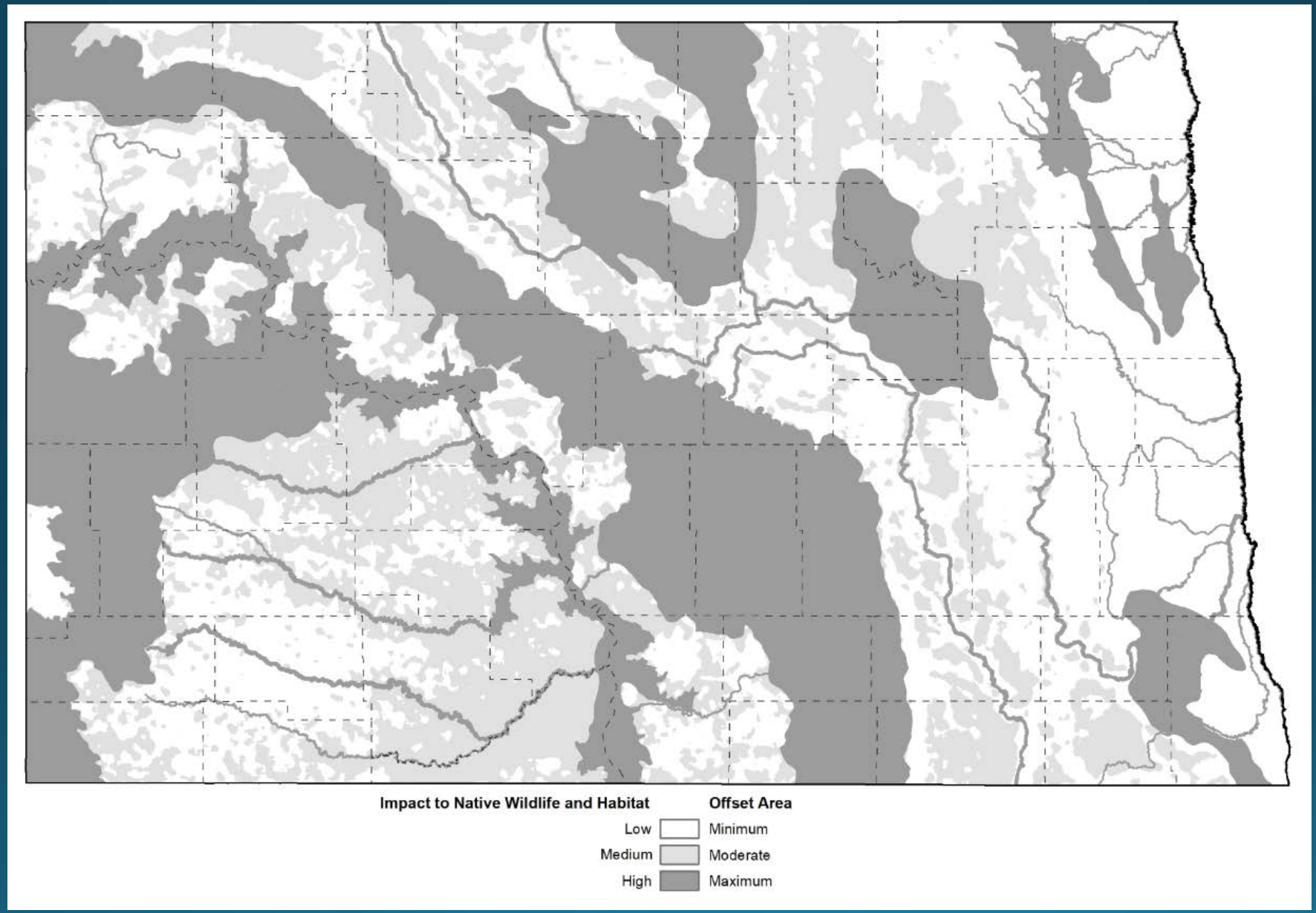




North Dakota today…



Key Native Wildlife Habitat Areas



Wind Development Impacts

Direct

- Wildlife fatality due to collisions
- Habitat loss

Indirect

- Disturbance – avoidance and displacement of wildlife
  - Noise
  - Shadow flicker
  - Traffic
  - Etc.

Direct Impacts - Collisions

- Cumulative impact to wildlife populations is not certain.
- North America Fatality Estimates:
  - Birds
    - 3 to 6 birds per MW per year
  - Bats
    - 1 to 30 bats per MW per year
- ND study: **30** species of birds killed in grasslands versus **9** species in agricultural lands

Talking Points about Wind Turbine Collisions

- Often focuses on large birds such as raptors, but small birds (e.g. warblers, sparrows) account for 60% of fatalities.
- No recorded fatality of a Whooping Crane yet…but population is increasing.
- Bald Eagles are increasing (300+ nest sites in ND) and collisions may occur anywhere in the state.
- Pheasant collisions were reported at a western ND wind farm.
- Tree roosting bats (Hoary, Eastern Red Bat, and Silver-haired Bat) might mistake wind turbines for trees.

- Bird and bat fatalities will occur at every wind energy facility in North Dakota…but we believe collisions will be minimized in the low impact areas.

North Dakota Mortality Report

Formal fatality searches conducted at all 100 turbines from April 2017 thru October 2017.

Total fatalities = 278

Total birds = 177 (48 species)

Total bats = 101 (4 species)

BATS	#
Eastern Red Bat	25
Hoary Bat	50
Little Brown Bat	2
Silver-haired Bat	18
Unidentified bat	6

WATERFOWL, WATERBIRDS	#
American Coot	6
American White Pelican	8
Blue-winged Teal	3
Canada Goose	6
Canvasback	1
Cinnamon Teal	2
Double-crested Cormorant	1
Franklin's Gull	2
Gadwall	5
Killdeer	3
Long-billed Dowitcher	1
Mallard	46
Northern Pintail	2
Northern Shoveler	5
Pectoral Sandpiper	1
Redhead	1
Ruddy Duck	2
Sora	3
Unidentified duck	4
Unidentified waterfowl	2
Virginia Rail	2
Western Grebe	1

RAPTORS	#
Bald Eagle	1
Northern Harrier	1
Red-tailed Hawk	2

SONGBIRDS	
American Tree Sparrow	1
Black-and-White Warbler	1
Black-billed Cuckoo	1
Brewer's Blackbird	1
Chimney Swift	1
Common Grackle	3
European Starling	2
Golden-crowned Kinglet	1
Horned Lark	1
House Wren	1
Lapland Longspur	2
Le Conte's Sparrow	1
Lincoln's Sparrow	1
Mourning Dove	2
Nelson's Sharp-tailed Sparrow	1
Northern Flicker	5
Philadelphia Vireo	1
Red-eyed Vireo	1
Red-winged Blackbird	5
Ruby-crowned Kinglet	2
Song Sparrow	4
Unidentified blackbird	2
Unidentified small bird/passerine	16
Unidentified large bird	5
Warbling Vireo	2
Yellow-headed Blackbird	1
Yellow-rumped Warbler	1

UPLAND GAME BIRDS	#
Ring-necked Pheasant	1

Direct Impacts – Loss of Habitat

- So far in ND, turbines and associated roads sited in native, unbroken grassland have resulted in the cumulative loss of approximately 2,400 acres of habitat for rare, unique and declining species.

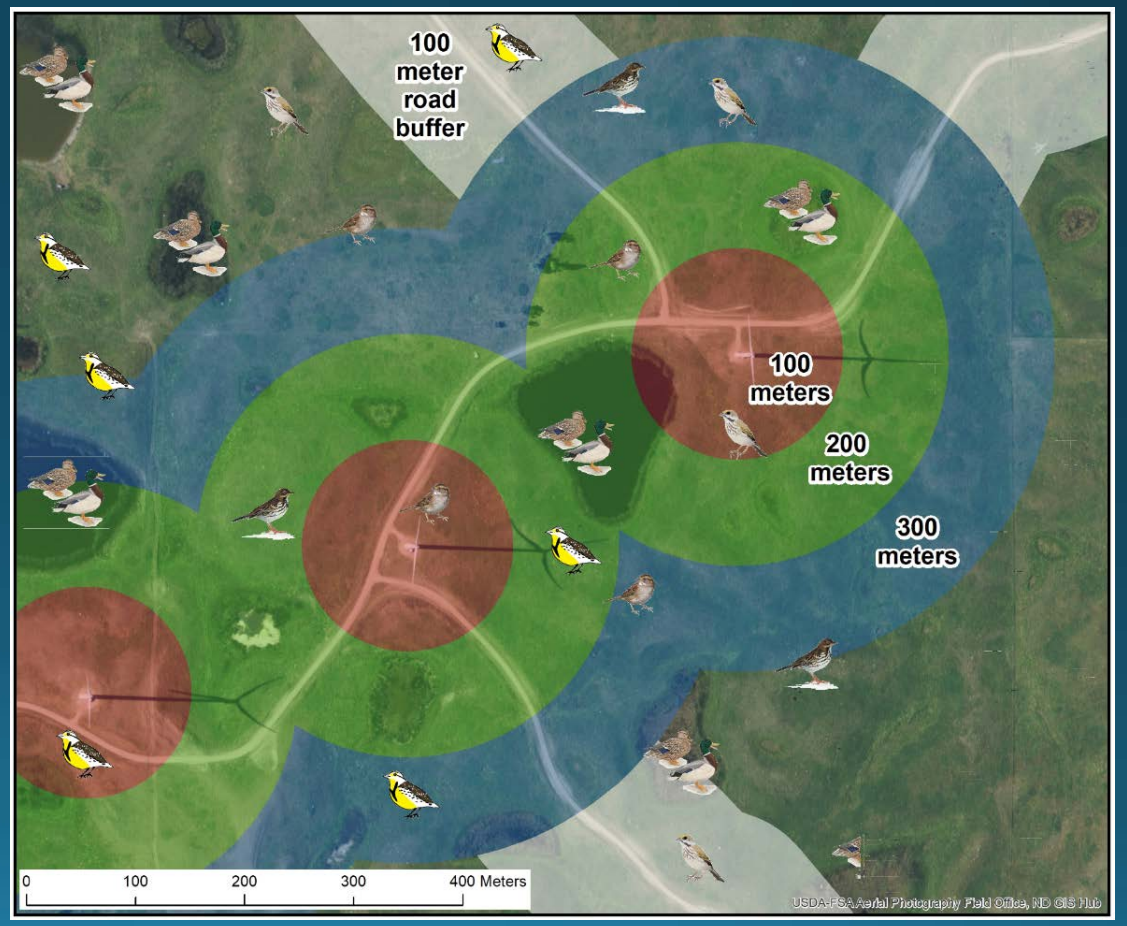
Indirect Impacts – Avoidance/Displacement

- The long-term impacts to wildlife from wind farms are of an indirect nature
- These are harder to "see" and quantify.
  - 20% fewer ducks breeding in wind projects
  - Displacement of grassland nesting birds up to 400 meters from turbines

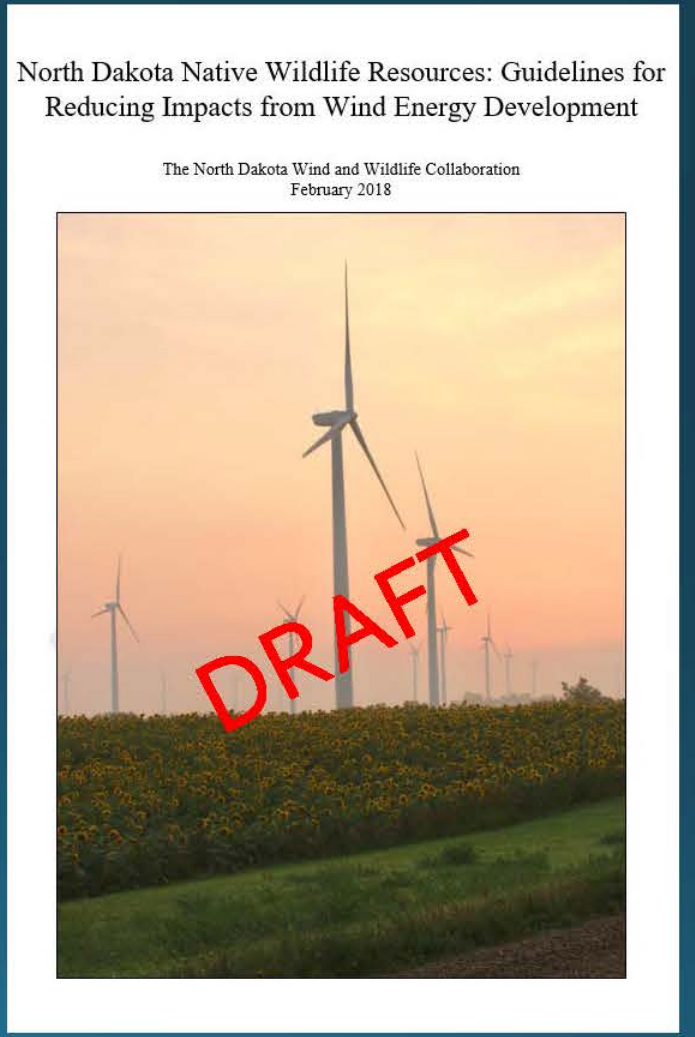
An example of the bird community before wind development.

	Before	After
Number of duck pairs	10	8
Number of grassland birds <100 m from turbine	8	3
Number of grassland birds 100-200 m from turbine	10	4
Number of grassland birds 200-300m from turbine	15	8

The bird community 5 years after wind development. Birds are still using habitat within the area around the turbines but the number is much fewer… nearly 60%.



Voluntary Guidelines for Reducing and Offsetting Impacts from Wind Energy Development



GOAL: Avoid, Minimize, and Offset Impacts

- Provide transparent and predictable tool for use by industry to plan and site turbines on the landscape to avoid and reduce impacts to native habitats
- Encourage development activities to occur outside of high priority areas
- No-net-loss of state's native habitat from wind development – offset impacts when avoidable
- Stem decline of imperiled species… preclude listings of additional T&E species

Impact/Offset Calculator

- Accounts direct and indirect impacts to key native habitats:
  - Unbroken grasslands blocks > 160 ac.
  - Wetlands
  - Native woodlands

- Calculates offset ratios for direct and indirect impacts:
  - Unbroken grasslands blocks > 160 ac.
  - Wetlands
  - Native woodlands

- Science-based

- Collaboration with wind and conservation interests

- Based on existing offset frameworks from other states

Assessing Impacts and Assigning Offsets

- Direct Impacts: account actual acres of habitat destroyed
  - Area under roads, turbine pads, etc.
  - Seek long-term restoration of habitat

- Indirect Impacts: account acres impacted by disturbance
  - 100 m buffer from roads
  - 200 m buffer from turbine
  - Seek appropriate term offset of like habitat

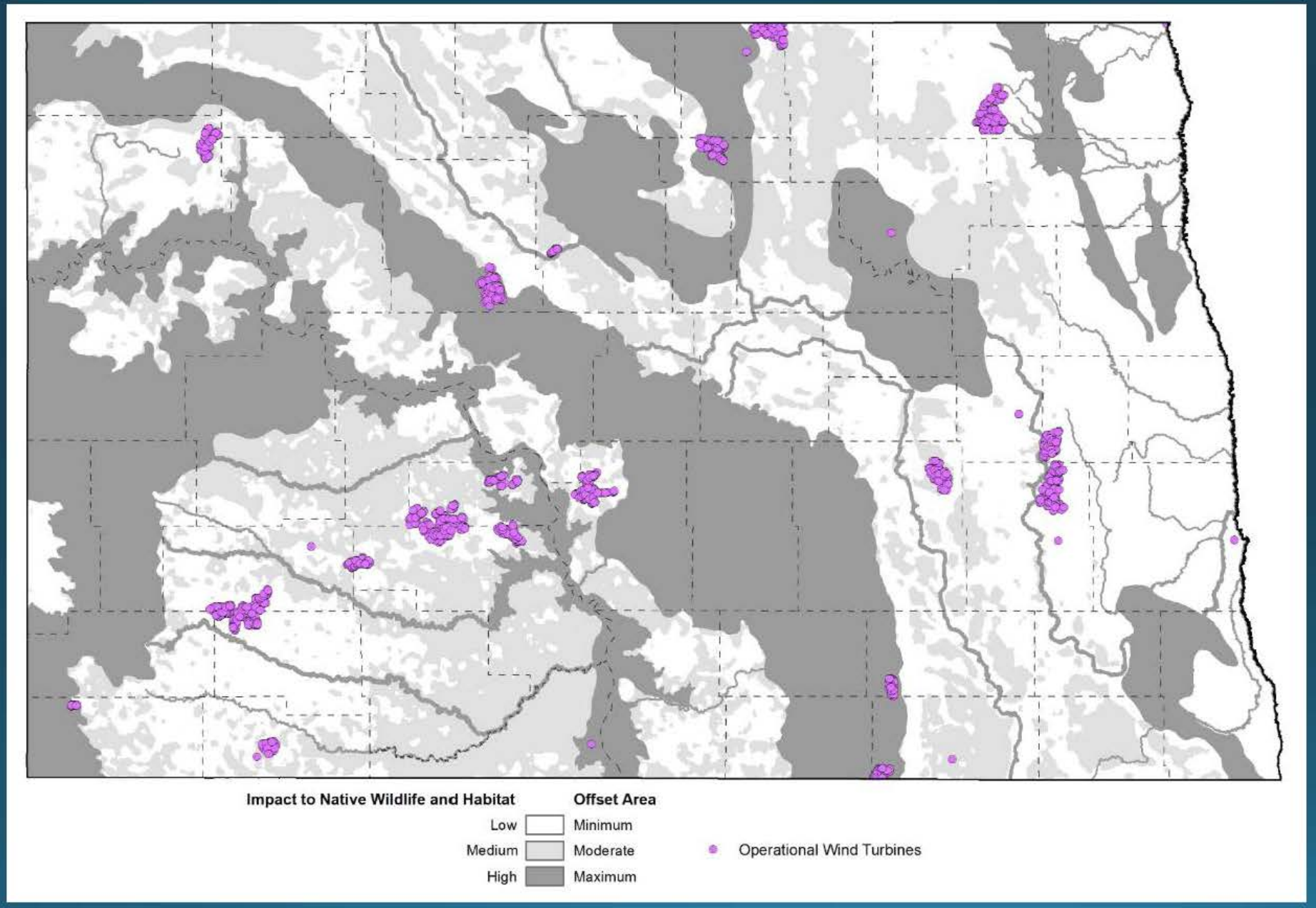
Offset Delivery

- Appropriate offset products and their application are still in development
- Offsets units are accounted in acres of habitat, not dollars
- Offsets should properly match the impact… same type of habitat and similar duration
- Looking for service providers other than the Game and Fish Department

Case Studies

Past, Present, Future

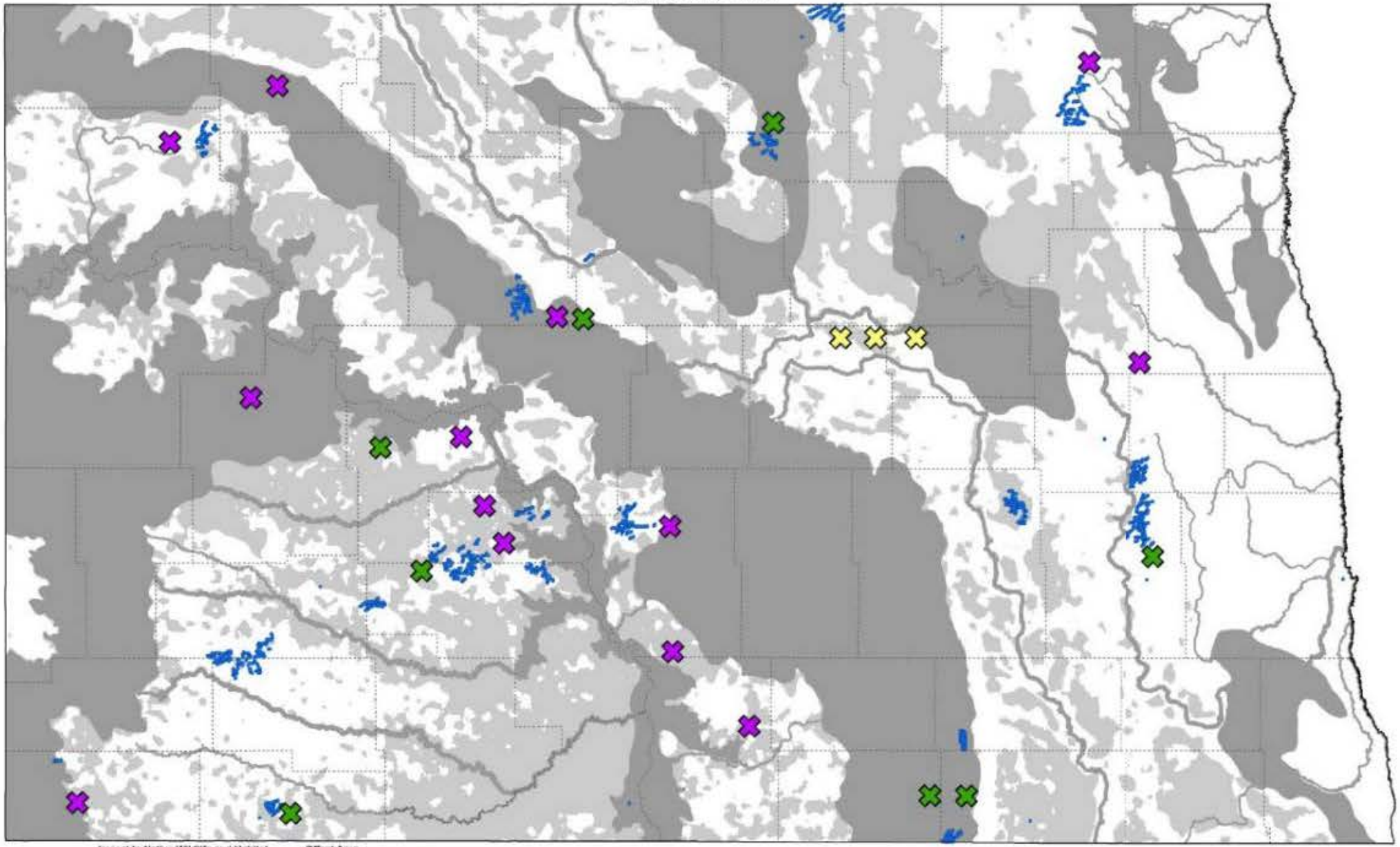
Active Wind Turbines



Wind Project Impacts - Historical

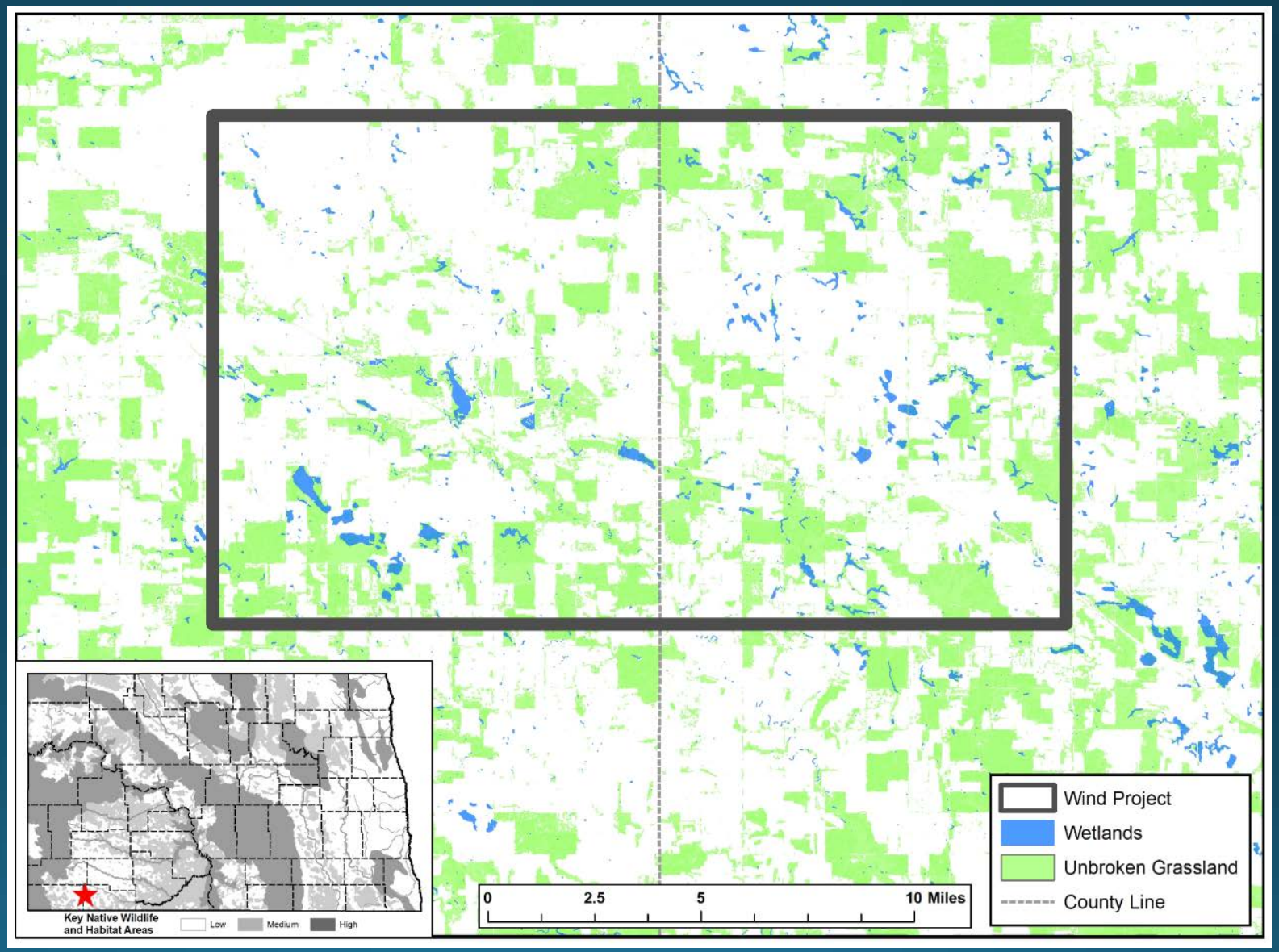
Project Name	Owner	Total Turbines	# Turbines in Native Prairie ≥ 160 Acres	# Turbines in Native Prairie < 160 Acres	Total in Native Prairie	% of Turbines in Native Prairie	Direct Loss of Native Prairie Acres (4.5 acres per turbine)	Total Miles New Roads	Total Miles New Roads in Native Prairie	% of Roads in Native Prairie	Direct Loss of Native Prairie Acres (50 feet wide per linear
Ashtabula Wind I, II & III	NextEra Energy	282	15	5	20	7.09%	90.0	61.58	3.37	5.47%	20.42
Baldwin/Wilton I & II	NextEra Energy	130	18	5	23	17.69%	103.5	27.66	5.04	18.22%	30.55
Bison 1, 2, 3 & 4	Minnesota Power	165	51	19	70	42.42%	315.0	58.25	16.4	28.15%	99.39
Border Winds	Xcel Energy	75	0	0	0	0.00%	0.0	22.82	0	0.00%	0.00
Brady I & II	NextEra Energy	158	22	5	27	17.09%	121.5	65.99	11.89	18.02%	72.06
Cedar Hills Wind Project	Montana-Dakota Utilities	13	7	0	7	53.85%	31.5	1.78	1.05	58.99%	6.36
Courtenay Wind Farm	Xcel Energy	100	0	1	1	1.00%	4.5	22.01	0.14	0.64%	0.85
Langdon Wind I & II	NextEra Energy	133	2	0	2	1.50%	9.0	34.75	0.26	0.75%	1.58
Lindahl Wind Project	Enel Green Power North America	75	16	3	19	25.33%	85.5	21.7	4.82	22.21%	29.21
North Dakota Wind	NextEra Energy	41	0	1	1	2.44%	4.5	9.41	0.09	0.96%	0.55
Oliver Wind I & II	NextEra Energy	54	48	3	51	94.44%	229.5	14.87	13.01	87.49%	78.85
Oliver Wind III	NextEra Energy	47	15	2	17	36.17%	76.5	15.56	4.5	28.92%	27.27
PrairieWinds ND1	Basin Electric	82	15	1	16	19.51%	72.0	29.12	4.19	14.39%	25.39
Rugby Wind Farm	Avangrid Renewables	71	31	5	36	50.70%	162.0	17.77	7.13	40.12%	43.21
Sunflower Wind Project	Novatus Energy	52	14	4	18	34.62%	81.0	17.01	3.4	19.99%	20.61
Tatanka Wind Farm	Acciona Energy	61	54	0	54	88.52%	243.0	14.02	12.98	92.58%	78.67
Thunder Spirit	Montana-Dakota Utilities	43	28	2	30	69.77%	135.0	14.74	9.25	62.75%	56.06
Velva Wind Farm	Acciona Energy	18	0	6	6	33.33%	27.0	2.33	0.71	30.47%	4.30
TOTAL		1600	336	62	398	24.88%	1791.0	451.37	98.23	21.76%	595.33

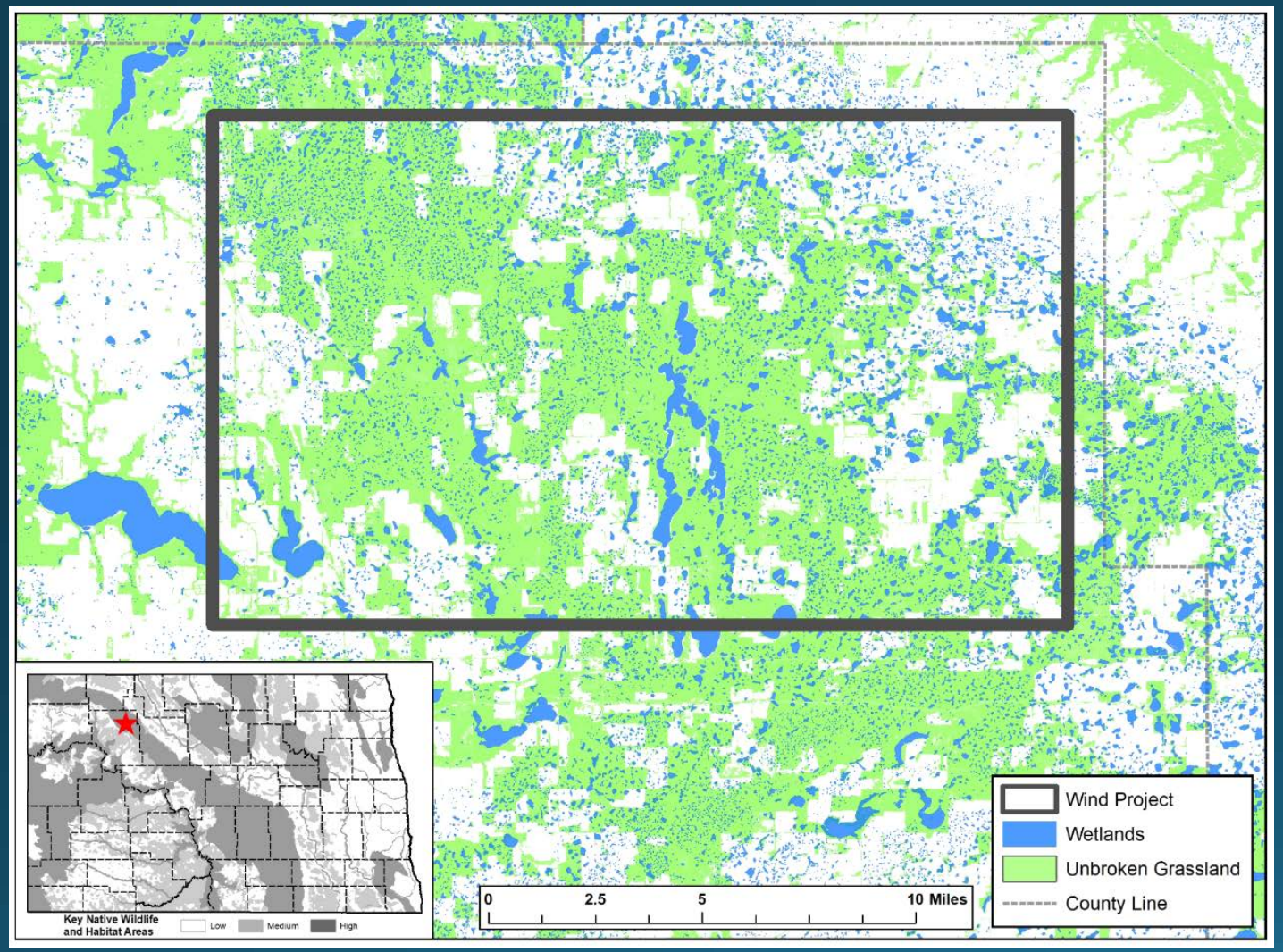
Current and Proposed Wind Farms in North Dakota Key Native Wildlife and Habitat Areas
March 21, 2018



Example #1

- Medium/Low Impact to Key Native Wildlife and Habitat
- Low wetland density
- Fair amount of unbroken grassland
- Ability to avoid using proper placement





Example #2

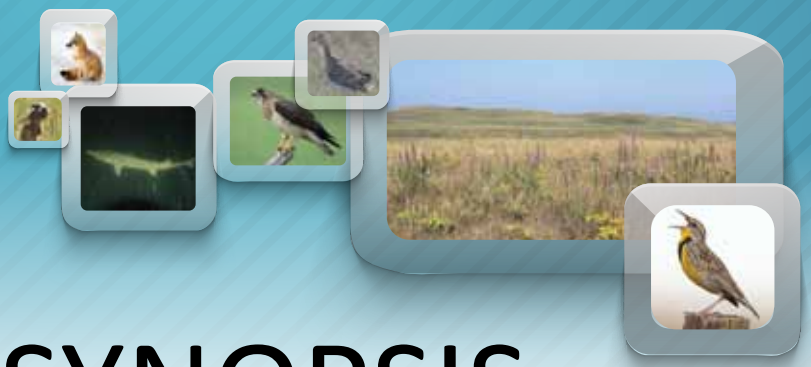
- High Impact to Key Native Wildlife & Habitat
- High wetland density
- High percentage of unbroken grassland
- Complexities in order to avoid impacts

OVERVIEW: Key Components of the Guidelines for Reducing Impacts from Wind Energy Development

- Clarity, transparency and predictability in the permitting process
- No exclusion areas
- Biologically driven focus areas
- Encourage development activities to occur outside of high priority areas
- No net loss of native habitats
- Compromise

Questions????

NORTH DAKOTA STATE WILDLIFE ACTION PLAN 2015



SYNOPSIS

February 2016

This is a summary of the 2015 North Dakota State Wildlife Action Plan (SWAP). The SWAP is a comprehensive document and this synopsis should not be used to replace the SWAP.

What is North Dakota's State Wildlife Action Plan?

The 2015 North Dakota State Wildlife Action Plan replaces the 2005 North Dakota Comprehensive Wildlife Conservation Strategy as the principle document for safeguarding rare and declining fish and wildlife species in North Dakota. This newer second "edition" not only has a different name, but has been revised to include new information generated by State Wildlife Grant (SWG) studies conducted over the past 10 years. Examples include, but are not limited to, changes to the species of conservation priority list, focus areas, range/distribution maps, threats and management actions.

The SWAP is built upon eight essential elements, with an overall focus on the "species of greatest conservation need," or as we have labeled them, "species of conservation priority." The eight elements include: (1) information on the distribution and abundance of wildlife species, including low and declining populations; (2) descriptions of locations and relative condition of key habitats and community types; (3) problems affecting species and priority research or survey efforts needed; (4) conservation actions needed to conserve the identified species; (5) plans for monitoring species and the effectiveness of conservation actions; (6) plans for reviewing the plan; (7) coordinating with federal, state and local agencies and Tribal government on the development and implementation of the plan; (8) and involve broad public participation.

The number of species of conservation priority increased from 100 under the old plan to 115 in the current SWAP. While 20 new species were added to the list, five species were removed. The current list includes 47 birds, two amphibians, nine reptiles, 21 mammals, 22 fish, 10 freshwater mussels and four insects. It is important to recognize that species of conservation priority often depend on several habitat types or landscape components for survival. The key to ensuring their long-term survival is to maintain diverse grasslands, wetlands, woodlands, rivers and streams. These habitats cannot be reduced to certain isolated areas, but must occur over a broad landscape.

Completion of the SWAP marks the 10-year anniversary of the first dedicated program for rare and declining fish and wildlife species in North Dakota. Although substantial progress was made in the past decade, considerable work remains. As North Dakota is experiencing widespread habitat threats and challenges, the SWAP will serve as an important tool in dealing with these issues.

Furthermore, preventing species from becoming listed as federally threatened or endangered is important. A listing has the potential to influence how public and private land is managed and used. The cost of protection or restoration of a listed species is far greater than preventing its decline in the first place. From an ecological perspective, loss of a seemingly insignificant species can cause other animals to decline, or vanish. Such declines are hard to predict as many relationships are not yet well understood. Even so, animals that live in North Dakota are part of the state's legacy, and many people believe the demise of any species is tragic.

Species of Conservation Priority

Once a species was designated as a SCP they were placed in one of three Levels. The levels were designated as a way to prioritize funding for SWG projects. The levels are defined as follows:

- **Level I:** Species in decline and receive little or no monetary support or conservation efforts. North Dakota Game and Fish Department has a clear obligation to use SWG funding to implement conservation actions that directly benefit these species. Level I species are those having a:
  - high level of conservation priority because of declining status either here or across their range –OR-
  - high rate of occurrence in North Dakota constituting the core of the species breeding range (i.e. "responsibility" species), but are at-risk range wide

– **Level II:** North Dakota Game and Fish Department will use SWG funding to implement conservation actions to benefit these species if SWG funding for Level I species is sufficient or conservation needs have been met. Level II species are those having a:
  – moderate level of conservation priority –OR-
  – high level of conservation priority, but a substantial level of non-SWG funding is available to them
- **Level III:** North Dakota's species having a moderate level of conservation priority, but are believed to be peripheral or nonbreeding in North Dakota.

The important message to remember is regardless of level assignment, all species on the list are of concern for various reasons and there is an urgency to sustain them on North Dakota's landscape.


Chestnut-collared longspur


Short-horned lizard


Monarch butterfly

BIRDS	LEVEL
American Avocet	II
American Bittern	I
American Kestrel	II
American White Pelican	II
Baird's Sparrow	I
Bald Eagle	II
Black Tern	I
Black-billed Cuckoo	I
Bobolink	II
Brewer's Sparrow	III
Burrowing Owl	II
Canvasback	II
Chestnut-collared Longspur	I
Dickcissel	II
Ferruginous Hawk	I
Franklin's Gull	I
Golden Eagle	II
Grasshopper Sparrow	I
Greater Prairie Chicken	II
Greater Sage-grouse	I
Horned Grebe	I
Lark Bunting	I
Le Conte's Sparrow	II
Least Tern (Interior)	II
Lesser Scaup	II
Loggerhead Shrike	II
Long-billed Curlew	I
Marbled Godwit	I
McCown's Longspur	III
Nelson's Sparrow	I
Northern Harrier	II
Northern Pintail	II
Peregrine Falcon	III
Piping Plover	II
Prairie Falcon	II
Red-headed Woodpecker	I
Red Knot (Rufa)	III
Sharp-tailed Grouse	II
Short-eared Owl	II
Sprague's Pipit	I
Swainson's Hawk	I

BIRDS *(con't.)*	LEVEL
Upland Sandpiper	II
Western Meadowlark	II
Whooping Crane	III
Willet	II
Wilson's Phalarope	I
Yellow Rail	I
AMPHIBIANS	
Canadian Toad	I
Plains Spadefoot	I
REPTILES	
False Map Turtle	III
Northern Prairie Skink	III
Plains Hog-nosed Snake	I
Sagebrush Lizard	III
Short-horned Lizard	II
Smooth Green Snake	I
Smooth Softshell	III
Snapping Turtle	II
Spiny Softshell	III
MAMMALS	
American Marten	II
Arctic Shrew	III
Big Brown Bat	I
Black-footed Ferret	II
Black-tailed Prairie Dog	I
Eastern Spotted Skunk	III
Gray Fox	III
Hispid Pocket Mouse	III
Little Brown Bat	I
Long-eared Bat	III
Long-legged Bat	III
Merriam's Shrew	III
Northern Long-eared Bat	I
Plains Pocket Mouse	III
Pygmy Shrew	II
Richardson's Ground Squirrel	II
River Otter	II
Sagebrush Vole	III
Swift Fox	II
Townsend's Big-eared Bat	I
Western Small-footed Bat	III

INSECTS	LEVEL
Dakota Skipper	II
Poweshiek Skipperling	II
Monarch Butterfly	I
Regal Fritillary	I
FISH	
Blacknose Shiner	III
Blue Sucker	I
Burbot	II
Carmine Shiner	III
Chestnut Lamprey	III
Finescale Dace	III
Flathead Chub	II
Hornyhead Chub	III
Largescale Stoneroller	III
Logperch	III
Northern Pearl Dace	I
Northern Redbelly Dace	II
Paddlefish	II
Pallid Sturgeon	II
Pugnose Shiner	III
River Darter	III
Sicklefin Chub	I
Silver Chub	II
Silver Lamprey	III
Sturgeon Chub	I
Trout-perch	II
Yellow Bullhead	III
MUSSELS	
Black Sandshell	II
Creek Heelsplitter	I
Creeper	III
Deertoe	III
Fragile Papershell	III
Mapleleaf	III
Pink Heelsplitter	II
Pink Papershell	I
Threeridge	II
Wabash Pigtoe	II

Habitat

North Dakota's natural habitat was predominantly prairie. Over the past 150-plus years, the landscape has changed dramatically. Although tracts of native prairie still exist in many areas, they are traversed by a road nearly every mile. It is estimated that more than 50 percent of the prairie and wetlands have been plowed or drained. Numerous tree shelterbelts were planted to help reduce erosion and protect farmsteads, which provides habitat for some species, but may interfere with the lifecycle of others, such as grassland nesting birds. Several large reservoirs were constructed, including Lake Sakakawea, which altered the natural flooding cycle of the Missouri River, North Dakota's largest riparian system. The landscape described by many early explorers and pioneers has changed considerably. North Dakota is not the vast expanse of treeless prairie it once was. There is, however, great potential to protect, conserve and enhance what remains and restore what was lost.


Missouri River

Nine landscape components encompassing the major habitat types of North Dakota were identified in the SWAP. There are a variety of grassland habitat types, including native or uncultivated land, and planted grasslands. The major grassland landscape components are ***Tallgrass Prairie (Red River Valley), Eastern Mixed-grass Prairie (Drift Prairie), Mixed-grass Prairie (Missouri Coteau), and Western Mixed-grass/ Short-grass Prairie (Missouri Slope).*** In addition, **Planted or Tame Grassland,** has been identified as a major grassland landscape component. These grasslands are located across the state. The other major landscape components are ***Wetlands and Lakes; Rivers, Streams and Riparian; Badlands; and Upland Forest.***


Missouri Coteau

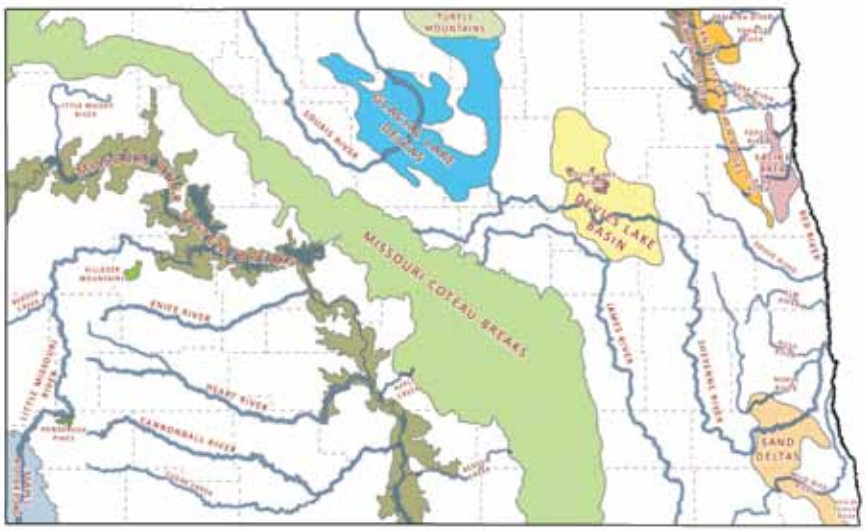

Badlands


Riparian

In some cases there was sufficient information or reason to identify focus areas within a particular landscape component. Focus areas typically exhibited unique or easily identifiable differences in vegetation, soils, topography, hydrology or land use. Focus areas are highly variable in size and often represent an area of native vegetation or a natural community type rare to North Dakota. A total of 21 focus areas were identified. Note that no specific focus areas were identified within the wetlands and lakes and badlands landscapes, but that does not imply these are not important habitats. More than one million wetlands are scattered across North Dakota and all wetland types are important for wildlife and hydrophyte plants, water storage and water quality. Wetlands are included as a key component within identified focus areas.

Conservation Actions

There are various reasons why a particular species may be declining or at-risk. Threats impacting species are wide-ranging, including but not limited to direct conversion of habitat (e.g. from urban, cropland, or energy development), invasive or detrimental plants and noxious weeds, fire or fire suppression, wetland consolidation, or even anthropomorphic related, such as noise and light pollution. The SWAP provides detailed description of threats and conservation



Focus areas

actions for each of the major landscape components and species specific management recommendations. The focus must remain on solutions to preventing species from becoming federally threatened or endangered. There are five recurrent conservation actions identified throughout all major landscape components that will make this happen.

1. ***Offer incentives and programs to protect, enhance, and restore habitat.***
   The majority of land in North Dakota is held in private ownership. There are numerous federal, state and local programs to provide landowners, with cost-sharing assistance to protect, enhance and restore wildlife habitat. This is the primary mechanism for ensuring long-term conservation of SCP and other wildlife in North Dakota. North Dakota Game and Fish Department staff will work with partners to ensure programs are fully encompassing the needs to conserve SCP and expand programs where necessary, particularly farm bill programs, such as the Agricultural Conservation Easement Program, and pollinator habitat programs.
2. ***Urge ecologically responsible ordinances and suitable reclamation standards.***
   Increasing demand for urban, energy and utility development is heightening the need to minimize impacts to SCP and other wildlife. Although environmental review is provided by federal and state agencies, the recommendations are often unheeded. Ecologically sound ordinances and reclamation standards must be strengthened and utilized.

3. ***Promote and support holistic grazing and work with grass-based agricultural groups.***
   The majority of the SCP are grassland dependent. The key to maintaining grassland as an integral part of the North Dakota landscape is to ensure grassland ranching persists. Furthermore, prairies evolved with grazing by large ungulates and cattle grazing is a beneficial tool to maintain native vegetation, particularly if applied in a holistic manner.

4. ***Use best management practices or ecological site descriptions.***
   Experts in various fields have developed best management practices for a particular habitat component. The Natural Resources Conservation Services has developed ecological site descriptions, which describe the composition and ecological function of a historic plant community, and use a state and transition model to help managers understand

how plant communities will respond to changes in management. These valuable tools should be employed when restoring or managing native communities. Additionally, managers should consider implications of climate change when planning and implementing a management practice.

5. ***Public education and outreach.***
   The key to successful implementation of wildlife conservation for public use and enjoyment depends upon their awareness, understanding and appreciation of these resources. Ecological services provide values to the public that they are likely unware of in their daily lives.

Where to find more information...

North Dakota State Wildlife Action Plan

http://gf.nd.gov/wildlife/swap

Species of Conservation Priority

http://gf.nd.gov/wildlife/scp

North Dakota State Wildlife Grants

http://gf.nd.gov/wildlife/swg

Contact the SWAP authors:

Steve Dyke, Conservation Supervisor, 701-328-6347 or sdyke@nd.gov

Sandra Johnson, Conservation Biologist, 701-328-6382 or sajohnson@nd.gov

Patrick Isakson, Conservation Biologist, 701-328-6338 or pisakson@nd.gov

North Dakota ESA Threatened and Endangered Species
Recently Petitioned Species
1/2/2018

Table 1. FEDERALLY LISTED SPECIES – species believed to or known to occur in North Dakota.

Common Name	Scientific Name	Type	Status	Date Added to ESA List	Critical Habitat	ND SWAP
Whooping Crane	*Grus americana*	Bird	Endangered	3/11/1967	No	Yes
Least Tern (Interior)	*Sterna antillarum*	Bird	Endangered	5/28/1985	Yes	Yes
Piping Plover	*Charadrius melodus*	Bird	Threatened	12/11/1985	Yes	Yes
Red Knot (Rufa)	*Calidris canutus rufa*	Bird	Threatened	1/12/2015	No	Yes
Northern Long-eared Bat	*Myotis septentrionalis*	Mammal	Threatened	5/4/2015	No	Yes
Pallid Sturgeon	*Scaphirhynchus albus*	Fish	Endangered	9/6/1990	No	Yes
Dakota Skipper	*Hesperia dacotae*	Insect	Threatened	11/24/2014	Yes	Yes
Poweshiek Skipperling	*Oarisma poweshiek*	Insect	Endangered	11/24/2014	Yes	Yes
Western Prairie Fringed Orchid	*Platanthera praeclara*	Plant	Threatened	9/28/1989	No	No

Table 2. FEDERALLY LISTED SPECIES – not currently known or expected to occur in North Dakota but are covered by the ESA wherever they are found. If new surveys detected them in North Dakota, they are still covered by the ESA.

Common Name	Scientific Name	Type	Status	Date Added to ESA List	Critical Habitat	ND SWAP
Black-footed Ferret	*Mustela nigripes*	Mammal	Endangered	3/11/1967	No	Yes
Gray Wolf	*Canis lupus*	Mammal	Endangered	3/9/1978	No	No
Rusty Patched Bumble Bee	*Bombus affinis*	Insect	Endangered	3/21/2017	No	No

Table 3. RECENTLY PETITIONED

Common Name	Scientific Name	Type	Status	Date of Petition	90-Day Finding publ.	Final Determination	ND SWAP
Monarch Butterfly	*Danaus plexippus*	Insect	Substantial, under 12 month review to determine if listing is warranted	8/26/2014	12/31/2014	June 2019	Yes
Regal Fritillary	*Speyeria idalia*	Insect	Substantial, under 12 month review to determine if listing is warranted	4/19/2013	9/15/2015	2022	Yes
Western Bumble Bee	*Bombus occidentalis*	Insect	Substantial, under 12 month review to determine if listing is warranted	9/15/2015	3/16/2016	2023	No
Yellow Banded Bumble Bee	*Bombus terricola*	Insect	Substantial, under 12 month review to determine if listing is warranted	9/15/2015	3/16/2016	2018	No
Prairie Gray Fox	*Urocyon cinereoargenteus*	Mammal	Substantial, under 12 month review to determine if listing is warranted	1/6/2012	12/4/2012	TBD	Yes
[1]Plains Spotted Skunk	*Spilogale putorius*	Mammal	Substantial, under 12 month review to determine if listing is warranted	1/6/2012	12/4/2012	2022	Yes
Moose	*Alces alces andersoni*	Mammal	Substantial, under 12 month review to determine if listing is warranted	7/9/2015	6/3/2016	2020	No
Sturgeon Chub	*Macrhybopsis gelida*	Fish	Substantial, under 12 month review to determine if listing is warranted	8/15/2016	12/20/2017		Yes
Sicklefin Chub	*Macrhybopsis meeki*	Fish	Substantial, under 12 month review to determine if listing is warranted	8/15/2016	12/20/2017		Yes

Table 4. USFWS VOLUNTARY STATUS REVIEWS

Common Name	Scientific Name	Type	Status	Final Determination	ND SWAP
Little Brown Bat	*Myotis lucifugus*	Mammal	USFWS conducting discretionary status review due to WNS	FY23	Yes

Table 5. POSSIBLE – Uncertain if ND will be included in the range of the species if listed.

Common Name	Scientific Name	Type	Status	Date of Petition	90-Day Finding publ.	Final Determination	ND SWAP
Golden-winged Warbler	*Vermivora chrysoptera*	Bird	Substantial, under 12 month review to determine if listing is warranted. **NOTE: ND is not listed in species range in Federal Register. Uncommon migrant in ND.**	2/10/2010	6/2/2011	2023	No

[1] Plains Spotted Skunk is a subspecies of the Eastern Spotted Skunk. The ND SWAP lists the Eastern, not the Plains.

Summary of Wind Guidelines by State

Nebraska (Guidelines for Avoiding, Minimizing, and Mitigating Impacts of Wind Energy on Biodiversity in Nebraska)

- No exclusion zones
- Offsets expected for unavoidable impacts
- Mitigation for all pieces of land except tilled land
- Moderate ratios 3:1, maximum ratios case by case basis

Wyoming (Wildlife Protection Recommendations for Wind Energy Development in Wyoming)

- A list of all landowners must be turned over to WGFD
- Developer, landowners, and WGFD develop conservation plan collaboratively
    - Conservation plan is incorporated into developer's permit application to the Industrial Siting Council.

Kansas (Wind Energy Position)

- Wind power facilities should be sited on previously altered landscapes.
    - Avoid areas of large, in-tact areas of native vegetation.
- When it is impossible to avoid significant ecological damage in the siting of a wind power facility, mitigation for habitat loss should be considered.
    - Appropriate actions may include ecological restoration, long-term management agreements, and conservation easements to enhance or protect sites with similar or higher ecological quality to that of the developed site.
    - Consider potential cumulative regional impacts from multiple wind energy projects when making environmental assessments and mitigation decisions.
    - Failure to consider multiple projects will prevent analysis at a scale that could potentially yield a much different picture.
- KDWPT recommends avoidance of native prairie and other crucial habitats as opposed to compensatory offsite mitigation.

Minnesota (Minnesota Department of Natural Resources Guidance for Commercial Wind Energy Project)

- "Potential impacts can be direct habitat loss, fragmentation, habitat avoidance, bird and bat fatalities, and recreational or view shed degradation."
- High Value Resources
    - Rare species and native plant communities
    - Native prairie
    - Species in greatest conservation need
    - Public conservation and recreation lands
    - State owned minerals
    - State trails and Recreational trail corridors
    - Properties in government programs or with conservation easements
    - Designated wildlife lakes
    - Migratory waterfowl feeding & resting areas
    - State game refuges

    - Working lands initiative
    - Lakes, wetlands, streams, and rivers in the project area
    - Important bird areas
    - Avian flight paths
    - Large block habitats
    - Habitat complexes
    - Scarce habitat
- Avoidance areas are suggested project by project based on the high value resources listed above.
- "DNR recommendations are designed to identify high value natural resources, help proposers avoid, minimize, and propose mitigation for impacts to those resources, and to recommend wildlife surveys to quantify potential impacts of specific projects."

South Dakota (Siting Guidelines for Wind Power Projects in South Dakota)

- As the guidelines stand, exclusion areas may be present in the state.
    - "In some instances, the impact wind turbines have on birds, bats, and other sensitive biological resources can be adequately mitigated. However, wind development may be inappropriate in certain areas in South Dakota."
- Large, intact areas of native vegetation should be avoided.
- Mitigation suggested in current guidelines and new guidelines are in flux, which may or may not include offset ratios.
    - "Mitigate for habitat loss in areas where there is ecological damage in the siting of a wind power facility. Appropriate actions include but are not limited to ecological restoration, long-term management agreements, conservation easements, or fee title acquisitions to protect lands with similar or higher ecological quality as that of the wind power site."

Oregon (Columbia Plateau Ecoregion Wind Energy Siting and Permitting Guidelines)

- Avoid key wildlife habitat
    - Habitats broken into category 1,2,and 3
- Offsets expected for unavoidable impacts
- Where possible, protected in perpetuity. At minimum, life of the wind project by:
    - Fee title acquisition
    - Conservation easement
    - Provisions of funds by developer towards third party purchase, habitat enhancement and management action.
- "Differing mitigation ratios should apply based on the habitat type and category that is impacted."

California (California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development)

- Offsets expected for unavoidable impacts: direct, indirect, and cumulative
    - Long term conservation
- Consultation with CDFG, USFWS, and species experts to develop site-specific ratios and fees to use for compensation formulae.
- ".Although impacts still occur, the ability to compensate for them can determine whether a project is delayed, approved in a timely manner, or not approved at all. Feasible compensatory mitigation is mandated by CEQA if it will serve to mitigate a project's effect on the environment to less than significant. Given that all wind energy projects impact bird and/or bat species to some

degree, compensatory mitigation will likely be needed at most wind energy facilities to offset the cumulative impacts of wind energy development.

Arizona (Guidelines for Reducing Impacts to Wildlife from Wind Energy Development in Arizona)

- Requires 3 year baseline survey to assess the level of impacts to wildlife.
- Mitigation may not be required.
- "Although impacts may occur, the ability to mitigate for them can determine whether a project is supported by AGFD."
    - Funding wildlife research
    - Offsite conservation and protection of essential habitat
    - Offsite conservation and habitat restoration
    - Offsite habitat enhancement
- Mitigation plan may not be made until after fatality data is collected
- "In extreme cases, the compensation specified in the permit may not be adequate for high levels of unanticipated impacts, and project operators may need to consider operational and facility changes."
- "Current research is inadequate to determine the level of impact by wind energy development for most species of wildlife. A mitigation plan will be recommended outlining compensatory habitat conservation practices for offsetting wildlife losses in habitats defined as "vital" in the WGFC Mitigation Policy (focus management areas for SGCN species, big game crucial habitat, wetlands, and Blue Ribbon streams), if monitoring determines declines due to development in these habitats. Maps of these areas are available from WGFD."

Colorado

- Mandatory guidelines contained within PUC rule require consultation with Colorado Division of Wildlife and USFWS.
- No mitigation requirements in place

Delaware

- A recommendation to work with industry to develop standards for the siting of wind towers is included in SWAP.

Connecticut

- No guidelines
- State can require mitigation if a state permit is required, state listed endangered or threatened species can overrule other factors.

Florida

- No state guidelines in place
- The Florida Fish & Wildlife Conservation Commission has joint environmental review with the Department of Environmental Protection for utility projects.
- The agency is authorized to collect development-of-regional-impact wildlife mitigation contributions pursuant to § 372.074(2), Florida Statutes, which are directed to the purchase and management of lands important to the conservation of fish and wildlife.

Hawaii (Guidelines for siting in Conservation District)

- Hawaii's Model Zoning Guidelines require the applicant take appropriate measures to minimize, eliminate, or mitigate adverse impacts to the environment, wildlife, threatened and endangered species that are identified in the permit process.

Illinois

- Permits subject to the Illinois Endangered Species Act and the Illinois Natural Areas Act.
    - These set up a consultation process that involves IDNR evaluating impacts to protected natural resources and making recommendations to avoid or mitigate any adverse impacts.
        - Local government not required to adopt recommendations
- State can only require mitigation if threatened and endangered species are adversely affected.

Iowa (Wind Energy and Wildlife Resource Management in Iowa – Avoiding Potential Conflicts)

- Utility board defers to DNR for environmental and land use factors.
- DNR is monitoring avian mortality at windfarms.
- Voluntary guidelines in place.
    - Areas of particular concern for possible adverse effects by wind turbines upon wildlife and habitat developed by DNR.
- If wildlife habitat losses or fragmentation must be mitigated for, a plan to create or restore habitat away from the wind farm site needs to be created.