Eagles: : BGEPA, U.S. Fish and Wildlife Service Guidance, Risk Assessment, Population Status and Conservation Measures

Montana Wildlife & Wind Energy
Virtual Workshop: Module 3

May 4, 2021

Overview- U.S. Fish and Wildlife Service (USFWS) Eagle talk

- Regulatory framework
- Eagle natural history information
- Population ecology, including status & trends
- Conservation measures
- A quick scan of the horizon: what is coming

Bald and Golden Eagle Protection Act (BGEPA)

- Also referred to as the ”Eagle Act”
- 16 USC 668-668d
  - Enactment Dates: June 8, 1940 for bald eagles only; on October 24, 1962 golden eagles were added
- Purpose: to protect bald and golden eagles, their nests, young, eggs, and parts.
- Bald eagles were listed under the Endangered Species Act (ESA) in 1976- Bald Eagles later delisted under ESA in 2007
- Administered by USFWS

Bald and Golden Eagle Protection Act (BGEPA)

- Prohibits the "take" of bald and golden eagles, unless permitted to do so by USFWS.

- Eagle Act Take Prohibition:

No person shall take, possess, sell, purchase, barter, offer for sale, purchase or barter, transport, export, or import any bald or golden eagle alive or dead, or any part, nest or egg without a valid permit to do so.

BGEPA/ The Eagle Act

- Definition of “take”:
  - *To pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb.*

- ”Disturb” defined as:

  To agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Eagle Act and Incidental Take of Eagles

- Initial eagle incidental take permit regulations finalized by USFWS in 2009 (September 2009 USFWS finalized *Eagle* P*ermits; Take Necessary To Protect Interests in Particular Localities: Final Rules FR 74, 50 CFR Parts 13 and 22)*
- Prior to this there were no incidental take provisions for bald or golden eagles under the Eagle Act- Incidental take permits for bald eagles were formerly available when it was listed under ESA (1976-2007)
- In 2016 USFWS finalized revisions to 2009 Eagle Act regulations (*Eagle Rule revision were published in the Federal Register on December 16, 2016 - 81 FR 91494*)
- Eagle incidental take permits (EITP) are available to wide variety of industries and project proponents- including the wind energy industry

Eagle Act Permits relevant to the Wind Energy Industry

- Code of Federal Regulations (CFR), Title 50 Fisheries and Wildlife, Part 22 (latest version of Part 22 in CFR is April 29, 2021)
- **BGEPA 22.26** – Authorizes disturbance take or lethal take for bald or golden eagles

  -For take that is associated with, but not the purpose of an activity

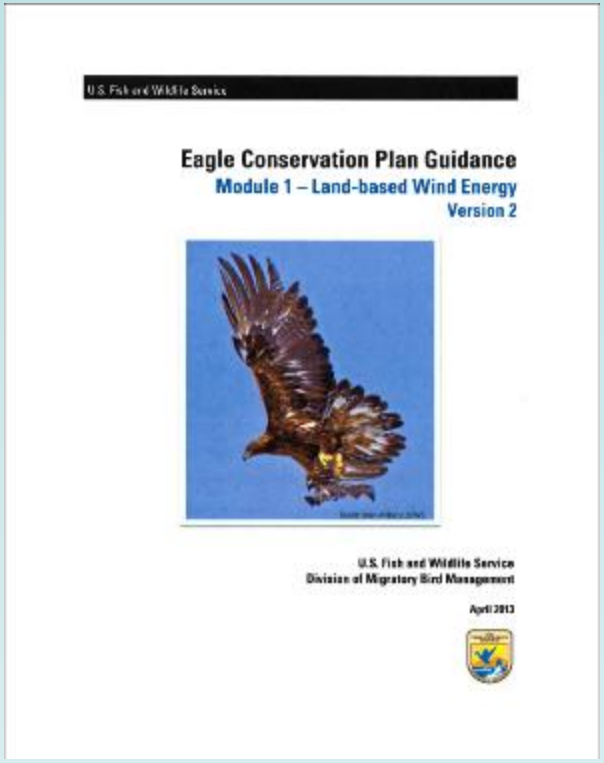
  -These are eagle incidental take permits (EITP's)

  -Is used to authorize lethal take of eagles at wind energy facilities

  -Can also be used to authorize disturbance only take of eagles for wind energy projects (for example eagle nest disturbance during project construction where a nest occurs in close proximity to a road)

  -Can be issued as short term permit (5 years or less) or as a long term permit (>5 years but not to exceed 30 years)
- Part 22 regulations and permit application forms available on USFWS Eagle Management page at: https://www.fws.gov/birds/management/managed-species/eagle-management.php
- USFWS permits now available through our online ePermits system

USFWS –Eagle Conservation Plan Guidance (ECPG)



- Released by USFWS in 2013; Module 1 only applies to land-based wind energy industry and assists in development of an Eagle Conservation Plan (ECP) for a wind project
- Provides guidance to help make wind energy facilities compatible with eagle conservation and the laws and regulations that protect eagles
- Provides specific in-depth guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities
- ECPG guidance supplements the USFWS Land Based Wind Energy Guidelines (March 2012) and is designed to be compatible with these more general guidelines
- Aids in assessing risks of a specific wind project to eagles
- Helps wind project developers in preparing a legally sufficient application for an EITP
- Assists USFWS in evaluating whether or not an EITP can be issued for a wind project

ECPG Tiered Approach

- **Stage 1** – Site assessment (landscape level from desktop)
- **Stage 2** – Site-specific surveys and assessments (pre-construction field surveys)
- **Stage 3** – Predicting eagle fatalities (use survey data to generate a fatality estimate) and assess potential for disturbance of eagle nests
- **Stage 4** – Avoidance and minimization of risk- consider all relevant avoidance measures, re-run fatality model, and set compensatory mitigation level
- **Stage 5** – Post-construction fatality and disturbance monitoring, adjust compensatory mitigation and make operational adjustments

USFWS ECPG (continued)

- USFWS has implemented some operational changes for ECPG process – Examples: 1) No longer need predicted eagle fatalities in ECP, just provide USFWS with eagle use data for the project 2) Advanced Conservation Practices concept was dropped per the 2016 Eagle Rule revision
- Includes Technical Appendices A through H
- Appendix C provides recommendations for site surveys and assessment (ECPG Stage 2)- includes suggested methods for pre-construction eagle use and eagle nest surveys and migration counts and winter roost surveys where applicable
- Appendix D introduces the USFWS Collision Risk Model (CRM) for predicting take of eagles at wind facilities (see also: New, L., Bjerre, E., Millsap, B., Otto, M.C., Runge, M.C. (2015) A Collision Risk Model to Predict Avian Fatalities at Wind Facilities: An Example Using Golden Eagles, Aquila chrysaetos, PLOS ONE, journal.pone.0130978)
- Appendix G provides the USFWS Resource Equivalency Analysis (REA) approach for power pole retrofits for those wind projects where Compensatory Mitigation for take of eagles is required under an EITP
- Parts of ECPG are out of date- USFWS intends to update and revise ECPG
- ECPG and REA spreadsheets available on USFWS eagle management page at:

https://www.fws.gov/birds/management/managed-species/eagle-management.php

Eagle Conservation Plans (ECP)

- The USFWS ECPG encourages development of an ECP as part of applying for an EITP
- The ECP documents how the developer or operator intends to comply with the regulatory requirements for programmatic permits and the associated NEPA process
- An ECP helps structure the information called for to support issuance of an EITP by the USFWS
- Completed ECP should be submitted with EITP application to USFWS

2020 USFWS Update to ECPG for Eagle Nest Surveys

- Updated pre-construction eagle nest survey protocol (based on eagle satellite telemetry data)
  - -New USFWS recommendation is to apply a 2 mile buffer around a wind project when conducting eagle nest surveys
  - -Replaces previous recommendations in EGPG, Appendix C

- Change summarized in USFWS, Headquarters Office memo dated April 21, 2020 on “Eagle Surveys”. See also the white paper “Updated Eagle Nest Survey Protocol” which provides background and rationale for the change

- To access these documents go to USFWS Eagle Management web page at:

https://www.fws.gov/birds/management/managed-species/eagle-management.php

Eagle related Wind Energy Project Guidance from USFWS, Mountain Prairie Region

- **USFWS Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities (2021)- provides buffer recommendations for eagle nests, foraging areas and other important eagle use areas**

- **USFWS Recommended Approach for Development and Submission of Eagle Conservation Plans submitted to the Mountain-Prairie region, Migratory Management Office in support of an Eagle Incidental Take Permit Application for Wind Energy Projects (2021) – provides guidance to wind energy companies intending to apply for eagle incidental take permit on how to develop an Eagle Conservation Plan**

- **USFWS Recommended Protocol for Conducting Pre-construction Eagle Nest Surveys at Wind Energy Projects (2021) – provides a recommended eagle nest survey protocol for pre-construction eagle nest surveys**

All 3 were revised in March, 2021

All 3 USFWS, Mountain Prairie Region guidance documents are available at:

https://www.fws.gov/mountain-prairie/migbirds/index.php

Key Natural History Attributes for Eagles in relation to Wind Energy Facilities

Breeding Strategy

- Eagles are long-lived, K-selected species that produce relatively few young per breeding attempt and invest much parental care in their young. For their life history maximizing adult survival is important.

- Both bald and golden eagles generally breed at 4 years of age and older.

- So, mortality factors that increase adult mortality can have a population effect.

Productivity

- There is variability in the productivity of individual eagle pairs with some pairs contributing greater numbers of offspring to future generations than others- so loss of experienced, highly productive adults can have a greater effect on eagle populations.

Eagle Natural History Attributes (cont.)

Migration

- Many eagles migrate over long distances across state lines- hence where there are multiple wind facilities located along such migration routes eagles could be repeatedly exposed to collision hazards with turbines.

Forage Strategies

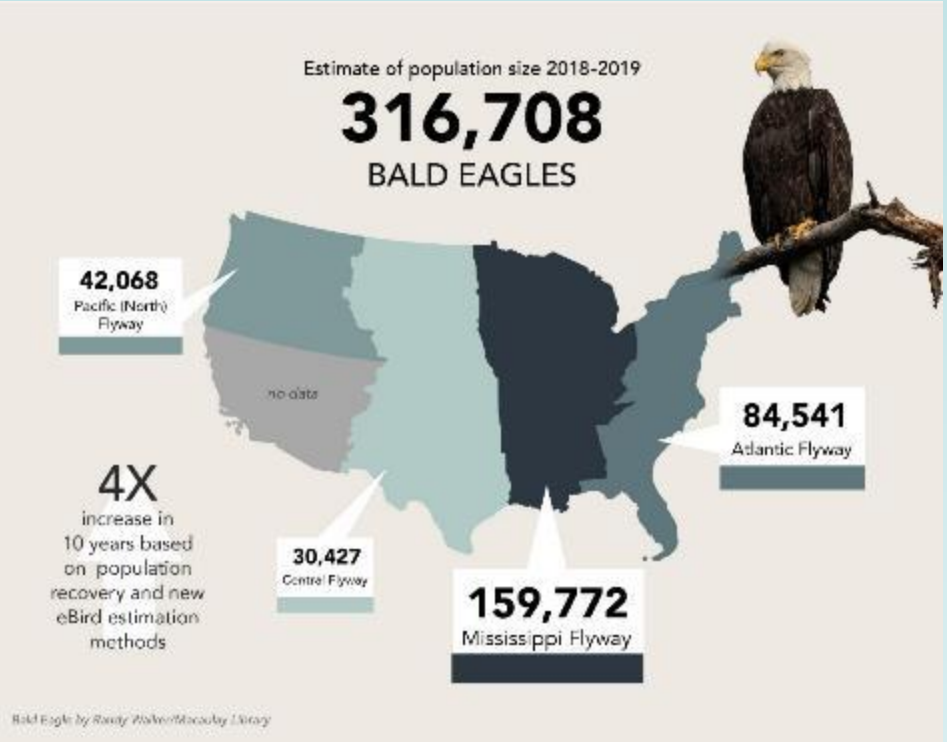
- Eagles are often attracted to areas with concentrated prey sources such as prairie dog towns, sage-grouse leks, and areas with high densities of ground squirrels. Hence where such area occur in or near a wind facility development there can be increased mortality risk for eagles foraging in such areas.

Flight Behavior

- Eagles, like most raptors, are drawn to areas of wind updraft such as along cliffs, buttes, mountains, ridgelines, etc. They do this to exploit the uplift created by these landscape features and to reduce energetic costs associated with flight. These same areas of wind updraft are desirable for siting wind facilities as they can yield more wind energy production. Hence, eagles preferences in terms of flight behavior increase their mortality risk when wind facilities are located in or near such wind uplift areas.

Eagle Populations: Status and Trends for Bald Eagle

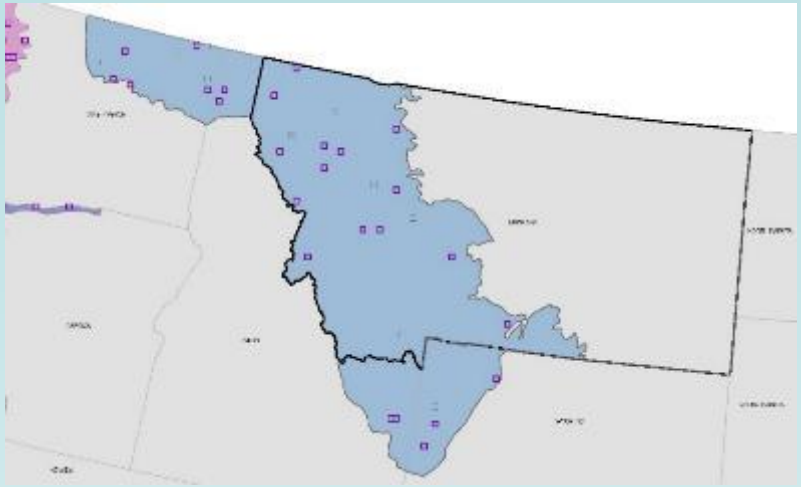
Bald Eagle populations in the Lower 48 States:



- USFWS estimated that the bald eagle population in the lower 48 states in 2009 was 72,434 bald eagles
- USFWS estimates that by 2018-2019 the bald eagle population in the lower 48 states was 316,708 bald eagles.
- Hence, populations increased about 4.4 times since 2009.

See USFWS Bald Eagle Population Size Report 2020 available at:
https://www.fws.gov/birds/management/managed-species/eagle-management.php

Eagle Populations: Status and Trends for Bald Eagle in Northern Rockies Survey Unit



- Bald eagle population estimates from USFWS are not available for Montana
- Closest available USFWS information is for the Northern Rockies Survey Unit (USFWS)

  2009 907 Occupied Nests 1814 Breeding Eagles

  2018 3498 Occupied Nests 6996 Breeding Eagles
- Occupied nests/breeding pairs for Northern Rockies increased about 3.8 times from 2009 to 2018
- For more on USFWS estimates see:

  Bald and Golden Eagles: Population Demographics and Estimation of Sustainable Take in the United States, 2016 update –

  Which is available at: https://www.fws.gov/birds/management/managed-species/eagle-management.php

For Montana specific information see: Montana Bald Eagle Working Group. 2016. *Bald eagle nesting populations and nest monitoring, 1980-2014. Final Report.* Montana Fish, Wildlife & Parks. 27 pp.

Eagle Populations: Status and Trends for Golden Eagle

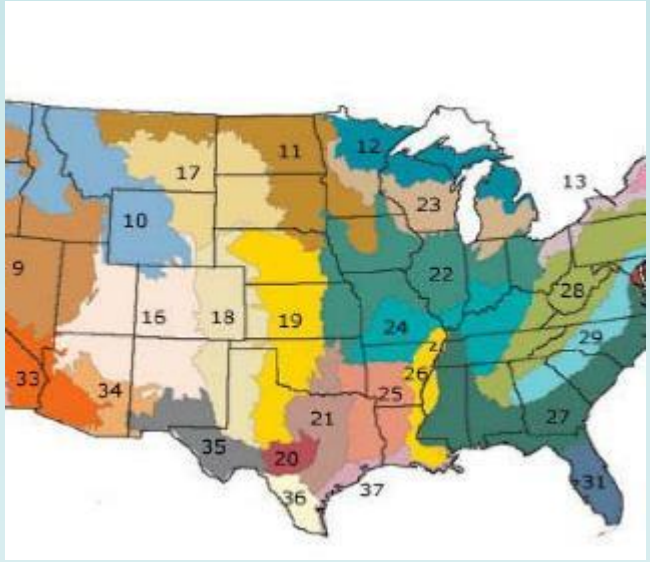
USFWS golden eagle population estimates for the United States:

- Golden eagle population for U.S. in 2009 was estimated at 39,000 golden eagles.
- Golden eagle population for the U.S. in 2014 was estimated at 40,000 golden eagles.
- U.S. population neither increasing or decreasing
- For more on USFWS estimates see:

Bald and Golden Eagles: Population Demographics and Estimation of Sustainable Take in the United States, 2016 update –available at: https://www.fws.gov/birds/management/managed-species/eagle-management.php

Eagle Populations: Status and Trends for Golden Eagle

- USFWS golden eagle population estimates are not available for Montana
- USFWS surveys golden eagle populations using Bird Conservation Regions (BCR) as sample strata -not state boundaries
- BCR's that overlap with Montana are BCR's 10, 11, and 17.
- Estimates golden eagle populations as of 2014 were:
  - -BCR 10 5,675
  - -BCR 11 836
  - -BCR 17 9,837



USFWS estimates from:
Bald and Golden Eagles: Population Demographics and Estimation of Sustainable Take in the United States, 2016 update –available at:
https://www.fws.gov/birds/management/managed-species/eagle-management.php

Conservation Measures for Eagles in relation to Wind Energy

- USFWS perspective is that our best opportunity for avoiding take of eagles in relation to wind energy development is proper siting of wind facilities.

- Hence, we encourage wind developers to work early and often with our USFWS, Ecological Services Offices and our Region Office Migratory Bird Management staff when siting wind facilities to avoid take of eagles. This work should be informed by pre-construction eagle use survey and nest survey data. Plus, other information about eagles for the project and prey base concentration areas.

- Wind turbines should be sited 2 miles away from eagle nests.

- Project developers should coordinate with state Fish and Wildlife agencies, federal land management agencies (such as BLM and U.S. Forest Service), and others to determine if they have data on eagle nest, roost, and foraging areas that also could inform wind project siting decisions.

Conservation Measures for Eagles (cont.)

- For wind energy project proponents seeking EITP's from USFWS

  -USFWS will want to have discussions on Avoidance and Minimization to ensure the project reduces take to the maximum degree practicable per Part 22 regulations

  -These discussions will include various take reduction approaches such as:

  -Eliminating high risk turbines

  -Micro siting turbines

  -Relocating turbines from higher risk areas to lower risk areas within project area

  -Seasonal curtailment of higher risk turbines

  -Informed curtailment of turbines

Offsetting Adverse Effects to Eagles from Wind Energy

- Main adverse effect of wind energy on eagles is increased mortality due to collisions with turbines.

- Another possible adverse effect at individual wind project sites is impacts to prey base (especially in areas with concentrated prey sources)

- In the context of a USFWS EITP issued to a wind energy project Compensatory Mitigation is the method for offsetting eagle take (injury and mortality):

  -At present for USFWS the allowable method for this mitigation is power pole retrofits (per APLIC guidance 2006)

  -This is per 2016 Eagle Rule revision, ECPG Appendix G and USFWS Eagle Management webpage

  -However, USFWS is open to other methods for achieving Compensatory Mitigation requirements (such as use of nonlead shot by hunters, removal of big game carcasses from along roads, etc.) ; but first this requires sufficient documentation and a defensible REA for the method being proposed

Compensatory Mitigation for Eagle Take under a USFWS EITP

At present 2 major options for achieving the mitigation:

1) Wind company contracts directly with an electric utility company

-Wind energy company with an EITP contracts with an electric utility company and pays them to complete the required number of power pole retrofits to offset the eagle take that needs to be mitigated for under a USFWS EITP

-This electric utility will need to have an Avian Protection Plan, and an ongoing program of power pole retrofits, as well as other high risk power poles needing retrofits which it currently lacks adequate resources to work on

2) Wind company makes payment to an established in lieu fee program, mitigation bank, endorsed by USFWS, and able to provide power pole retrofits for mitigation credits

-For example Eagle Electrocution Solutions In-Lieu Fee Program see:

https://www.eaglemitigation.com/

-USFWS expects other mitigation banks to be developed and available for this purpose

USFWS Golden Eagle website

- USFWS eagle team, Western Golden Eagle Team, operational from 2013 through 2019 in order to help meet the information needs of golden eagle conservation and management in the western U.S.
- USFWS created a golden eagle website where information, products, and tools from this work are available to public at:

https://www.fws.gov/mountain-prairie/migbirds/species/birds/golden_eagle/

- USFWS golden eagle website organized into 4 sections:

  Distribution and Movement

  Management and Mitigation

  Ecoregional Strategies

  Risk Analysis Tools

USFWS Golden Eagle website

- Ecoregional Strategies page- To date 3 Conservation Strategies are completed including 2 that cover part of Montana:

  Northwestern Plains Golden Eagle Conservation Strategy

  This covers a large portion of MT and is available at: https://ecos.fws.gov/ServCat/DownloadFile/169123

  Wyoming and Uinta Basins Golden Eagle Conservation Strategy

  This covers a small portion of MT and is available at: https://ecos.fws.gov/ServCat/Reference/Profile/98137

- Distribution and Movement page:

  Breeding Habitat Models

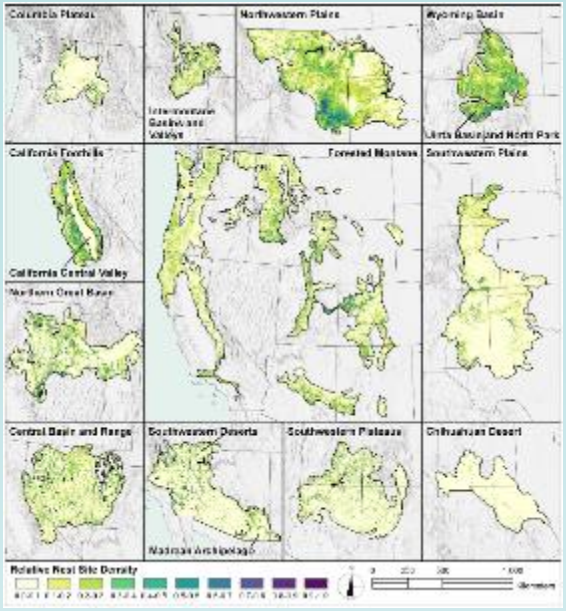
- Risk Analysis Tools page:

  Wind Energy

  Electrocution Risk Analysis Tool

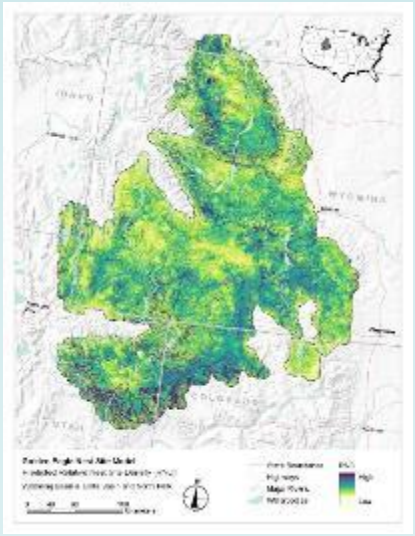
- USFWS Service Catalog (ServCat)- online catalog of published and unpublished data, reports, GIS spacial data, and conservation strategies.

USFWS Golden Eagle website



- **Created golden eagle nesting density models for golden eagles by Ecoregions**
- **Provides relative nest density for golden eagles**
- **Relative index of density; does NOT estimate actual nest density / abundance**
- **NOT for site-specific estimation of risk or fatality rates**
- **Dunk et al. (2019) Modeling spatial variation in density of golden eagle nest sites in the western United States**
  Available at:

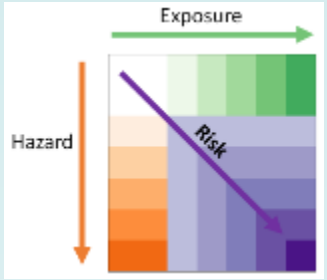
https://journals.plos.org/plosone/article/related?id=10.1371/journal.pone.0223143

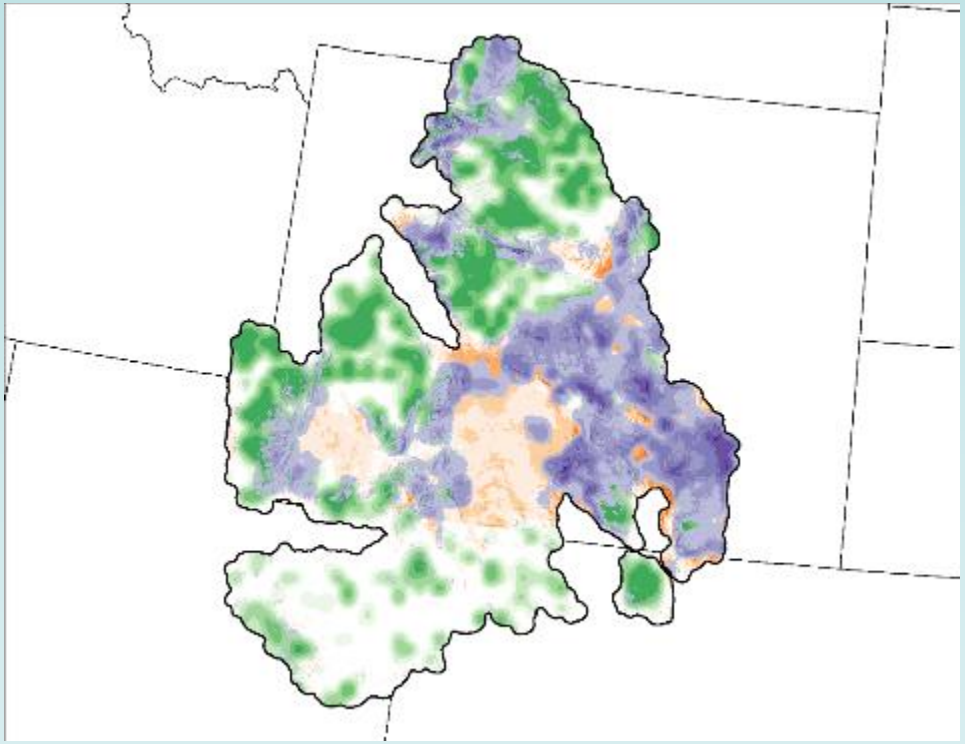


Wind Energy Risk Tool

- Wind Energy Risk to golden eagles visualizing relative risk: Overlap between golden eagle breeding density model output and wind development potential maps

- Purple areas have both higher relative nesting densities of golden eagles and high wind energy potential- hence wind energy development in more intense purple areas increases risk to nesting eagles
- Use to evaluate potential wind development sites

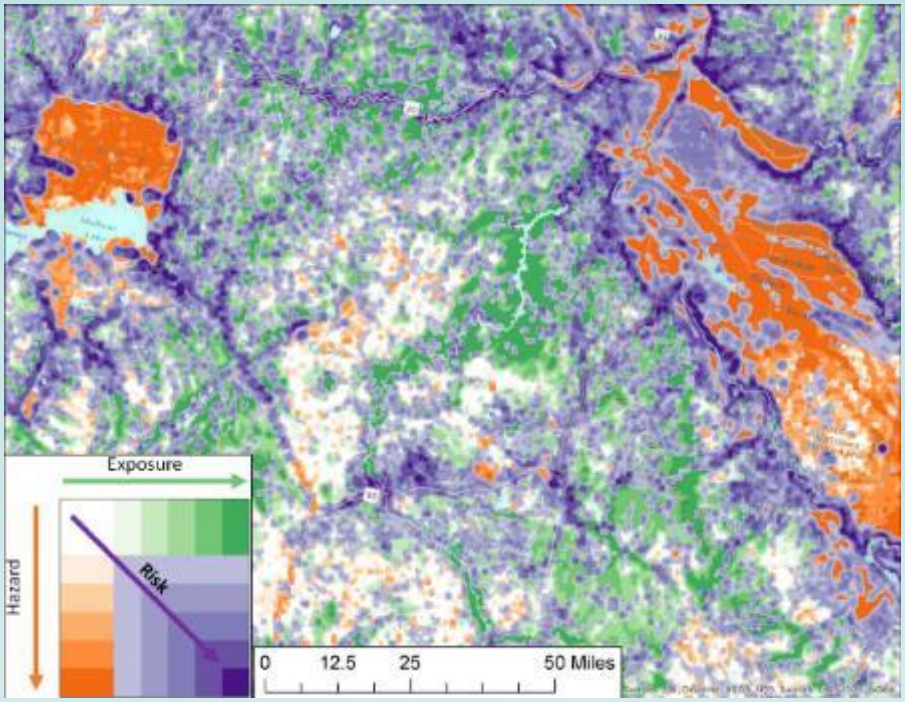




Purples: Higher-risk areas for golden eagle
Oranges: Wind energy development potential (NREL)
Greens: Relative nesting density for golden eagles

Electrocution Risk Analysis Tool

- Electrocution Risk to golden eagles visualizing relative risk: Overlap between golden eagle breeding density and power pole density models
- Purple areas have both higher relative nesting densities of golden eagles and higher power pole densities-
- By prioritizing power pole retrofitting efforts in areas with higher risk (darker purples), utilities and other responsible entities can maximize their program's effectiveness and conservation benefit to golden eagles



Purples: Higher-risk areas for golden eagle
Oranges: Power pole density
Greens: Relative nesting density for golden eagles

Scanning the Horizon: Emerging Science or Policy

USFWS- Priors Update

- See USFWS- Eagle Management page on national website is available at:

https://www.fws.gov/birds/management/managed-species/eagle-management.php

- USFWS Collision Risk Model (CRM) is unchanged, but USFWS has proposed an update to the Priors term in the CRM

- USFWS expects that the Priors update to the CRM will better reflect the expected eagle mortality at a wind energy facility for which USFWS has run the CRM to predict eagle take under an EITP. This will likely reduce costs of required Compensatory Mitigation associated with the EITP.

USFWS, Region Office Contacts and USFWS Eagle Management webpage

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