

# Spion Kop: Case Study

## How did we get here

- Partnership: Montana Agencies, NGOs, Developer and NorthWestern.

**Opportunities:**  
Companies and  
Agencies gain  
direct experience

**Data will be in  
public domain**



# NorthWestern/ Montana Power Background

- Initial raptor protection efforts in 80s.
- **1995 Biologist to manage birds on system per agreement with USFWS.**
- Longtime member of Avian Power Line Interaction Committee (APLIC).
- Early adoption of Avian Protection Plan.
- **6 and occasionally 7 figure spending annually on avian protection.**
- Hosted multiple avian protection workshops in Montana and Dakotas.
- Assisted Montana electric cooperatives development of Avian Protection Plans. First state in the country where every utility and coop had one.
- EPOP Eagle Protection and Offset Program.
- **Close long term working relationships with State and Federal agencies.**

# From Current Environmental Policy

We comply with the spirit as well as the letter of environmental laws and regulations.

Bill Hyslip engineering manager 1998 Electric Distribution Standards Manual. Section on Raptor Protection.

# NorthWestern and Wind

- NREL study 95 - 96
- **Avian Use of Norris Hill Wind Resource Area, Montana**
- **A. Harmata, Kevin M. Podruzny James R Zelenak**
- 1998 Geography



# Nameplate Capacity of Generation

- Hydro 486 MW
  - Wind 455 MW
  - Coal 222 MW
  - Gas 202 MW
  - Solar 17 MW
- 
- QF eligible for Contract
  - Wind 392 MW
  - Solar 160 MW

# NorthWestern and Wind

- 1998 Vice President told us we would buy wind.
- **2000 first RFP purchase of 150 MW wind assets.**
- 3 locations in different wind regimes.
- “Gold Rush” mentality in Montana like QFs now.
- Consulted with agencies and MSU on proposals.
- **Asked by USFWS to join FWP and MSU to help develop wind siting guidelines for Montana.**
- Evaluated well over 20 different locations controlled by our developer.

# NorthWestern and Wind

- Resulted in 2002 USFWS Montana Ecological Service's ***Guidelines for Evaluating Potential Impact of Wind Resource Areas on Wildlife in Montana.***
- Used Car Salesman's company sued.
- 2003 Montana's guidelines modified by USFWS and released as ***USFWS 2003 Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines.***

# NorthWestern and Wind

- 2005 Renewable Portfolio Standard 15%.
- Issued RFPs for RPS requirements.
- RFP environmental reviews conducted with agencies and Audubon.
- 2006 Judith Gap first big project in Montana 135 MW.
- Original developer generally followed USFWS guidelines.
- Judith Gap TAC with USFWS, FWP, Audubon significant event.



# Spion Kop: Project Area & Design

- Located near Raynesford, Judith Basin County, MT
- Project footprint = 3,000 acres of agricultural area on private lands; southern slopes of the Highwood Mountains
- 25 total wind turbines, total of 40 MW

# Spion Kop Regulatory Landscape

- 2011 Draft LBWEG
- 2012 Final LBWEG
- 2012 Community Renewable Energy Project (CREP) requirement.
- Annual RFP reviews with agencies and Audubon.
- CREP Coal Mine fiasco potential Superfund site.
- **2013 Duke Energy MBTA fine.**
- **2014 PacifiCorp MBTA fine.**

# Spion Kop Agency Consultation

- Developer had multiple consultations and completed Tier 1 and 2.
- Provided agency letters documenting discussions.
- Allowed NorthWestern participation in additional consultations.
- Developer expanded Tier 3 studies to address identified issues.
- **NWE followed our normal capital project environmental review process including consulting agency and subject matter experts and conducting site visits with them.**
  - USFWS Ecological Services
  - Montana Fish Wildlife and Parks
  - Audubon, MSU, Forest Service, BLM and Raptor Migration experts

# PCM Why hire a wildlife agency?

- NorthWestern interested in acquiring additional wind assets.
- Duke and PacifiCorp. **Owners paid not developers.**
- **USFWS LE SAC for Wyoming and Montana.**
- **Responsibility to protect shareholders and customers.**
- Trust Long established relationships.
- FWP had little on the ground actual wind experience.
- Now they understand challenges of PCM and operations.
- **When developers bring projects to us we know recommendations from the agencies are meaningful.**

# Spion Kop Raptors

- Extensive Eagle Point Counts before, during and after construction.
- One 4 mile and three 10 mile helicopter surveys.
- Golden Eagle nearest nest 4.2 miles.
- Consultant radio tagged male.
- Additional data from eagle tagged near Livingston.



# Golden Eagle GPS Tracking

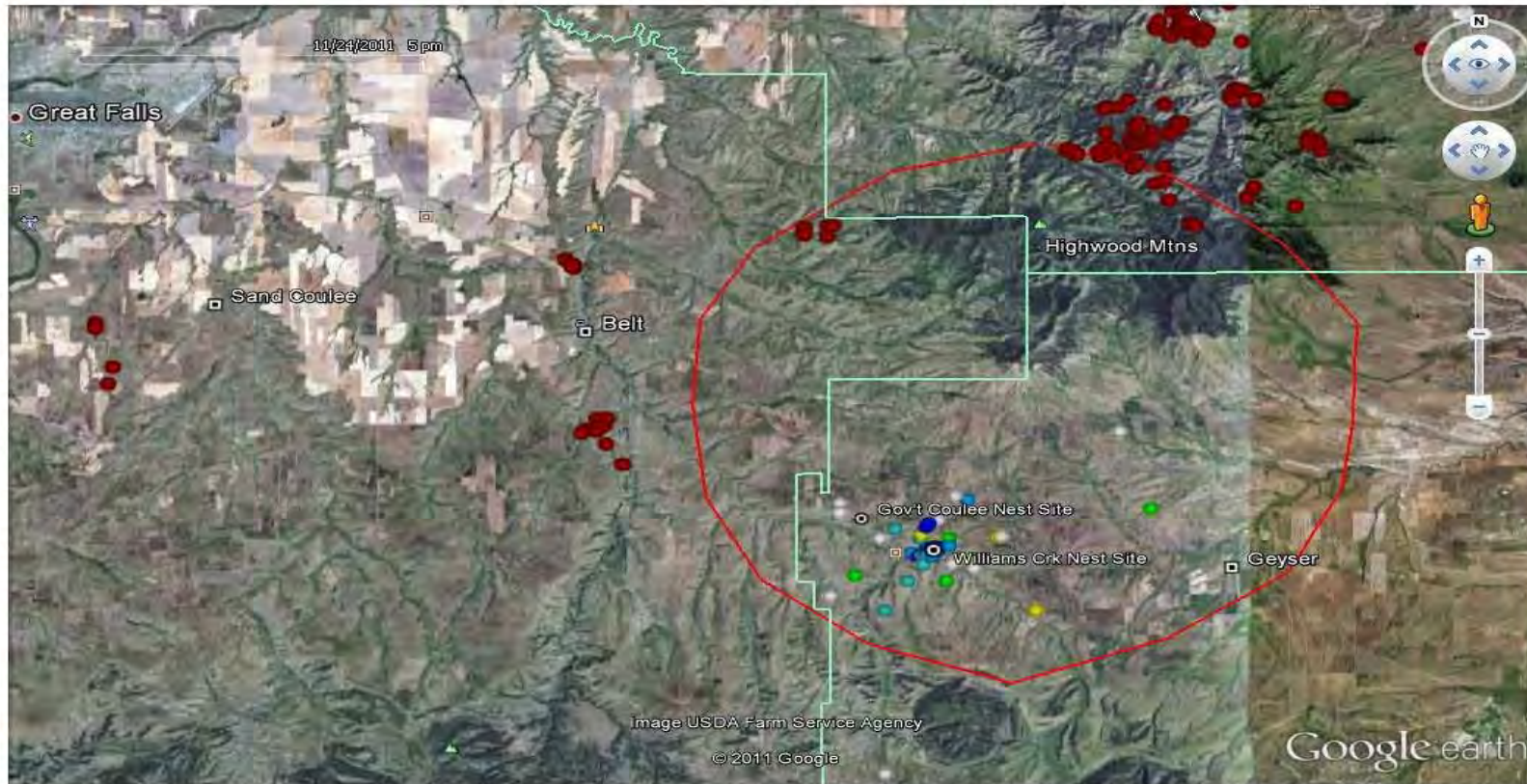


Figure 2. Locations of Golden Eagles with tail mounted satellite tracked Platform Transmitter Terminals (PTTs) within a 10 mile radius (red circle) of approximate center of Spion Kop Wind Energy Development, Judith Basin, Cascade, & Chouteau Counties, Montana, 5 September to 27 November 2011. Poor quality locations (no or > 1 km error estimate) are omitted. Locations of adult male (PTT #103466) associated with the Williams Creek nest site (multicolored cluster of dots) began 6 November 2011. Accuracy of the PTT #103466 locations are: dark blue < 150 m, light blue < 350 m, green & white >350 & < 1000 m, yellow >1000 m. Red dots are locations of an adult female Golden Eagle (PTT #103462) tagged east of Livingston Montana on 29 August 2011 and are composed of all accuracy classes <1500 m.



# Recap of eagle point count methods

- December 2010 – April 2011

- road surveys (8 total)

- May 2011 – October 2012

- bimonthly counts (34 total)
- 800m radius, 20 min counts

- March 2014 – April 2015

- monthly counts (12 total)
- 800m radius, 1 hour
- Some description of eagle activity

- May 2015 – present

- monthly counts (12 total)
- 800m radius, 1 hour
- Direction & time in-out (eagle min)
- Height
- Behavior
- Mapping flight path



# Predicted impacts for raptors (WEG Tier III)

## Raptors – Moderate risk, due to following factors:

- Presence of multiple raptor species
- Location of nesting raptors
- Presence of both Bald and Golden Eagle, nesting and use

## Mitigation –

- Continued nest surveys and monitoring
- 0.25 mile buffer created for each nest
- spacing of turbines >3 rotor diameters apart
- 3 turbines eliminated due to FEHA nest  
and 3 relocated due to RTHA nests
- Buried power lines to reduce perching





# New Golden Eagle Nest





# Spion Kop Bat Acoustic Surveillance Update

Spion Kop Technical Advisory Committee

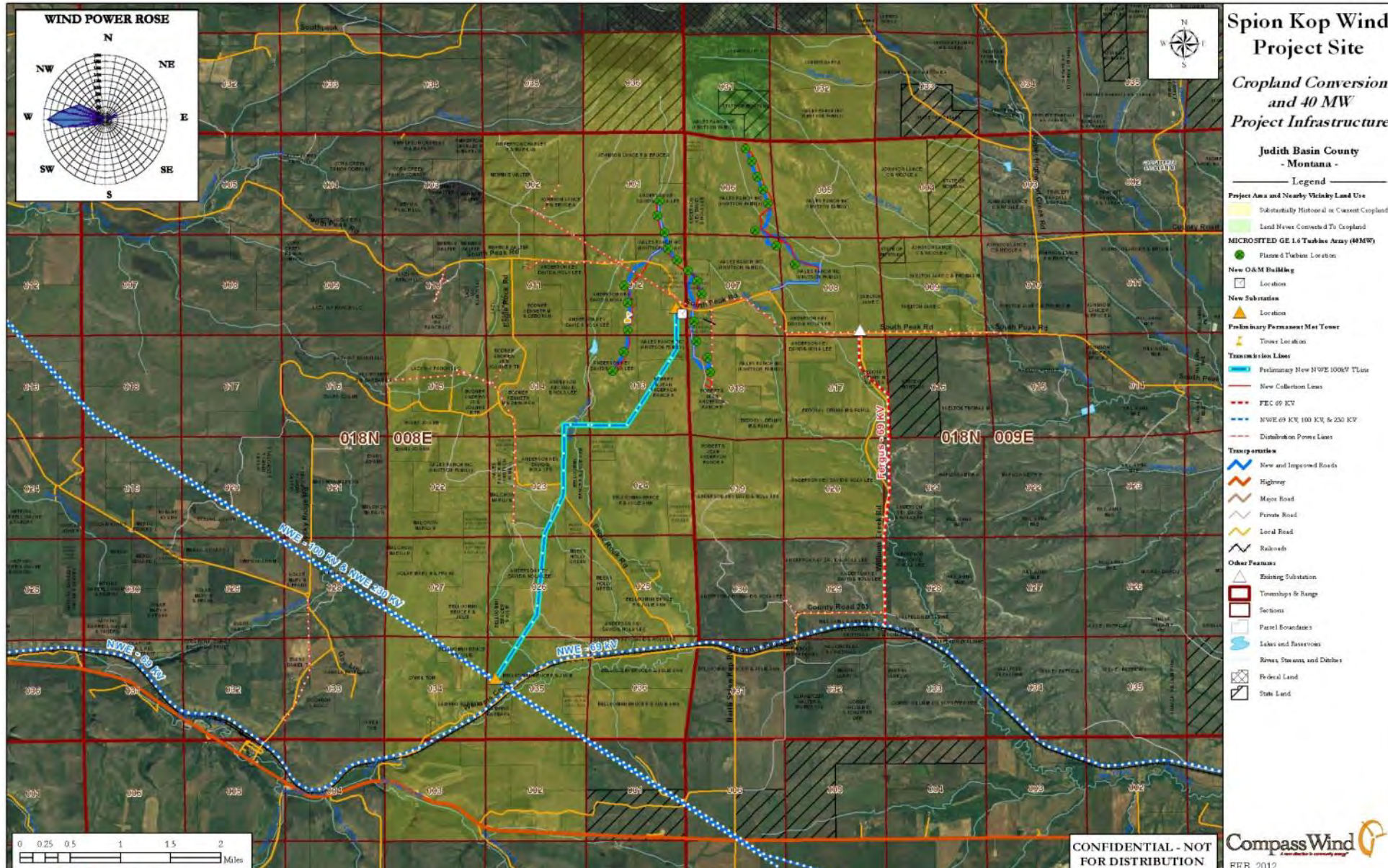
Montana Wild

January 21<sup>st</sup> 2016





# Habitat





# Development of the Spion Kop Wind Farm Technical Advisory Committee



**Role: to provide expertise, review monitoring methods and study results, advise on mitigation and/or management decisions**



**Meet 1-2 times per year  
Established in November, 2015  
First meeting in Feb. 2016 to review  
Post-construction monitoring plan**



**TETRA TECH**

- **Raptors:**
  - Moderate
  - Presence of several species combined 3 species nesting; mitigation measures taken during construction
- **Sharp-tailed Grouse:**
  - Moderate
  - Sensitive to habitat changes
- **Other Birds:**
  - Moderate
  - Presence of sensitive and migratory species in Project Area
- **Bats:**
  - Low
  - Low activity, no nearby hibernacula, etc.



## Tier 3 Pre-Construction Predictions

- Bird fatality low compared to 50 other wind farms in the Midwest
  - .3-8.3 birds/MW
- Below Judith Gap (3.1 birds/MW)
- Below 3.7/MW/year in BBCS
- Low probability of raptor strikes
  - High SE and CP rates support this
  - Low raptor activity supports this

- Bat fatality rates similar to 50 other wind farms in the Midwest
- Below Judith Gap (7.9 bats/MW)
- At threshold of 6 bats/MW/study period defined in BBCS in 2016, below threshold in 2017



# Bat Mitigation

- Reduce Cut-in speed at Spion Kop and Two Dot
- August through September
- Normal Cut-in speed 2.2 m/s
- Increase to 5 m/s from sunset to sunrise
- Modeling results in final Spion Kop report predict 90% avoidance of bat activity.



# Thank You

- Montana FWP
- USFWS Ecological Services
- USFWS Law Enforcement
- Montana Heritage Program
- Montana Audubon
- Al Harmata, Dennis Flath, Rob Hazelwood
- NorthWestern
- Jim Burruss
- Many others