

Monitoring Birds in the Atlantic Rim Natural Gas Development Project Area

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Wildlife Biologist



What my friends think I do



What my mom thinks I do



What society thinks I do



What Hollywood thinks I do



What I think I do



What I actually do

Wildlife Biologist



What my friends think I do



What my mom thinks I do



What society thinks I do



What ~~Hollywood~~ Industry? thinks I do



What I think I do



What I actually do

Wildlife Biologist



What my friends think I do



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What I think I do



What I actually do

Rocky Mountain Bird Observatory



- Partner with more than 200 federal & state agencies, NGOs, private landowners, industries, & universities
- Our mission is to connect people, birds, and land
 - Conservation starts with a conversation
 - We all can be a part of the solution
 - Interested in working on *win-win solutions*
 - *Voluntary* partnerships





Integrated Monitoring in Bird Conservation Regions (IMBCR)

- Designed to meet partner needs at multiple scales
- One of the largest breeding bird monitoring programs in the nation
- Directly addresses NABCI's "Opportunities for Improving Avian Monitoring" 2007



NABCI “Opportunities for Improving Avian Monitoring”

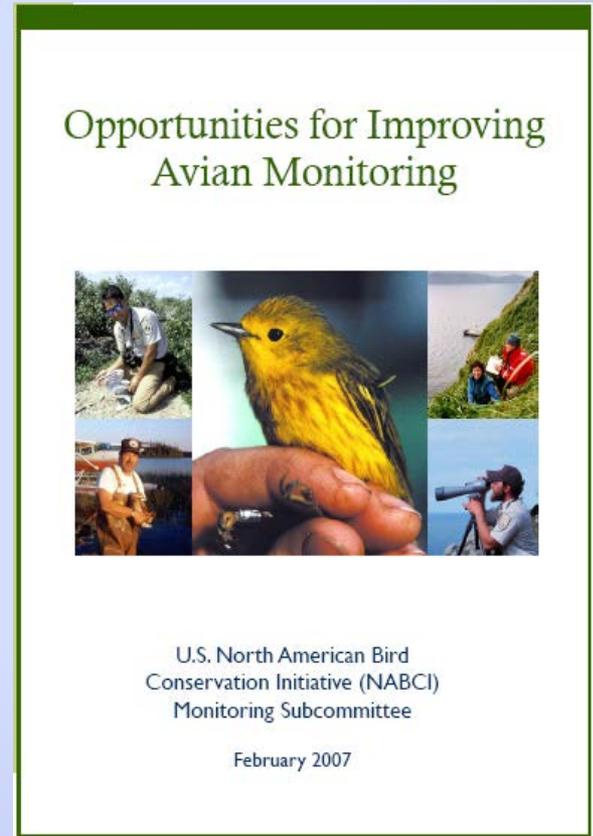


Goal 1: Integrate monitoring into bird management and conservation practices.

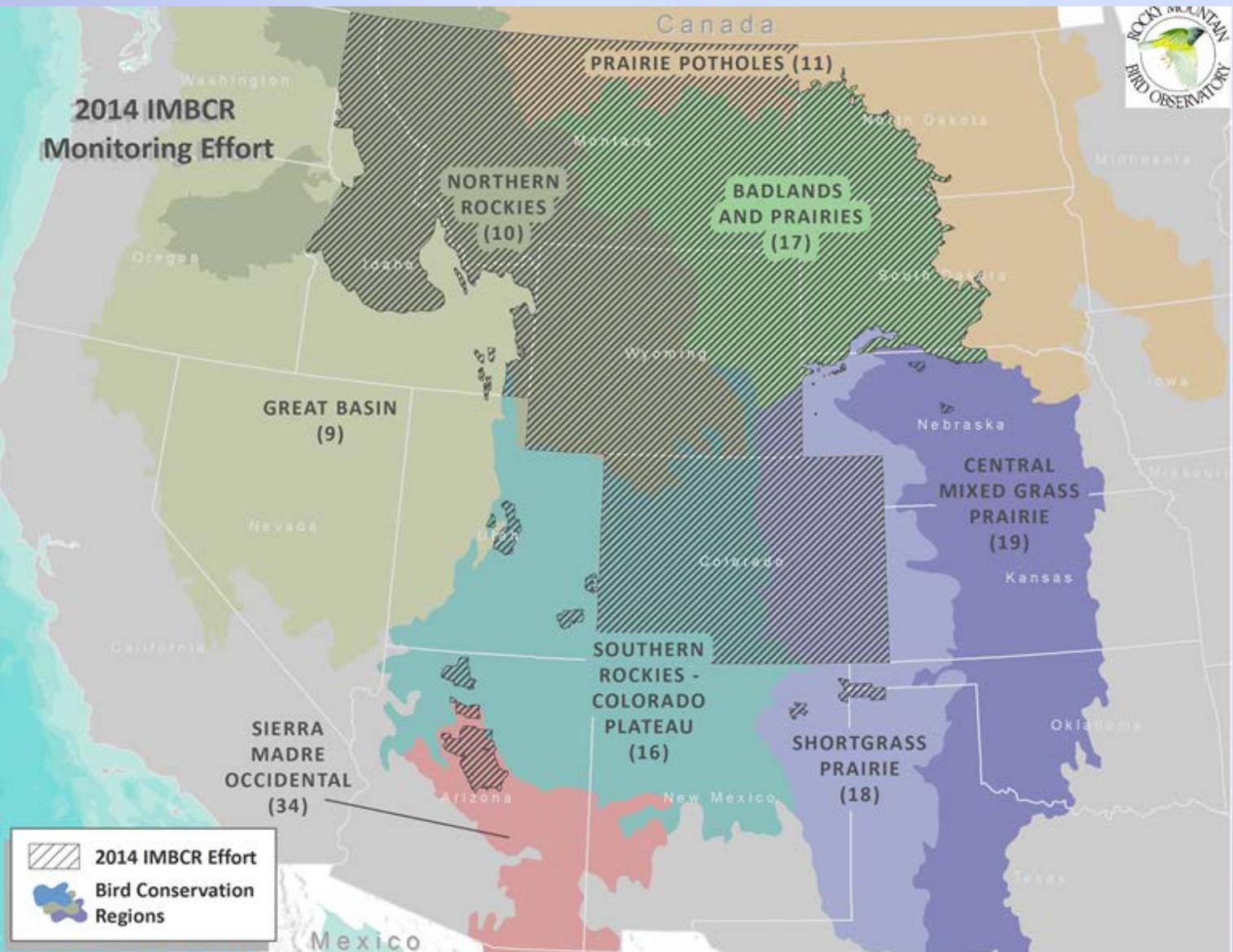
Goal 2: Coordinate monitoring programs among organizations and integrate them across spatial scales.

Goal 3: Increase the value of monitoring information by improving statistical design.

Goal 4: Maintain bird population monitoring data in modern data management systems.



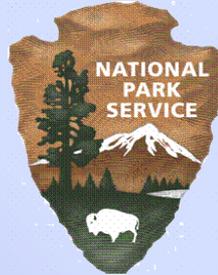
IMBCR Survey Effort



In 2014:

- Over 1,500 surveys
- Nearly 20,000 point counts

IMBCR Funding Partners



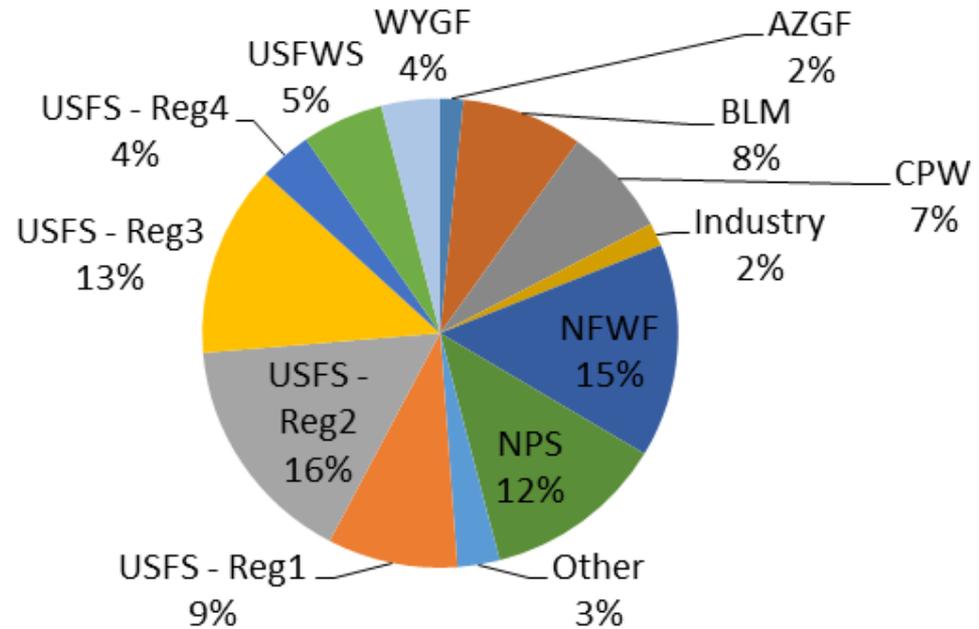
IMBCR Funding – 2014



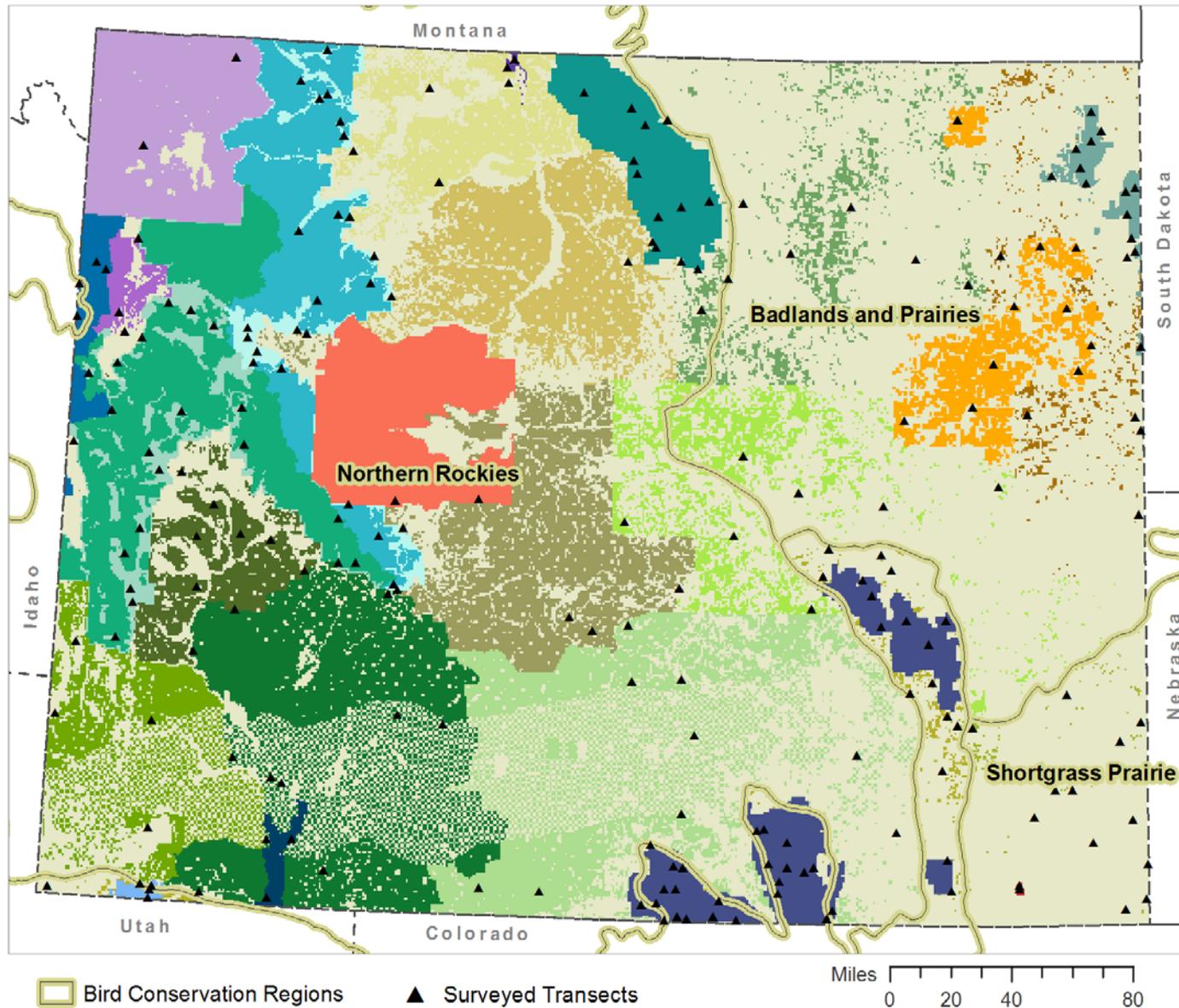
Collaboration increases the value through efficiencies of the IMBCR program

Other implementers bring an additional ~\$200K to program

Partnership Breakdown Total Value of ~ \$1.5 million



Stratification in Wyoming



Integrated Framework

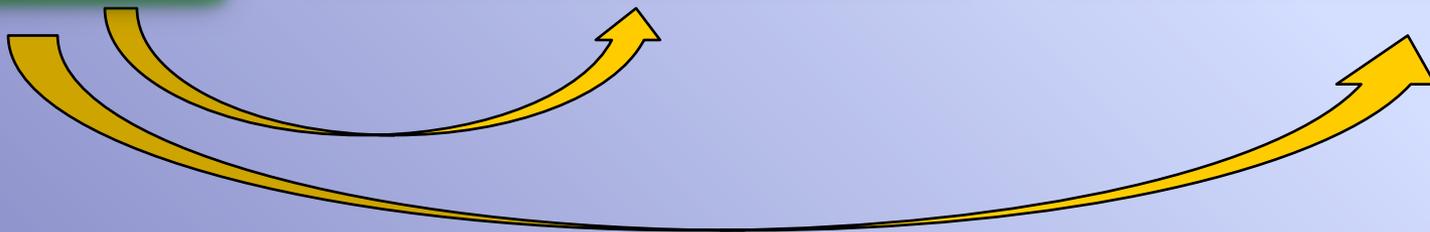


Hierarchical framework for inferences at multiple spatial scales

Black Hills NF

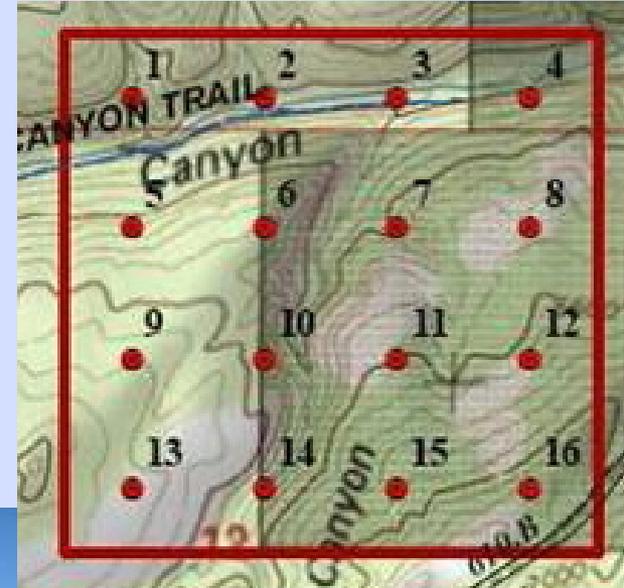
Wyoming

BCR 17



Sampling Methods

- Sampling unit = 1km² cell
- 16 points per cell
 - 250 m spacing
 - 125 m from edge
- Spatially-balanced, random sample selection (GRTS)





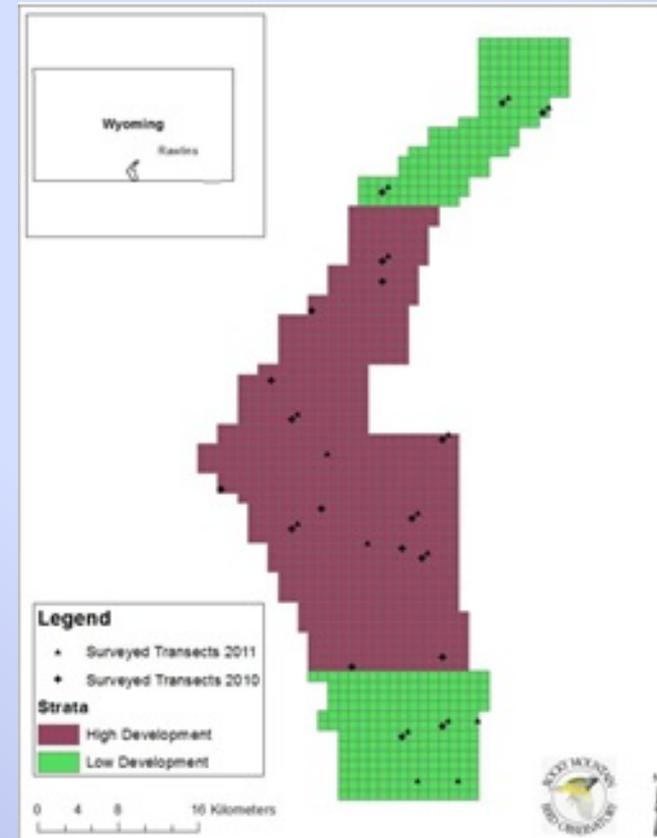
Point Count Methods

- Visit 1 grid cell per day
 - Attempt to survey all 16 points
- Ocular vegetation data collection
- 6 minute point count
 - 1 minute intervals
 - Measure distances to each bird detected



Atlantic Rim Project Area Design

- Set up as overlay project within IMBCR design
- Divided study area into 2 strata (low and high development)
 - **Low development strata**
 - Represents 356 km²
 - 2.79 km of road/km²
 - 0.48 active wells/km²
 - **High development strata**
 - Represents 736 km²
 - 2.63 km of gravel road/km²
 - 1.21 active wells/km²
- Stratified random and spatially balanced grid cell selection (GRTS)



ARIM Survey Effort



Stratum	2010	2011	2012	2013	2014
High Development	153 (15)	121 (8)	175 (13)	145 (13)	188 (13)
Low Development	56 (5)	88 (8)	133 (13)	146 (13)	158 (13)
Total	209 (20)	209 (16)	308 (26)	291 (26)	346 (26)

- Not all 16 points are completed each survey
 - Weather
 - Rain
 - Wind
 - Landowner Permission
- Funding in place for 2015 and 2016





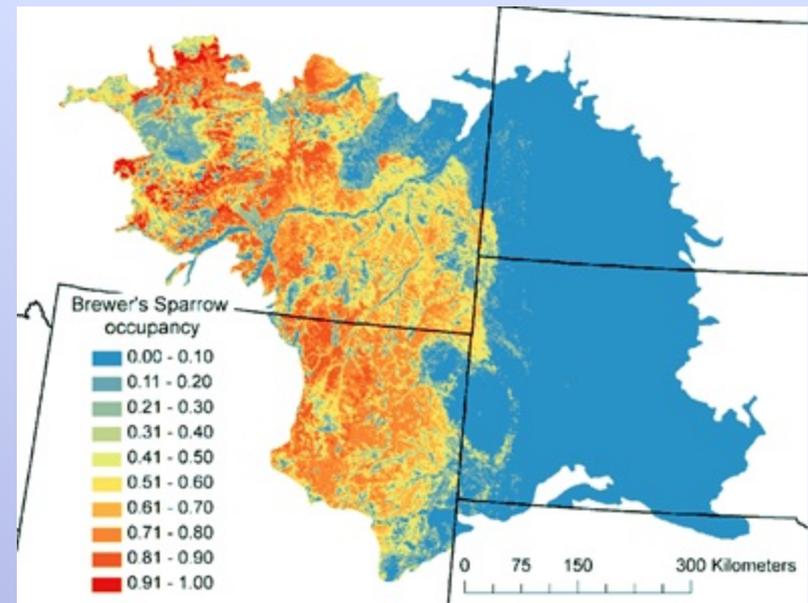
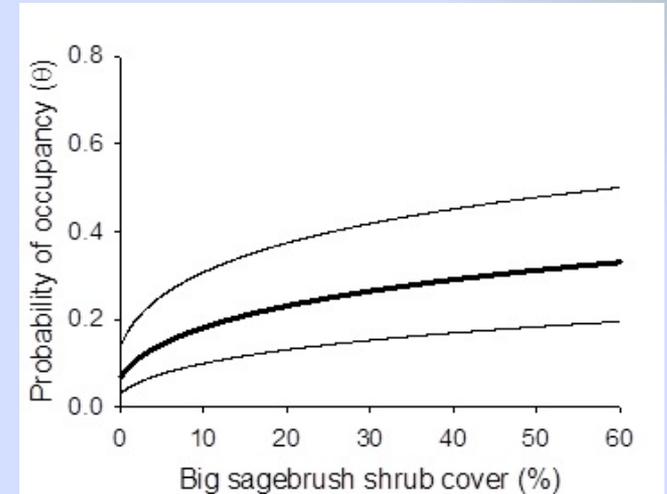
Monitoring Utility

- Occupancy and density estimates for many species; including 3 SOB priority spp.
- Compare developed areas to non-developed (report coming out in 2016)
- Track trends in developed areas over time and compare to regional context
- Can explicitly test process variables (road and well pad densities)
 - Collaboration with Oxford University (2010 – 2012)
 - Findings indicate **no negative effect of wells** on SOBs **but negative effect of roads** on SAGS and SATH

Monitoring Utility (cont'd)



- Habitat modeling can improve knowledge of bird habitat needs
- Predictive distribution maps provide inferences at landscape-scale





Benefits to Industry

- Maintaining Viable Populations and Preventing Listing Allows Continued Multiple Use
- Best available science practices are defensible
- Habitat modeling can guide reclamation actions
- Distribution maps can be used to reduce disturbance in sensitive wildlife areas
- Datasheets and protocols are freely available

Informing Conservation Design: Methods, Protocols, Data and Results Are Available



- Rocky Mountain Avian Data Center
 - Specialized queries available
 - User's guide exists
 - Recorded demonstrations available at:
<https://www.youtube.com/watch?v=6rPoPfzuwoQ>

Rocky Mountain Avian Data Center

*a partner of the Avian
Knowledge
Network*



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Projects

Data Collection

DataBases

Explore the Data

Citizen Science

Reports & Publications

Help

Questions?

