

Evaluation of Impacts from Electric Transmission and Distribution Lines in Greater Sage-Grouse Habitat – White Paper



Utah Wildlife in Need
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Utah Wildlife in Need (UWIN), a Utah-based 501(c)(3), non-profit organization, and its partners (the Utah Division of Wildlife Resources, Rocky Mountain Power, Idaho Power Company, Northwestern Power, and Avian Power Line Interaction Committee) initiated an aggressive project to collect information and develop research protocols to assess the impacts of siting and operating electric transmission lines (tall structures) in sage-grouse habitat. The science-based information generated by this project will facilitate the development of consistent and effective best management practices (BMP) to help ensure long-term conservation of sage-grouse.

Problem Statement

In 2010, the U.S. Fish and Wildlife Service (FWS) placed the greater sage-grouse (sage-grouse) on the list of species that are candidates for protection under the Endangered Species Act (ESA). One reason cited in the decision is the lack of adequate regulatory mechanisms to protect sage-grouse. Infrastructure development, including power lines, is believed to cause avoidance behavior, increased raptor predation and habitat fragmentation and research was needed to determine if these were contributing factors.

Increasing demands for energy and for the development of renewable and alternative energy sources require new power lines be built to transmit this power from where it is generated, which is often in remote areas, to more populated load centers. Wildlife scientists and public land managers are concerned these new, tall high voltage transmission and distribution structures will further impact sage-grouse.

Proposed Solution

In 2005, the Western Association of Fish and Wildlife Agencies (WAFWA) convened a diverse group of stakeholders to identify problems and strategies to conserve sage-grouse. This forum developed the *Greater Sage-grouse Comprehensive Conservation Strategy*¹ (2006), and in that document, recognized the need to assess the potential effect tall structure may have on sage-grouse. Thus, the following four goals were identified in Appendix C, pages 29-31 of the *Strategy* document:

1. Compile and evaluate published research on the effects on sage-grouse due to impacts of existing tall structures.
2. Develop research protocols to conduct new studies to assess impacts of tall structures.
3. Develop scientific and consistent siting and operation and maintenance (O&M) criteria for tall structures in sage-grouse habitat to minimize negative impacts on sage-grouse.
4. Develop BMPs and appropriate mitigation measures to implement for siting and O&M activities associated with tall structures.

¹ *Greater Sage-grouse Comprehensive Strategy* Striver et al. 2006. <http://www.wafwa.org/documents/pdf/GreaterSage-grouseConservationStrategy2006.pdf>

Goal Attainment

Under the direction and support of WAFWA and the Sage-grouse Executive Oversight Committee² (EOC), UWIN and its partners initiated an inclusive, consensus based process to address and attain the four goals identified in the WAFWA *Strategy* document.

Goal 1 was addressed in September 2010 with UWIN's publication of *Contemporary Knowledge and Research Needs Regarding the Effects of Tall Structures on Sage-grouse* (www.utahcbcp.org). The authors concluded that no peer-reviewed, experimental studies either confirmed or denied the effects of tall structures on sage-grouse. The report concluded that additional research is required to effectively evaluate/ascertain the effects.

Goal 2 was attained in July 2011, with UWIN's publication of *Protocol for Investigating the Effects of Tall Structures on Sage-grouse (Centrocercus spp.) within Designated Energy Corridor* (www.utahcbcp.org). Acknowledged sage-grouse research experts, wildlife biologists, public and private land managers, and energy representatives developed the study-design protocol (Protocol). The Protocol recommends rigorous, replicated research based on a "Before-After-Control-Impact" (BACI) study paired treatment approach. Several representatives that developed this protocol also participated in the published NWCC³ research protocols supported by the USFWS, but which did not address transmission lines. Such research is necessary to adequately address **Goal 3** (siting and O&M) criteria) and **Goal 4** (BMPs). The Protocol is designed to address three specific research questions:

- Do sage-grouse avoid tall structures and if so, why?
- Do tall structures increase avian predation by providing increased nesting and perching opportunities? If there is an increase in avian predation, is it significant on a population level?
- Do tall structures create fragmentation of habitat that limits use or movement of sage-grouse?

On September 13, 2011 the EOC adopted the *Protocol for Investigation the Effects of Tall Structures on Sage-grouse within Designated and Proposed Energy Corridors* as a minimum protocol for researching the impacts of electric transmission and distribution lines on sage-grouse populations and habitat. Further, the EOC adopted a series of recommendations from the Range-wide Sage-grouse Interagency Conservation team (RISCT) regarding participation in the studies, determining study sites and funding research opportunities using a portion of a project's "unknown impacts" mitigation budget.

Funding Tall Structure Research Efforts

Funding for the research would be through the use of compensatory mitigation dollars intended to address unknown impacts. This approach is beneficial and supported by state and federal resource agencies in order to provide data on a large geographical scale to inform management decisions. The EOC discussed the use of the RISCT recommendation that targeting funds for research was appropriate to better evaluate transmission line impacts. Discussions concluded, "...that direct impacts will be mitigated, unknown impacts researched and companies will mitigate up to a pre-set agreement." The EOC unanimously approved this recommendation on September 13, 2011.

² The Executive Oversight Committee (EOC) and the Range-wide Interagency Sage-grouse Conservation Team (RISCT) were established by a Memorandum of Understanding between the sage-grouse states and provinces within the Western Association of Fish and Wildlife Agencies and the US Fish and Wildlife Service, Bureau of Land Management, US Geological Survey, US Forest Service, Natural Resources Conservation Service and Farm Service Agency in 2008. These groups are composed of executive staffs and science staff to implement the 2006 Greater Sage-Grouse Comprehensive Conservation Strategy.

³ NWCC Grassland/Shrub Steppe Species Sage-grouse Research Collaborative *Protocols for Assessing Impacts of Wind Energy Development on Greater Sage-grouse* July 8, 2010 http://www.nationalwind.org/assets/sage_grouse/GS3C-SGC_Wind_Energy_Sage-grouse_Research_RfP_final_07-08-10_.pdf

Benefits of Implementing a Tall Structure Research Effort

Implementation of the Protocol across multiple landscapes and sage-grouse populations provides a scientifically valid mechanism to address the unknown affects of tall transmission structures on sage grouse at a landscape level. Project-level implementation of this research is an accepted, effective mechanism to address unknown effects within a comprehensive mitigation plan for such projects. This research is not intended to be a replacement for activities addressing direct impacts to habitat, including avoidance, minimization and mitigation measures. Implementation of the EOC supported research protocol and conducting studies will benefit the various stakeholders responsible for sage-grouse conservation.

BLM: This research will go a long way to support BLM managers that are initiating or revising land use plans to address sage-grouse habitat. Having access to a science-based body of knowledge will allow for improved decision-making with respect to the designation of energy corridors and the siting of transmission projects. Lastly, the agency will be able to adopt a suite of Best Management Practices that will ensure sage-grouse and their habitat is adequately protected in the long-term.

U.S. Fish and Wildlife Service: The extensive nature of the pre and post construction research approach will provide scientific information that will inform status review and conservation planning analyses for both local field office reviews and Landscape Conservation Cooperatives. The research will also generate science-based knowledge on which to develop regulatory mechanisms to ensure the conservation of the species on public lands.

State Agencies: The state wildlife agencies have the statutory authority for sage-grouse conservation. States are responsible for the protection, propagation, restoration and management of the species. State wildlife agencies generally have no regulatory authority over land use activities; they do however, provide consultation to permitting agencies. This research will provide a scientific basis to predict the effects of transmission lines on sage-grouse vital rates, changes in habitat quantity, quality and utilization and fragmentation relationships. Additionally, these studies should provide metrics on cumulative impacts of development on populations. BMPs resulting from these studies should provide appropriate responses to future siting, construction and operation of transmission lines.

The research protocol was developed to be comparable to the wind energy impact studies and will provide vital rates which will be directly comparable to the wind energy impact studies. The combination of these two programs into a single database of sage-grouse vital rates will provide biologists with large geographical scale measurements that have been lacking. These research data may be compared to data collected by management agencies that may be used to adjust analysis on a regional basis.

The quantification of unknown impacts on sage-grouse populations from transmission lines will help wildlife agencies evaluate risks and opportunities from the development activity. Frameworks identified in the Protocol will help agencies provide scientifically based recommendations to permitting agencies and utility companies.

Utility Industry: Increasing demands for energy and for the development of renewable and alternative energy sources require the construction of new high voltage transmission lines to deliver this electricity. Currently, site selection and authorization of these new facilities is difficult and time consuming for all parties. A major concern both developers and agencies face prior to project approval is how to assess and mitigate the unknown impact of these new tall structures on sage-grouse.

Utilities recognize that no peer-reviewed, experimental studies address the effects of tall structures on sage-grouse. Support within the industry for additional research to effectively assess the effects is needed if such research is going to be implemented on a project basis. The current lack of scientifically-based information could lead authorizing agencies, in their impact analyses, to assume a suite of impacts are occurring and require costly and potentially unnecessary mitigation. Research on tall structures is intended to lead to improved siting criteria for new power lines, consistent impact analysis criteria and best management practices with the objective of conserving sage-grouse range wide. Research following the approved Protocol could be conducted range-wide on new major high voltage transmission projects where suitable sites have been identified and mutually agreed upon.

Benefits to the utility industry include implementation of the Protocol as part of a comprehensive sage-grouse mitigation plan that effectively addresses the issue of indirect, unknown impacts of tall structures, rather than relying on professional opinion to determine potential effects.

Once the research is complete and subsequent BMPs and siting criteria have been developed, benefits to the utility industry include:

- Improved siting and design criteria can be applied during the project development rather than retroactively during the impact evaluation of a project.
- More certainty and consistency in the analysis process used to evaluate the impacts a transmission line project may have on sage-grouse, thus reducing project schedule delays.
- More upfront clarity regarding mitigation actions and costs.
- Less conflict between permitting agencies and project proponents.

Research Governance

To ensure future sage-grouse/tall structure research follow the established protocol, a governance body has been established. This body consists of a governance committee, a scientific oversight committee (SOC) and a fundraising/project management foundation (FRPMF).

The SOC will review and assess the multistate, replicated research to ensure compliance with the protocol. The FRPMF will help raise and manage the financial resources needed to conduct the research and provide administrative support to the governance and science committees. Composition of these committees is listed below.

SAGE-GROUSE TALL STRUCTURE RESEARCH PROTOCOL WHITE PAPER

Recommended Governance Structure and Responsibilities Governance Committee (GC)

8 members: 2 each from federal agencies, state agencies, and the energy industry; the chair of the SOC and the director of the FRPMF.

- Strategic oversight and general management.
- Adopt changes to the research Protocol.
- Award research proposals.
- Approve and sign off on contracts.
- Authorize release of research funds.
- Monitor and advise the SOC and FRPMF.

Governance Committee Members – 2012			
Agency or Organization	Name	City	State
Bureau of Land Management	Lucas Lucero	Washington	DC
US Fish & Wildlife Services	Pat Diebert	Cheyenne	WY
Wyoming Game & Fish	John Emmerich	Cheyenne	WY
Montana Fish, Wildlife & Parks	Dave Risley	Helena	MT
Western Association of Fish and Wildlife	San Stiver	Prescott	AZ
Idaho Fish & Game	Brad Compton	Boise	ID
Idaho Power	Brett Dumas	Boise	ID
APLIC Member Utilities	Jim Burruss	Salt Lake	UT
Utah Wildlife in Need (UWIN)*	Bob Hasenyager	Salt Lake	UT

Science Oversight Committee (SOC)

4–6 members and may include independent research experts and technical advisors.

- Review pre-release requests for proposals (RFP).
- Review and recommend proposals to the GC.
- Conduct annual research review and recommend changes to Protocol.

Quality assurance/quality control (QA/QC) of research to ensure compliance with Protocol.

Science Oversight Committee Members – 2012			
Agency	Name	City	State
Washington Dept. of Wildlife	Mike Schroeder	Bridgewater	WA
University of Idaho	Steve Bunting	Moscow	ID
University of Minnesota	Rocky Gutierrez	St. Paul	MN
U.S. Forest Service Research	Sam Cushman	Flagstaff	AZ
Western Association of Fish and Wildlife Agencies	San Stiver	Prescott	AZ

Program Foundation (FRPMF)

An administrative entity.

- Solicit funding for research.
- Hold, disperse, and track research funding.
- Prepare and issue RFPs.
- Negotiate and administer research contracts.

Coordinate meetings and provide administrative support to the GC and SOC.

FRPMF* – Yet to be determined