From: Norman, Kate
To: Doherty, Kevin
Subject: Re: Good morning!
Date: Friday, May 16, 2014 8:45:57 AM
Attachments: 20140522_RDmtg_BriefingPaper.docx

On Fri, May 16, 2014 at 10:18 AM, Doherty, Kevin <kevin_doherty@fws.gov> wrote:

> Here you go, its now slide 15! Mike wanted it simplified
>
> On Fri, May 16, 2014 at 8:07 AM, Norman, Kate <kate_norman@fws.gov> wrote:
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> > Could I trouble you for the most recent edits to slide 24?
> >
> > Thanks!
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Overview of Previous Listing Determinations – Lessons Learned

The Service has completed review of the greater sage-grouse multiple times. In 2005, the approach involved input from experts.

2005:

- Informed by expert panel (experts in sage-grouse, sagebrush, and management)
- Panel helped identify and rank the primary risks to the species.
- No formal modeling
- Finding based on an informal analysis of threats as informed by literature review and the expert panel.
- We were challenged on our finding; the finding was remanded to us in 2007.

Tool	2005	2010	Bi-State	2015 *Suggested*
Expert Panel	✓			✓
List of Threats	✓	✓	✓	✓
Prioritization of Threats	✓	✓	✓	✓
Expert elicitation	✓	✓		✓
GIS (basic)		✓	✓	✓
GIS (advanced)			✓	✓
Integrated Framework				✓
Formal Modeling to predict future				✓

2010 Listing determination summary:

- No expert panel, but input solicited from experts.
- No formal modeling
- Discussed GIS analyses to determine the extent of threats across the sage-grouse landscapes, identify existing areas of fragmentation.
- GIS analysis informed the potential for future fragmentation using indicators of potential occurrence and distribution of the primary threats affecting the species (energy development, invasive species and wildfire, agricultural conversion). However, no formal GIS modeling occurred.
- Population persistence was formally modelled in a peer-reviewed, published study by Garton et al. (2011). This information was extremely valuable in helping us understand how future threats could affect population persistence.
- Foreseeable future was defined by the future of threats on the landscape for each identified threats. For example, most EISs on energy development identified a life of project, typically 30 years.
- Differences between the 2005 and 2010 findings were the result of new information regarding the abundance, distribution and intensity of threats, more research elucidating the link between threats and population persistence, and the availability of GIS modeling tools.
- Primary threats to sage-grouse identified in the 2010 finding were the same as those identified in the 2005 finding.

2015 Listing determination:

- New tools and continuing research results will allow us to further refine the rudimentary threat projections and population persistence and abundance “analyses” conducted in 2005 and 2010.
- The actual scientific process will be similar to the 2005 and 2010 finding analyses, but with more refined tools. These new tools will allow for a more rigorous and transparent analyses which were not available for past efforts.
- The new process for conducting status reviews (4 phases) will be used in this analysis for the greater sage-grouse, as it was for the Bi-state DPS.

- The logical rigor developed form the past two listing decisions was sound and provides the USFWS a foundation on which to begin our 2015 status assessment.
- We can anticipate which information will likely be most influential in the USFWS decision making process (but will not preclude examining all potential threat information).
- We propose to strengthen the logical rigor from the past decisions by increasing the analytical rigor on how the information is processed and analyzed.
- We do not anticipate that every threat to sage-grouse populations needs to go through a formal scientific modeling procedure, as many threats could be addressed by a simple literature review (e.g. effects of hunting on sage-grouse populations).
- We do anticipate the need to strengthen our analytical framework for threats we know will be critical in determining a threatened, endangered, or not warranted status.

2015 Status Review Approach

The analytical framework for the 2015 status assessment has 3 primary components:

1) What to model,
2) How to model it, and
3) Defining the metrics needed for the status assessment (Figure 1).

We believe a small number of threats will be the drivers of sage-grouse persistence based upon our previous two status assessments and the extensive literature base that exists for sage-grouse. We therefore believe we have a strong foundation to determine what the USFWS needs to model. Through the extensive literature on the conservation of small populations and the new USFWS species status assessment process, we also believe we have a solid basis for defining which measures of species persistence are most important. Through a facilitated process, the Core Team defined the measures of abundance & distribution to be the most important metrics in assessing population persistence. This is because they have the strongest quantitative links to resiliency and redundancy of populations, thus long term persistence. What is still lacking is a clearly defined analytical framework to quantitatively understand how the major threats to sage-grouse affect the abundance and distribution of the bird now and into the foreseeable future.

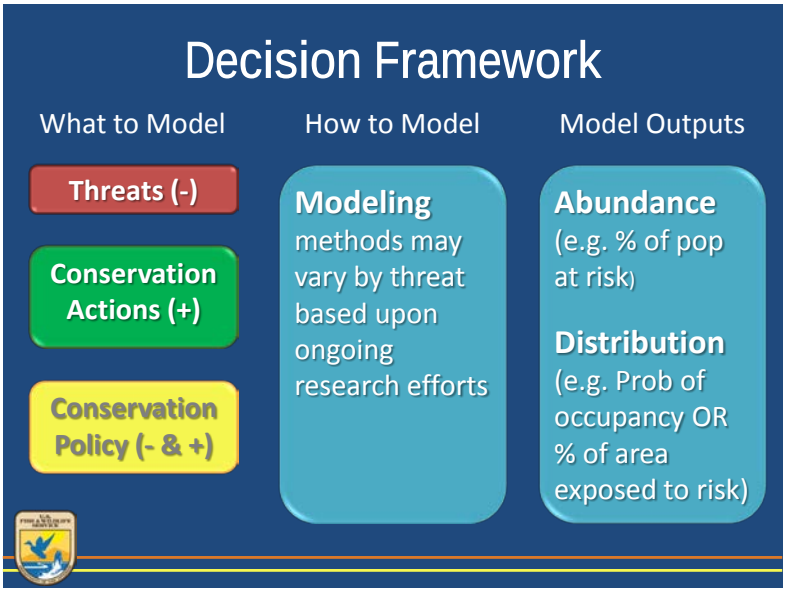

Figure 1: The decision framework for the Greater Sage-grouse (GSG) status assessment can really be simplified into 3 component decision pieces, what to model, how to model it, and what metrics best allow the USFWS to assess the status of GSG. The USFW

We believe the USFWS would benefit from quantifiable modeled impacts to sage-grouse abundance and distribution for each factor included in our analytical framework. Because of the diversity of modeling techniques and possible paradigms to analyze these data, we believe stronger methodological integration will be achieved through a robust discussion by experts in the field of sage-grouse biology, risk modeling, and quantitative ecologist. Stronger methodological integration and analytical rigor is the primary purpose for convening the expert meeting (Figure 2). For each factor we will also need quantification of how each threat is ameliorated by conservation actions (e.g. conservation easements) and conservation policy (e.g. BLM land use plans or WY core area strategy). A large database of conservation actions are currently being assembled through the Conservation Effects Database and will serve as a primary input in characterizing threat amelioration by conservation actions. However we anticipate the extent to which conservation policy decisions do or do not ameliorate threats will not be as clear. We also see a strong role for USGS facilitation to help structure a decision making process to bring transparency and rigor.

Building the analytical framework to integrate how various scenarios for each of the modeled threats cumulatively impact sage-grouse abundance and distribution is not an easy task. We strongly believe the analytical rigor will be stronger, more transparent, and ultimately defensible by reaching out to experts in quantitative ecology and threat modeling. The USFWS is not delegating its decision authority in this process. Indeed, the USFWS has a primary role in this process by defining what needs to be modeled, the desired output formats, and by participating and conducting some of the threat assessments. Further, we cannot envision a way to assess conservation policy without strong input from the USFWS personal who have been working on these issues at both national and field levels. Lastly, the ultimate decision on the interpretation of the scenarios (Figure 2) and whether they warrant a threatened, endangered, or not warranted decision will be made by the USFWS.

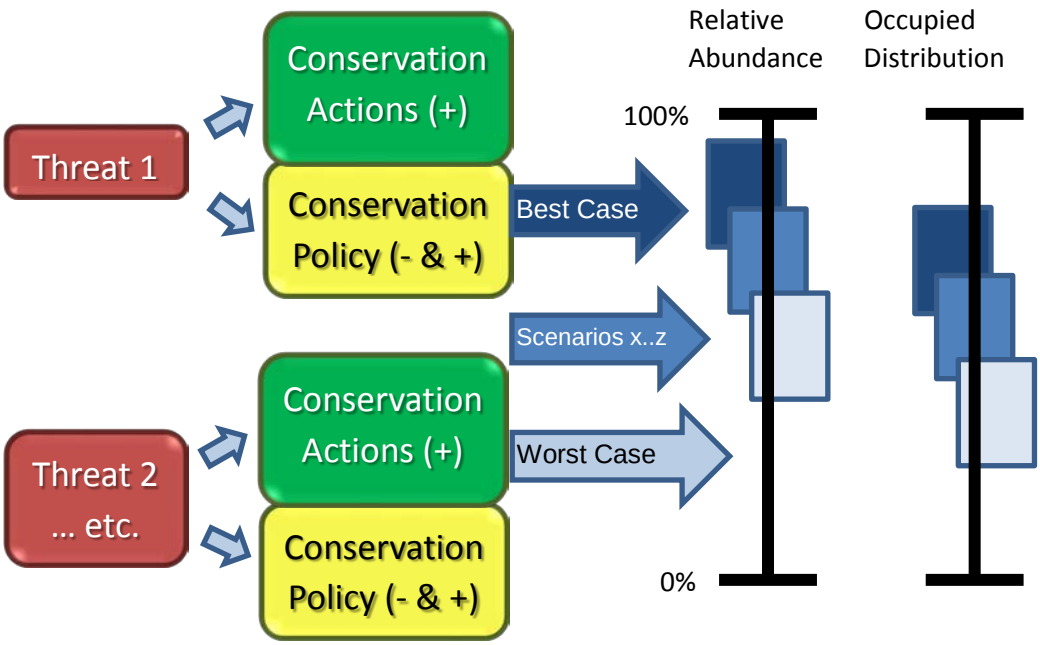

Figure 2: Integration of how the various threats to sage-grouse cumulatively affect the abundance and distribution of greater sage-grouse now and into the future is a complicated problem. We believe that by working directly with leading experts, the analytical rigor, transparency, and defensibility of our status assessment will be drastically increased.