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LESSONS LEARNED FROM THE GREATER SAGE-GROUSE

CHALLENGES AND EMERGING OPPORTUNITIES FOR AGRICULTURE AND RURAL COMMUNITIES

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In March 2010, the US Fish and Wildlife Service (FWS) determined that the Greater Sage-grouse (Centrocercus urophasianus; sage-grouse) warranted the protection under the Endangered Species Act of 1973 (ESA). This decision applied to sage-grouse range wide, as well as a "distinct population segment" (DPS) in California and Nevada, known as the Bi-state population. The FWS also ruled that listing was precluded because other species were considered to be higher conservation priorities and thus available resources would be used first to protect the higher priority species. This FWS action made the sage-grouse a "candidate" species for listing for protection under the ESA. Subsequent to these decisions, the FWS entered into a court-approved settlement with environmental groups to schedule and finalize listing determinations on over 200 ESA candidate species nationwide, including the sage-grouse. The settlement mandated that a decision (i.e., either a proposed listing rule or a decision to not list) on the Bi-state DPS must be completed by September 2013 and on the sage-grouse range-wide by September 2015. The FWS final listing decisions regarding ESA candidate species, in particular sage-grouse because of the species widespread distribution, may pose major challenges to agriculture, private landowners, and socio-economic climates of rural communities.

Individual states have completed, or are in the process of completing, plans that will guide species conservation in each respective state. For these conservation plans to protect landscape species such as the sage-grouse, they must recognize that the diversity of ecological habitats required to sustain this and other landscape species may transcend traditional political boundaries. State-centric species conservation plans must be science-based and address the range of variability in ecological conditions, seasonal habitat-use patterns, site-specific species threats and risks, human dimensions, landownership and land uses, and state and regional economic drivers. Balancing species conservation with economic and human dimensions will require affected rural communities to forge dynamic partnerships with state and federal agencies, non-governmental agencies (NGOs), land-grant universities, and industry to achieve a resilient and sustained economic growth compatible with sage-grouse conservation goals.

INTRODUCTION

The FWS based their 2010 decision to designate sage-grouse as a candidate species for ESA protection on two listing factors: 1) continued habitat loss and fragmentation due to human influences and increased frequency of wildfires have resulted in range-wide population declines, and 2) failure of current regulatory mechanisms at the local, state, and federal levels to curtail continued habitat loss and fragmentation. In addition to decisions relating to Greater Sage-grouse, in January 2013, the FWS released draft rules recommending that a different species of sage-grouse, Gunnison Sage-grouse (C. minimus), be listed as endangered for protection under the ESA. The Gunnison Sage-grouse inhabits landscapes in southwestern Colorado and southeastern Utah. The listing factors identified by the FWS for Gunnison Sage-grouse were similar to those for Greater Sage-grouse. The final rules for listing Gunnison Sage-grouse were scheduled to be issued in September 2013. The FWS has subsequently delayed this action for six months and re-opened the public comment period because of the volume of comments received.

The states and their partners have expressed concerns regarding the court-mandated settlement timetable that required the FWS to make a final ESA listing determination for the sage-grouse in September 2015. Because sage-grouse are a long-lived species, the sagebrush ecosystems they inhabit are subject to extreme weather variation, and sage-grouse production is a consequence of landscape-scale environmental variation (Guttery et al., 2013), the effects of the conservation actions proposed in the state plans on sage-grouse habitat may take several years to produce measurable impacts (Connelly et al., 2011; Pyke, 2011).

Scientists who have conducted long-term studies of sage-grouse

ecology generally agree that because of the contemporary widespread distribution of the species and relatively large areas that still provide sagebrush (Artemisia spp.) habitats, long-term conservation of the species is possible (Connelly et al., 2011). However, because sage-grouse are a landscape species that inhabit lands owned and managed by multiple parties, the protection of large tracts of suitable habitat and the management of these areas will require the collective actions of both public and private partners.

Sage-grouse local working groups (LWGs) are examples of collaborative, range wide voluntary partnerships initiated to facilitate species conservation actions. Since the early 1990's, over 60 LWGs have been working to identify threats to sage-grouse and implement conservation actions to mitigate species risks (Belton et al., 2009). These dynamic partnerships will be important to identifying and implementing strategies to maintain connectivity between populations as well as documenting the collective effects of state and individual management actions on population trends.

Although sage-grouse are an ESA candidate species, management authority for the species remains within the purview of the states. The states, in exercising their management authority, are implementing state-centric conservation plans that are tailored to the unique landscapes and environmental conditions and stressors that may affect local sage-grouse population dynamics. Additionally, because public lands managed by the Bureau of Land Management (BLM) and the US Forest Service (USFS) provide the majority of the occupied sage-grouse habitats in the western US, these agencies initiated a 24-month process to revise their Resource Management Plans and Land Use Plans, respectively. These plans are being revised to ensure implementation of consistent conservation measures to protect the species and sagebrush habitats. However, because of wide variability in range-wide populations and their habitats, for any national species conservation strategy to be successful, it must be locally adapted to address both the needs of the species and the affected local communities.

COMPONENTS OF A NATIONAL STRATEGY FOR SPECIES CONSERVATION

Habitat Protection (If it's not broken – don't fix it)

It may be easier and more cost effective to protect sage-grouse and other candidate species habitats than trying to restore them (Pyke, 2011).

The following components may address FWS concerns regarding the lack of regulatory mechanisms to protection candidate species populations and their habitats.

1. Model Land Use Ordinances – The Utah Division of Wildlife Resources (DWR) estimated that as much as 50 percent of the landscape used by sage-grouse in Utah is privately-owned (DWR, 2009). Thus broad sweeping national conservation actions or regulations promulgated to protect sage-grouse and their habitats on public lands under BLM and USFS National Strategies may be problematic or even counterproductive in some states or areas where private lands provide important seasonal habitats. The failure of a national strategy to recognize sage-grouse dependence on private lands may result in regulations which ultimately increase sage-grouse habitat loss and fragmentation on private lands if landowners are forced to intensify management actions to offset lost revenues from public land grazing allotments. In such cases, regulations that impose new restrictions may either be viewed as irrelevant or create resentment, if they do not address state or revenue loss issues.

   To address FWS concerns regarding "the lack of regulatory mechanisms to protect candidate species populations and their habitats," counties and municipalities in states where candidate species depend heavily on private lands for habitat will need assistance in local land use plan development and implementation of ordinances to balance home development, recreational activities, and other land uses with candidate species conservation. Land use ordinances must be developed in cooperation and consultation with the National Association of Counties, FWS, states, and county governments that achieve conservation goals and protect private property rights using innovative incentive-based approaches.

2. Conservation Enterprise Districts (CED) – The CEDs may constitute a novel concept for creating a new funding base to fund and place voluntary conservation easements on high value private lands that constitute sage-grouse and other candidate species habitats. Targeting easements to areas with a high threat of residential subdivision and dense sage-grouse populations may have a greater conservation benefit than random placement of easements based on traditional willing seller approaches (Copeland et al., 2013). A CED would function similar to a local bond issue for generating new revenue for a community public works project. The CED would engage a wider geographic fiscal base centered on state or regional species management zones to strategically fund and target easements in important habitat areas thus achieving conservation goals and negating threats hence the need for listing a species. These CED districts would allow project proponents, partners, and investors to purchase and trade conservation credits in a free market scenario to offset impacts and fund conservation easements (see Conservation Credit Cooperatives below).

3. Sage-grouse and other sagebrush obligate species depend on sagebrush ecosystems. The loss of sagebrush habitats has been identified as a major species conservation threat. Projects are still being implemented range-wide that reduce sagebrush vegetation cover. Given that not all sagebrush cover is sage-grouse habitat, agencies and organizations that provide cost-share programs to fund land treatments must clearly describe the conditions under which sagebrush management projects on federal lands and cost-share projects on private lands through the Natural Resources Conservation

Service (NRCS) or other entities may be conducted (i.e., enhancement of late sage-grouse brood-rearing habitats). Any project undertaken to help sage-grouse or other sagebrush obligate species must demonstrate increased habitat value through monitoring programs designed to assess the contribution of the project over time given sagebrush ecosystems landscape-scale environmental variation effects on sage-grouse production (Guttery et al., 2013).

4. Immediate reevaluation of "let-it-burn" policies for wildfires in low elevation, xeric sagebrush habitats, and a moratorium on prescribed burns in these areas.

5. Enhanced fire suppression in critical seasonal habitats through lend-lease programs that provide both personnel and equipment across jurisdictional boundaries to protect important habitats.

6. Development of effective firebreaks and green-stripping to reduce the chance of massive wildfires. Essential to this process will be the development of range wide "thunderstorm maps" to help states and counties identify at-risk areas and prioritize abatement actions. Development of these maps should be coordinated through BLM, USFS, NGOs, state agencies, and research universities.

Habitat Management (Fix what's broken)

The objectives for all sage-grouse and other ESA candidate species habitat management projects must include improved overall environmental conditions, including increased appropriate vegetation cover, and soil and water conservation (Pyke, 2011). These conditions are also desirable for livestock forage production, which constitutes the dominant land use of many western sagebrush ecosystems. Further, increases in vegetation appropriate for sage-grouse, and associated improvements in soil conditions and water infiltration can help abate seasonal and annual effects of drought. Most scientists that have studied sage-grouse ecology concur that strategies designed to sustain or increase vegetation cover appropriate for sage-grouse on large tracts of occupied sage-grouse landscapes, including all seasonal habitats, can also benefit local communities, livestock producers, and other wildlife populations (Connelly et al., 2011).

Specific suggestions for funding habitat improvement strategies include:

1. Conservation Credit Cooperatives - Develop a credit-trading system to offset direct and indirect impacts of development (from oil and gas, renewable energy, housing, etc. in sage-grouse habitat and create a "cooperative" funded through payments by economic interests which impact sage-grouse habitats). The funds could be banked to pay for future restoration or conservation easement projects to mitigate for indirect or cumulative impacts (Hauffler et al., 2011). This system would be based on a standard metric (credit) such as a desired improvement in the overall ecological site conditions. These metrics (credits) could be used to offset impacts by the project proponents or marketed. For example, a private landowner who earns credits for developing, enhancing, and protecting candidate species habitat on private land could accrue credits and subsequently market these credits to project proponents to offset the impact of the proposed development project. The price of the credits would be decided in the market place. For this process to work, the FWS must recognize this process as a valid ESA mechanism.

2. Engage BLM, USFS, NRCS, FWS, states, non-governmental organizations, and private landowners in developing a comprehensive evaluation of existing federal and state livestock grazing. This could lead to the development of a range-wide system of "landscape allotments." These allotments would be premised on sage-grouse and other wildlife as landscape species, sustaining working farms and ranches, and managed to achieve the above objectives. These "landscape allotments" would incorporate cost-share programs for partners to fund infrastructure and monitoring programs to document the effects on habitat and range condition, sage-grouse population trends, and farm and ranch profitability.

3. Prioritize restoration work to focus on potential habitat adjacent to occupied range. This would help gradually expand the area inhabitable by sage-grouse, improving their chances for long-term survival.

Population Management (Assessing success)

Suggestions for how to measure the improvements from the above habitat management and habitat protection suggestions include:

1. Implement a range-wide standard for assessing changes in population trends, using lek counts (counting the number of males at breeding sites, or leks) in response to management and protection actions. Place this standard within a robust sampling framework.

2. Encourage states to establish baseline population and habitat goals for species conservation plans. In the case of sage-grouse, we do not know how many sage-grouse existed prior to the settlement of the West. In some cases, settlement patterns may have actually benefitted some sage-grouse by providing mesic brood rearing habitats through irrigation and enhanced survival rates through wide-scale control of predation (Patterson, 1952). A baseline would provide a standard to measure future success and encourage states to develop conservation and monitoring plans that are objective based.

3. Delay the FWS sage-grouse listing decision until 2018 to allow the effects of state plan conservation actions on sage-grouse population to be quantified. Sage-grouse are a long-lived species, the sagebrush ecosystems they inhabit are subject to extreme weather variation, and sage-grouse production is a consequence of landscape-scale environmental variation (Guttery et al., 2013). Thus, the effects of the conservation actions proposed in the state plans on sage-grouse habitat may take multiple years to produce measurable impacts (Connelly et al., 2011; Pyke, 2011).

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