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Wyoming sage-grouse working groups: lessons learned

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Abstract: The greater sage-grouse (*Centrocercus urophasianus*; sage-grouse) has been the subject of multiple status reviews under the Endangered Species Act (ESA). Wyoming accounts for approximately 38% of the species' rangewide population. Since 2000, 2 statewide and 8 local citizen working groups have been established in Wyoming to develop conservation plans and advise state policy. A statewide plan for the conservation of sage-grouse was formally adopted in 2003 that established local sage-grouse working groups (LWGs) charged with developing and facilitating implementation of local conservation plans. Those plans were completed in 2007. From 2005–2017, the local working groups allocated nearly $7 million in legislatively appropriated funds to support conservation projects. In 2007, a statewide Sage-Grouse Implementation Team (SGIT) was appointed to advise the governor of Wyoming on all matters related to the Wyoming Greater Sage-Grouse Core Area Protection Policy. The Core Area Policy was established by a governors' executive order and provided mechanisms for limiting human disturbance in the most important sage-grouse habitats. Federal land management agencies have incorporated most aspects of the Core Area Policy into their land use planning decisions. Effectiveness of local and statewide collaborative conservation has been evaluated independently through assessments of LWG accomplishments, research on policy effectiveness, sage-grouse population monitoring, and ESA status reviews. Wyoming groups reported consistently higher results on a variety of success measures. Factors contributing to this success include targeted LWG member selection, trained neutral facilitators, the consensus decision-making process, providing training early in the process, LWG and agency support for science, the longevity of LWG membership, and substantial funding of both the LWG process and project implementation. Successes at the statewide scale are largely the product of sound science used to inform policy making and effective leadership. Challenges to LWG success include maintaining funding and member enthusiasm and commitment long-term, adequately determining project and policy effectiveness, truly implementing adaptive management as conditions change and new knowledge is gained, and important decisions being made outside of group processes.

Key words: case study, *Centrocercus urophasianus*, community-based conservation, conservation plan, greater sage-grouse, local working groups, monitoring, policy, Wyoming

To be effective, community-based conservation requires shared learning, open communication, collaboration, trust, and responsibility, as well as substantial commitments of time, effort, and funding. Our experience with Wyoming's local sage-grouse working groups (LWGs) and the Wyoming Sage-Grouse Implementation Team (SGIT) provides a case study for such a process. Since 2004, Wyoming's 8 LWGs have developed, implemented, and revised local conservation plans to benefit greater sage-grouse (*Centrocercus urophasianus*; sage-grouse) and to preclude the need for listing under the Endangered Species Act (ESA). In 2007, Wyoming's governor appointed the SGIT to develop consistent statewide regulatory mechanisms needed to protect the sage-grouse and its habitat while sustaining the state's resource extraction-based economy. As with the local efforts, precluding the need for an ESA listing of sage-grouse was a primary goal of the statewide effort.

Background

The sage-grouse is long-lived and dependent on large contiguous tracts of sagebrush for their survival. This landscape-dependent species (Connelly et al. 2011, Knick and Connelly 2011) has individual home ranges that can exceed 6,000 km^2 (Tack et al. 2012). Most populations contain both migratory and non-migratory individuals (Fedy et al. 2012). Some migratory sage-grouse moved up to 122 km between seasonal ranges (Tack et al. 2012). Even non-migratory individuals have seasonal movements up to 10 km (Connelly et al. 2000).

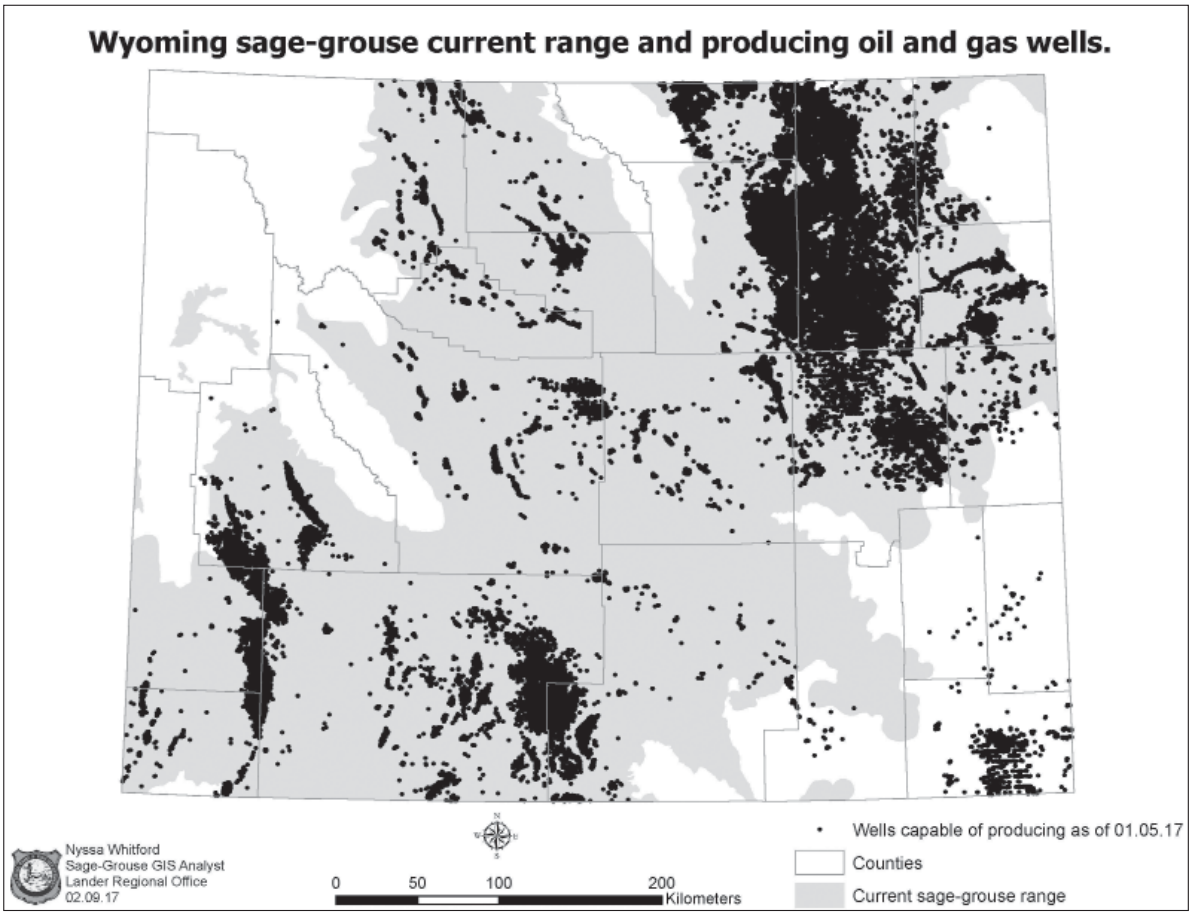

Figure 1. Producing oil and gas wells and occupied greater sage-grouse (*Centrocercus urophasianus*) range in Wyoming as of January 5, 2017. Sources: Wyoming Oil and Gas Commission, Wyoming Game and Fish Department.

Population-level declines have been attributed to anthropogenic disturbances up to 20 km away (Taylor et al. 2013).

Sage-grouse mate on communal leks, a behavior that enables biologists to monitor them relatively easily. Sage-grouse populations have declined over the past half century in Wyoming and across the species' range (Western Association of Fish and Wildlife Agencies [WAFWA] 2015). Sage-grouse currently occupy approximately 56% of their estimated pre-settlement range in North America (Schroeder et al. 2004). However, 90% of the historic range is still occupied in Wyoming (N. Whitford, Wyoming Game and Fish Department [WGFD], unpublished data). Currently occupied range (Figure 1) covers nearly 70% (approx. 17.4 million ha) of the state (N. Whitford, WGFD, unpublished data). Wyoming contains 26% of the species' range but supports 37% of the total population (Doherty et al. 2010).

A combination of anthropogenic factors including farming, urbanization, and energy development has contributed to the rangewide loss and fragmentation of sagebrush habitat (Leu et al. 2008). Increased frequency of drought in recent decades further exacerbated the decline in habitat suitability (Homer et al. 2015). Threats to sage-grouse, including current and future land use projections in Wyoming, prompted several petitions for listing under the U.S. Endangered Species Act. In September 2015, the U.S. Fish and Wildlife Service (USFWS) issued a decision of "not warranted" for listing based on adequate conservation measures in place (USFWS 2015). The USFWS plans to conduct another status review in 2020 to ensure conservation efforts are effective and the species remains unwarranted for listing.

Residential development and energy production have expanded dramatically across Wyoming's sagebrush habitats over the past 40 years (Parmenter et al. 2003, Copeland et al. 2013). Specific to energy development, between

1990 and 2012, world energy demand increased 54% and is projected to increase another 48% by 2040 (U.S. Energy Information Administration 2016*a*). Despite recent shifts in its energy portfolio, Wyoming remains a leader in energy production and exports more energy than any other state (Mead 2013).

In a global context, if Wyoming were a country, it would rank tenth in overall energy production (Mead 2013). In early 2017, 66,690 wells were capable of producing oil or natural gas in Wyoming (Wyoming Oil and Gas Commission, unpublished data; Figure 1). Wyoming produces 40% of the nation's coal, nearly 4 times as much as West Virginia, the next highest producing state (U.S. Energy Information Administration 2017). Wyoming is also the nation's top producer of uranium (Mead 2013). Wyoming's wind resources rank among the best in the nation, and wind-powered generating capacity has increased rapidly over the last 10 years (U.S. Energy Information Administration 2016*b*). Several large-scale projects are in development, including a 3,000-mW wind farm that may become the largest facility of its kind in the nation (U.S. Energy Information Administration 2016*b*). Documentation of potential wind energy development impacts to sage-grouse, such as avoidance and decreased survival, is insufficient, although results of early studies were recently published (LeBeau et al. 2014, LeBeau et al. 2017*a*, *b*).

Sustaining sage-grouse populations poses many challenges in a state whose economy depends so inextricably on resource extraction (Willms and Alexander 2014). Given these pressures, undisturbed landscapes in Wyoming are unlikely to persist without proactive conservation planning. Central to this issue is the fact that 48% of the surface estate in Wyoming is held in public trust by the federal government (U.S. Congressional Research Service 2017). The Bureau of Land Management (BLM) is the land use decision-making authority for 40% of occupied sage-grouse habitat in Wyoming (N. Whitford, WGFD, unpublished data).

Public process

Around the globe, natural resource planning and implementation is shifting toward collaborative efforts that engage a wider diversity of stakeholders than more traditional resource management models (Weber 2000). In 2000, the Wyoming Sage-Grouse Working Group was formed to develop a statewide strategy for conservation of sage-grouse in Wyoming. The working group consisted of 18 Wyoming citizens representing agricultural, industrial, governmental, environmental, hunting, and tribal interests. The Wyoming Greater Sage-grouse Conservation Plan (WGSGCP; WGFD 2003) was adopted by the Wyoming Game and Fish Commission in 2003.

Implementation of the WGSGCP relied on creation and success of LWGs. The role of the LWGs was to adapt strategies outlined in the WGSGCP to be effective in local areas with the overarching goal of improving or maintaining sage-grouse populations and habitats, thus precluding the need for listing under the Endangered Species Act.

Wyoming's LWG process

Beginning in 1999, the WAFWA and the Western Governors' Association (WGA) initiated a series of Memoranda of Understanding that encouraged state wildlife agencies to facilitate the formation of stakeholder-based LWGs (Stiver 2011). Nine states in the western United States convened >60 LWGs to develop and implement LWG management plans (WGA and USDA Natural Resources Conservation Service 2004).

The WGFD began internal planning for the formation of LWGs immediately following acceptance of the WGSGCP in 2003. A sage-grouse program coordinator was hired, a process was developed for LWG member selection, facilitation, and training, and a LWG charter was prepared. Technical resources used by the WGFD in this process were the International Association for Public Participation (2003) and the U.S. BLM and Sonoran Institute (2000).

The charter outlined the purpose and authority of the groups; the responsibilities of the members, facilitators, WGFD, and public; and travel/expense support for public members. Some of the key provisions of the LWG charter are:

- LWGs are integral to the decision-making process, but they do not have decision-making authority. LWGs may influence agency policy, but they do not have the

authority to change policies mandated by state or federal law.
- LWG plans shall not exclude any uses or activities or infringe on legally defined private property rights.
- Individuals participating in an LWG are expected to (12 items notably including):
  - Participate collaboratively in group decision-making
  - Constructively manage conflict between group members
  - Communicate regularly with constituents
  - Publicly support group decisions
- Each LWG facilitator is expected to help the LWG achieve their outcomes by (9 items notably including):
  - Serving the LWG as an impartial process specialist, ensuring that meetings are conducted as efficiently and effectively as possible
  - Developing and maintaining trust and respect within the group so that all individuals can express their opinion
- All meetings will be open to public attendance, and public participation will be encouraged.
- Non-governmental LWG member travel expenses will be reimbursed by the WGFD.

The 2003 WGSGCP recommended formation of 11 groups staggered over a 3-year period beginning in 2003. However, then Governor Dave Freudenthal directed the WGFD to accelerate the conservation planning process and form all working groups prior to the end of 2004 due to concerns about a pending listing decision. To accomplish this task, the number was reduced from 11 to 8 planned LWGs (Figure 2).

A WGFD director's internal memorandum dated July 27, 2004 stated, "As you know, the priority our Department has given to conservation of sage-grouse and sage-steppe habitat has increased over the last decade. To further demonstrate our commitment to the issue, I am directing local conservation planning effort to begin immediately in all areas of the state that do not currently have a local working group. Until further notice, sage-grouse conservation planning is the Department's top priority."

Additionally, a January 2005 Wyoming governor's letter to incoming LWG members concluded, "The challenge you face is great, as are the potential costs of failure and benefits of success. My charge to you is to work together to conserve sage-grouse and their habitats for future generations."

Nominees for initial LWG membership were identified by local WGFD personnel who selected 2–3 persons from each constituent category including agriculture, industry, conservation, hunting, agencies, at-large, and others appropriate for local situations. Criteria for selection included the ability and standing to be influential within their constituent group, together with the ability to work effectively and cooperatively with those representing other interests. The LWG nominees were contacted individually and in person to determine their willingness to serve, and were each provided a copy of the LWG charter. Names of persons willing to serve on the LWGs were vetted to other local leaders within the respective constituency groups, and then by statewide leaders. For example, the director of the Wyoming Department of Agriculture reviewed and advised on all of the LWG agricultural representatives.

Trained facilitators, mostly WGFD information and education personnel, conducted all LWG meetings until their plans were complete in 2007. Since 2007, meetings have been run by the LWG chairs or the WGFD representative except in rare cases when a specific topic was controversial enough that the LWG chair requested outside facilitation. In those instances, the WGFD sage-grouse program coordinator, who is also a trained facilitator, conducted the meetings.

At the initial meeting of the LWGs, each member was provided a notebook of sage-grouse biology and research materials, articles on collaborative decision making, and USFWS policy relative to the ESA. Various live presentations on these topics were also given.

One of the first tasks was to develop and accept ground rules under which each LWG would operate. The LWGs were provided an initial template from which each adapted their individual ground rules as they collectively saw fit. The ground rules established criteria for the LWG meeting process, member attendance and replacement, communication within and outside the LWG, and a defined process for

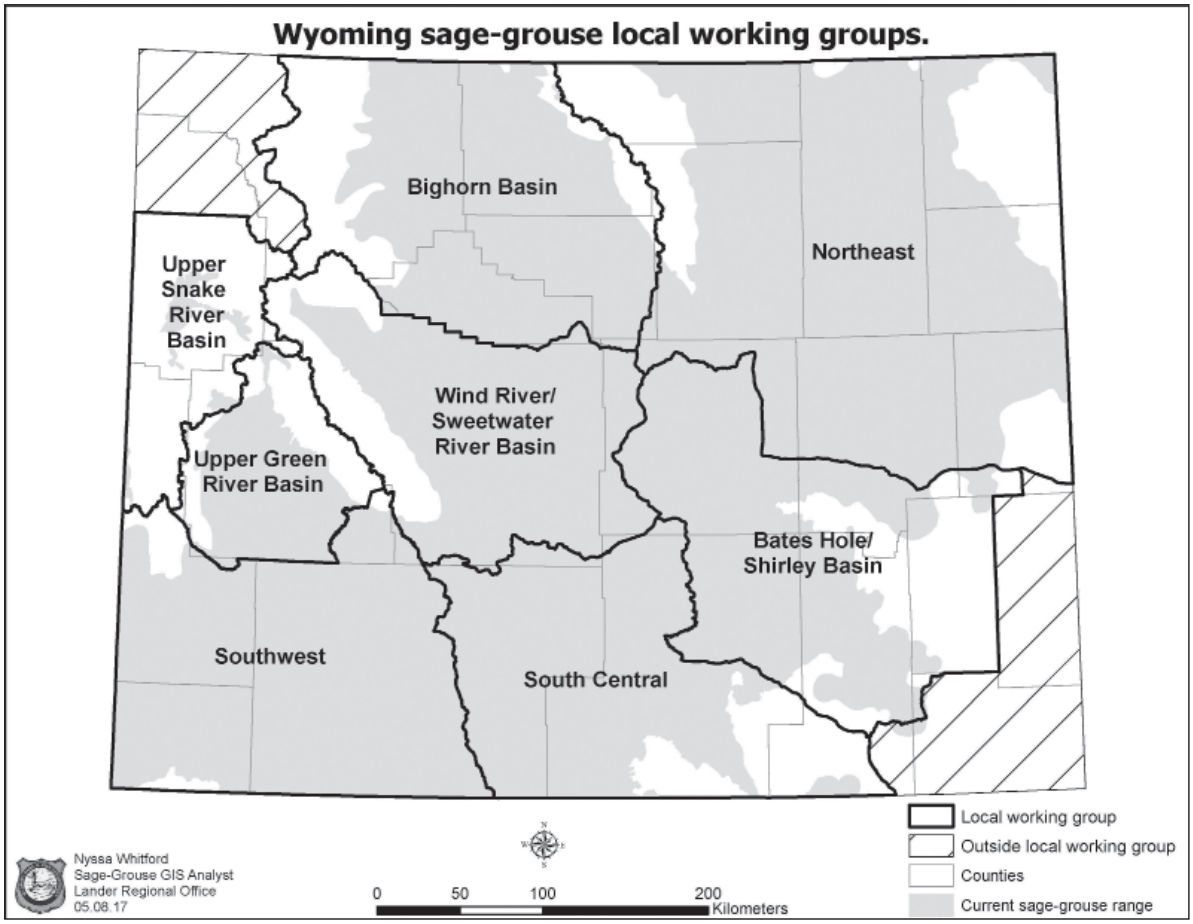

Figure 2. Wyoming local greater sage-grouse (*Centrocercus urophasianus*) working group boundaries, 2017.

consensus-based decision-making.

Consensus was defined as general agreement and compliance with the recommendations achieved through resolution of differences within the group. Votes are not cast. Consensus is not to be withheld unless there are serious reservations with the matter under consideration. Those unable to reach consensus have the responsibility to suggest alternative solutions for the group to consider. If consensus ultimately cannot be reached, no recommendation is provided relative to the item under discussion.

The LWGs also developed mission statements to succinctly define and clarify the purpose of each LWG. These statements were understandably similar (e.g., from the Big Horn Basin LWG 2007:viii): "through the efforts of local concerned citizens, recommend management actions that are based on the best science to enhance sagebrush habitats and ultimately sage-grouse populations within the Big Horn Basin." Other mission statements included references to the multiple-use concept of land management and multiple species conservation in the context of the sagebrush biome.

The LWGs completed their original conservation plans in 2007 and updated them in 2014. Plan implementation is accomplished through agency and landowner delivery of appropriate management, protection, and restoration practices. The Wyoming legislature provided nearly $7 million from the state's general fund to support project implementation from 2005–2017. During this time, LWGs contributed to the implementation of about 220 projects. The $7 million figure does not include federal and private cost share dollars, which often far exceeded the amount of state appropriated funds. Project types have included: sagebrush treatments (e.g., mowing, herbicide, prescribed fire), invasive plant control, restoration of disturbed sites, grazing management, various education efforts, and applied research related to energy development, effectiveness of habitat

treatments, predation, West Nile virus, and reclamation.

Legislative funding for the state's sage-grouse program ended in mid-2017. Funding has since transitioned to the WGFD due to state budget shortfalls. This action will shift the funding burden from the state as a whole, based largely on mineral severance taxes, to hunters and anglers, the primary funding source of the WGFD. A hunting license fee increase specifically crafted to replace legislative funding was approved by the legislature in 2017, and LWGs will maintain their existing role in recommending how funds will be allocated.

Wyoming Sage-Grouse Implementation Team

In 2005, the USFWS issued a finding of "not warranted" in response to petitions to list the greater sage-grouse as a threatened or endangered species (USFWS 2015). Petitioners filed litigation in federal court, and the decision was remanded back to the USFWS for further analysis based on new information (USFWS 2010). Although local planning efforts provided recommendations for sage-grouse habitat management, a consistent statewide regulatory mechanism was needed to protect the sage-grouse and its habitat. To address this gap as well as the court-ordered ESA status reevaluation, Governor Freudenthal appointed a statewide Wyoming Sage-Grouse Implementation Team (SGIT) in 2007. The SGIT also included representation from federal and state agencies, conservation groups, industry, and landowners. The SGIT was tasked with developing statewide conservation measures that would positively impact sage-grouse numbers and habitat, and thereby preclude the need to list the sage-grouse as a threatened or endangered species. Unlike the LWG process, the SGIT did not receive training in group dynamics. Neither a formal charter nor ground rules were developed. The SGIT chairman administered the group without use of a facilitator.

Research on the effects of natural gas development was being published concurrently with this policy initiative (e.g., Holloran et al. 2005, Walker et al. 2007, and later Doherty et al. 2011, Naugle et al. 2011). The science and resulting management implications were largely incorporated into the SGIT's recommendations to the governor. Governor Freudenthal signed an executive order on August 1, 2008, directing state agencies to maintain and enhance sage-grouse habitat across the state (Wyoming Governor's Office 2008). The executive order and resulting management stipulations became collectively known as Wyoming's Core Area Policy (CAP).

The CAP has evolved since 2008 by incorporating new science, monitoring data, high resolution mapping, and LWG input resulting in a series of governor's executive orders specifically addressing sage-grouse conservation (Wyoming Governor's Office 2010, 2011, 2015). These executive orders have spanned 2 governors' administrations from different political parties but maintained the goal of preventing the need to list the species as threatened or endangered through a process of science-based regulations and incentives.

Doherty et al. (2010) described the biological basis for delineating the core areas upon which the CAP is based. Sage-grouse population centers were identified based on lek counts (Doherty et al. 2010). The SGIT then overlaid the grouse abundance layer with geospatial data delineating existing disturbances such as mine locations, roads, urban areas, and producing wells, and areas committed to future development by land use planning decisions and permitting processes. The SGIT then used these data, along with public input, to delineate the current core areas (Figure 3). The current core area boundaries cover <25% of the state but encompass 81% of sage-grouse males counted on leks, as well as the associated nesting habitat (N. Whitford, WGFD, unpublished data). Less than 5% of active oil and gas wells, and no coal or wind energy developments, are located within core area boundaries (N. Whitford, WGFD, unpublished data).

Effectiveness of Wyoming's collaborative processes

LWGs

The sage-grouse population in Wyoming and rangewide reached its lowest point in the mid-1990s (WAFWA 2015). However, the rate of decline has moderated over the last 20 years (WAFWA 2015) as conservation efforts have

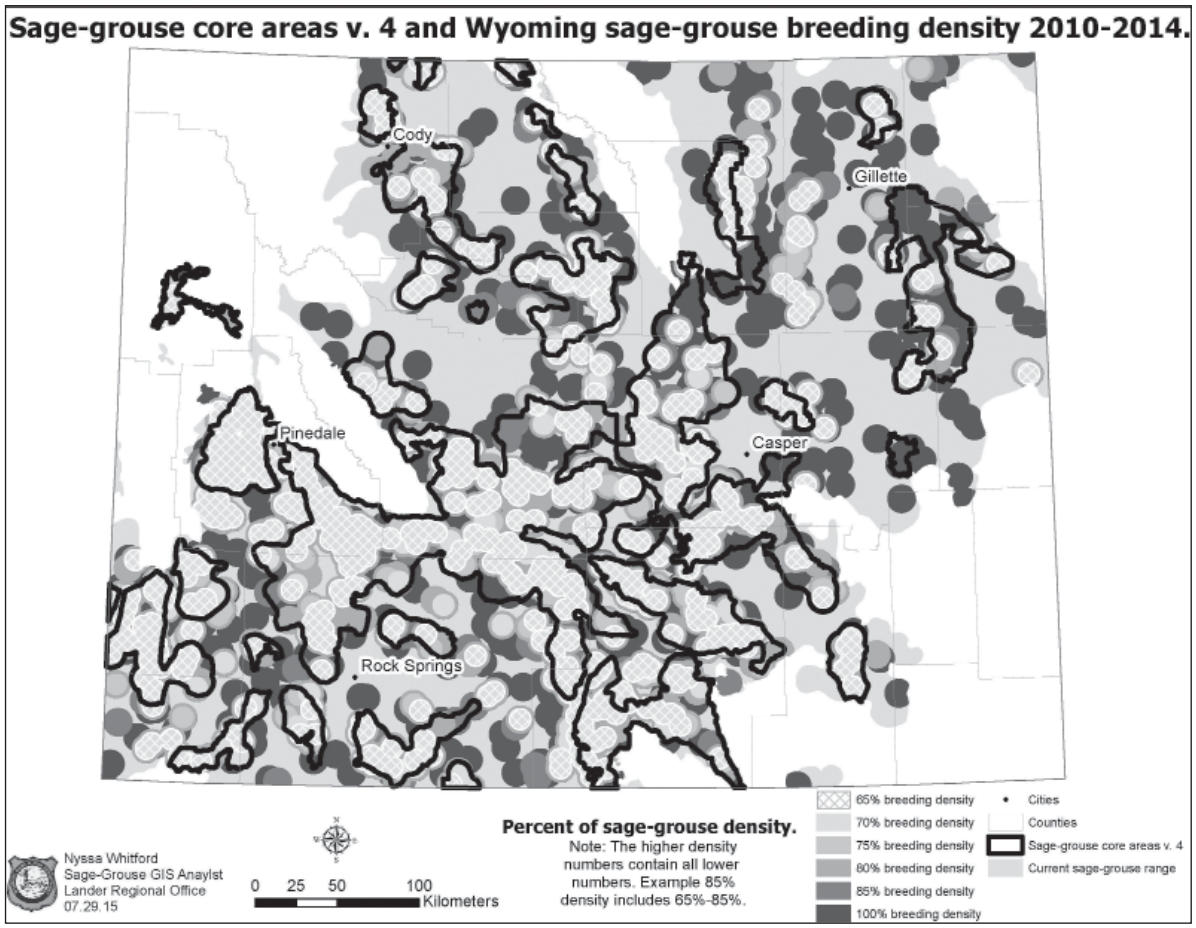

Figure 3. Incremental breeding population densities of greater sage-grouse (*Centrocercus urophasianus*) in Wyoming based on Doherty et al. (2010) and management core areas delineated by the State of Wyoming (2015).

been increasingly directed toward sage-grouse.

The ultimate success of Wyoming's state and local scale sage-grouse conservation strategies can only be determined through long-term monitoring of sage-grouse populations. Several studies have assessed the accomplishments and needs of LWGs across the range of sage-grouse (Belton et al. 2009, Belton and Jackson-Smith 2010) as well as interim success of the CAP (Copeland et al. 2013, Burkhalter et al. 2015, USFWS 2015, Gamo and Beck 2017).

Belton et al. (2009) surveyed LWG participants in 9 states with sage-grouse LWGs. The survey was conducted in 2007, relatively early in the life of these groups. However, Wyoming's groups reported higher successes on numerous key metrics including their personal experience with the groups, as well as more generic measures of the groups' success. Wyoming participants' responses to mean responses from other states were based on information condensed from several tables in Belton et al. (2009). On questions relating to group purpose and composition, Wyoming LWG participants rated their groups much higher than did the participants in other states' groups (Table 1). Seventy-three percent of the Wyoming respondents agreed that all the important interests were represented at the meetings; rangewide, only 55% felt all key stakeholders were adequately represented. The Wyoming participants also indicated that they learned a lot at meetings. These results appeared to reflect the strong initial set-up efforts explained previously, and the logistical and political support provided to the groups as they started up. The participants in Wyoming's LWG also felt that they had much better influence over the groups' decisions and expressed high levels of pride in the work of the LWGs. In explaining their results, the survey authors stated, "Wyoming participants reported the most positive assessment of most types of LWG accomplishments, perhaps

Table 1. Selected local working group measures of success and challenges, comparing Wyoming (WY) to 7 other greater sage-grouse (*Centrocercus urophasianus*) states or groups of states (CA/NV combined; Belton et al. 2009).

Measures of success	% who agree or strongly agree		WY rank (of 8)
	WY	Mean (of 8)	
All the important interests are represented	73	55	1
This group is likely to make a difference for sage-grouse	78	68	1
This group would adapt well to a new threat to sage-grouse	79	58	1
Our meetings are well run and facilitated	74	70	1
People are comfortable expressing opinions	93	82	2
We handle differences of opinion well	77	62	1 (tie)
I enjoy participating in this working group	83	60	1
Meeting atmosphere (% positive/very positive)	85	73	2
This group has a clear purpose	82	59	1
I learn a lot at our meetings	67	49	1
We accomplish a lot at the meetings	72	47	1
Meetings are a waste of time	5	9	6
Agencies have worked well with local working groups	85	71	1
I am personally invested in the success of this working group	85	57	1
I am proud of the group's accomplishments	84	61	1
I feel personal ownership in the work of this group	83	50	1
Challenges to success	**% who reported the following tasks to be a large challenge**		**WY rank (of 8)**
	WY	Mean (of 8)	
Implementing projects	15	28	8
Finding funding to support the group's work	10	30	8
Learning how best to manage for sage-grouse	40	35	1 (tie)
Assessing project outcomes	25	27	6 (tie)

reflecting the greater resources and formal organizational structure of LWGs in that state."

The survey also asked about challenges encountered by the groups. Wyoming respondents expressed much less difficulty funding and implementing projects. This validated the model used to help the groups implement their plans, which provided clear sources of funding for project implementation. The Wyoming respondents identified "learning how to manage for sage-grouse" as their top challenge, but "assessing project outcomes" was ranked as a comparatively low challenge. This seemed somewhat contradictory since assessing project outcomes is an important means of improving knowledge on how to manage for sage-grouse.

Given the survey was completed in 2007, it is difficult to predict how opinions may have changed in the past decade. Based on subsequent assessments of Wyoming's LWGs,

it appeared the groups have largely succeeded in meeting their original goals.

In its most recent listing decision, the USFWS (2015) reemphasized the need to focus sage-grouse conservation efforts on protecting and enhancing priority habitats. Copeland et al. (2013) found evidence that habitat fragmentation was being reduced in core areas and predicted sage-grouse population losses were reduced by implementing the CAP along with targeted conservation easements. Another recent analysis of the CAP predicted a high proportion of the landscapes within core area boundaries are supporting increasing or stable populations of sage-grouse due to the conservation of high-quality, intact sagebrush habitats (Burkhalter et al. 2015).

Gamo and Beck (2017) determined 72% of development projects located within Wyoming core areas were in compliance with the executive order. Non-compliant projects were generally operating under valid, existing rights and therefore not subject to provisions of the executive order. Those projects were reviewed further, and operators often agreed to implement mitigation practices that included locating structures within previously disturbed sites, site-specific avoidance of sage-grouse habitat, and habitat restoration. Gamo and Beck's (2017) analysis demonstrated that the CAP has been generally effective at conserving sage-grouse populations by managing anthropogenic disturbances. However, it also indicated additional actions are needed to conserve sage-grouse in northeast Wyoming where many developments were in place or permitted prior to the implementation of the CAP (Gamo and Beck 2017).

In its 2015 listing decision, the USFWS stated, "In 2010, we analyzed the Wyoming Plan [CAP] and noted that it included measures that if fully implemented could ameliorate threats to sage-grouse. We now have data that shows how implementation has avoided and minimized impacts in core habitats," (USFWS 2015:59,883) and "State sage-grouse conservation plans in Wyoming, Montana, and Oregon contain regulatory mechanisms that minimize impacts to the species and its habitat. Most notably, the Wyoming Plan (CAP) has been in place since 2008 and has effectively minimized impacts within core habitats, protecting the highest density areas for the species within the State," (USFWS 2015:59,887). The CAP's overall effectiveness, as well as that of specific provisions of the CAP, including disturbance thresholds, operational stipulations, and restoration methods, are subjects of ongoing research.

The more significant changes made since 2008 have not been in place long enough to support definitive conclusions about how sage-grouse may be responding. In part, this is because sage-grouse respond slowly due to their biology (long-lived, low reproductive rates) and harsh environments in which they live. Moreover, Wyoming sage-grouse populations appear cyclical (Fedy and Doherty 2010), and short-term trends are likely driven more by climatic events than long-term changes in habitat quality. This further confounds attempts to isolate and quantify the effect that can be attributed to management actions. Again, only long-term population monitoring will answer this question.

Lessons learned

Unprecedented conservation actions and policies are being implemented to conserve sage-grouse (USFWS 2015:59,942). Evidence to date indicated these efforts are realizing success in Wyoming. In our view, the keys to LWG success included: 1) targeted LWG member selection, 2) use of trained, neutral facilitators, 3) the consensus decision-making process, 4) providing group dynamics training early in the process, 5) LWG and agency support for science, 6) the longevity of LWG membership, and 7) substantial funding of both the LWG process and project implementation.

Successes at the statewide scale appeared to be largely the product of sound science used to inform policy making and effective leadership by Governors Freudenthal and Mead as well as the SGIT chairman, Bob Budd. While the potential for ESA listing certainly provided economic motivation for individuals and interests not otherwise dedicated to wildlife and habitat conservation to earnestly participate in the process, charismatic leadership should not be underestimated as a compelling force guiding diverse interests to work cooperatively toward a mutually acceptable outcome. Even so, challenges

remain at both the local and state scale. These include:

- Increasingly infrequent LWG meetings impact group dynamics, as LWG members need to refresh their memories and reestablish working relationships.
- LWG project outcomes are often unquantified and undocumented, so their effectiveness is uncertain.
- The consensus decision-making model often results in more discussion and deliberation on an issue than would have occurred under a simple majority vote model. In the Wyoming LWGs, this appears to have led to better decisions being made. However, the resulting decisions can alternatively be a compromise that insufficiently addresses an important issue, but stands nonetheless as parties to the decision prioritize cooperation over outcome.
- Some individual LWG members harbor modest resentment of the SGIT, which has greater policy-making influence. Including more LWG representation on the SGIT could improve these relationships.
- Although adaptive management is an operative concept in the CAP, the reality is that people, and especially business, prefer stability and certainty. Consequently, resistance to change can be a difficult challenge to overcome, even in the face of compelling science.
- Overriding of advisory group recommendations by decision-makers may threaten the success of the group process. Examples of this include the federal designation of "Sagebrush Focal Areas" in the federal land-use planning process completed prior to the 2015 listing decision, the Department of Interior Secretarial Order 3353 directing review of all planning decisions made by the previous administration relative to sage-grouse, and 2016 legislation in Wyoming allowing private bird farms to collect eggs from wild sage-grouse and develop captive flocks. Each of these decisions was made with no or minimal consideration of established advisory group processes, resulting in concern from various participants that might undermine their interest in continuing to be involved.

Paramount to all is the fact that both the local and state processes are reliant on the ability of diverse participants, who often hold adversarial viewpoints, to develop and maintain positive working relationships in seeking to achieve mutually agreeable goals. We believe the Wyoming model has potential to succeed in an era of political polarization.

Acknowledgments

This paper is dedicated to the memory of Tom Maechtle, chair of the Northeast Wyoming Local Sage-Grouse Working Group from its first meeting in 2004 until his death in 2016. Tom was dedicated to sage-grouse conservation and donated much of his time and talent to this cause. He can't be replaced and will be sorely missed, but all Wyoming local working group members share his desire to work collaboratively toward sustainable solutions. We also thank S. Tessmann; M. Guttery, associate editor; and 2 anonymous reviewers for reviewing the draft of this paper and providing helpful comments and edits.

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