

## WESTERN ASSOCIATION OF FISH AND WILDLIFE AGENCIES

### POPULATION AND HABITAT-BASED APPROACHES TO MANAGEMENT OF SAGE-GROUSE

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Interest in establishment of population goals, and use of population-based approaches for management of sage-grouse is high, but raises questions about feasibility, efficacy, and authorities. Sage-grouse are uniquely adapted to, and dependent on sagebrush habitats (Strategy 2006). Management approaches must include conservation of seasonal sagebrush habitats to be successful, a point emphasized in the Range-wide Sage-Grouse Conservation Strategy developed by the Western Association of Fish and Wildlife Agencies: “The overall goal of the range-wide Strategy is to maintain and enhance populations and distribution of sage-grouse *by protecting and improving sagebrush habitats and ecosystems that sustain these populations* (emphasis added).

When managing State or Federal trust species, a mix of habitat- and population-based approaches is typically employed. Population-based approaches are used in several situations. First, for species of economic importance where harvest is the predominant impact on populations: deer, elk, pronghorn, etc. Population objectives are typically set through some sort of public process and attempt to balance hunter demand with concerns relative to habitat or game damage. Population-based approaches are also used for many conservation reliant species, particularly endangered species with recovery plans. Typically, population and habitat goals are established, and potentially the full suite of habitat and population tools may be employed to overcome threats, including predator control and captive breeding. Attwater’s prairie chicken are a good example of this. Finally, population-based tools are employed by states when recreational demand exceeds or creates demand, for example state (or private) game farm production and release of native or non-native species such as pheasants, rainbow trout, walleyes, etc.

Sage-grouse have become a conservation reliant species, at least to deter listing under the Endangered Species Act. Setting and monitoring progress towards state-level (or other) population goals (if technically feasible) could be an effective way to:

1. Ensure (through state public processes) public participation in setting population objectives and a transparent view of real and opportunity costs these goals represent
2. Prioritize investment of conservation dollars (to areas below population goals)
3. Explicitly define when conservation goals will be met, quantitatively assess progress towards goals, and inform adaptive management constructs so course corrections can be made

If population goals are set, they should recognize state and federal authorities in management of state public trust species. The Fish and Wildlife Conservation Act: (16 U.S.C. §§ 2901-2911, September 29, 1980, as amended 1986, 1988, 1990 and 1992) states “Nothing in the Act should be construed as affecting: the authority, jurisdiction or responsibility of the states to manage, control or regulate fish and resident wildlife under state law...” (WAFWA 2011). Establishment of population goals for sage-grouse are the responsibility of states. However, realization of these goals cannot be achieved without habitat management and restoration on private lands and on Federal lands, so collaboration with local working groups and Federal land management agencies in goal setting is paramount.

Setting and managing to population goals is not realistic unless we have the capability to estimate sage-grouse population size. Breeding population size and trends have been modeled for the bi-state population of greater sage-grouse from lek count data and estimates of survival, nest success and other demographic parameters from telemetry data (Coates et al. 2015). Data for this type of model are not presently available range-wide, but McCaffery et al.

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(2016) have developed a modeling approach to correct for males not detected during peak counts and estimate total number of male sage-grouse, and an integrated population model (IPM) to estimate total population (of males and females) using available data (McCaffery and Lukacs 2016). WAFWA is working with researchers from the University of Montana, USGS, FWS, and state agencies to develop a secure platform where state agencies can estimate sage-grouse population size and trends using the best available data. Initial estimates of minimum population size and trend at state and range-wide scales are feasible within the next year or two, but additional work will likely be needed to estimate total population size, refine demographic estimates that are input to models, and account for leks that are currently unknown and therefore not counted.

**Other Considerations.** While setting and working towards specific sage-grouse population goals has utility, the value of population-level strategies such as captive breeding, predator control, and eliminating hunting is less certain (see companion WAFWA white papers on these topics). Population-based management strategies employed to benefit sage-grouse would also fall under state, and not federal authority. Any, or all of these strategies can only be effective if sufficient quantity and quality of habitat is maintained.

Conservation efforts for sage-grouse, a large-landscape obligate of sagebrush habitats, also provide habitat for many of the 350 species that depend on sagebrush habitats (Rowland et al. 2006, Hanser and Knick 2011, Copeland et al. 2014). Sagebrush is a critical component of migration corridors and winter range for big game populations (Copeland et al. 2014) in much of the west. Population level management actions to benefit sage-grouse don't provide benefits to other sagebrush dependent species, particularly if they are used to mitigate for loss or degradation of habitat. For this reason, any significant retraction of habitat-based protections afforded in BLM Land Use Plan Amendments or Forest Plan Revisions may lead to additional petitions on sagebrush species of conservation concern such as pygmy rabbits. Effects of lethal control of sage-grouse predators on other sagebrush dependent species would be highly variable, uncertain, and potentially negative.

### Conclusions:

- Establishment of sage-grouse population goals through a collaborative process led by states has utility to clearly delineate what success looks like and to aid in prioritization of investments in conservation. This will be technically feasible in the next year or two. Goals should be population ranges that recognize and account for the large population fluctuations (cycles) typical for this species.
- Efforts to enhance, restore, and protect habitats from conversion and degradation will be necessary to achieve population goals that are in aggregate sufficient to deter listing. Habitat efforts will benefit other sagebrush obligates and make petitions and listing of these species less likely.

*Literature cited can be found under the Sagebrush Ecosystem Initiative tab at [wafwa.org](http://wafwa.org)*

