Sagebrush Conservation Gateway

What is the Sagebrush Conservation Gateway?

The Sagebrush Conservation Gateway is a new online resource that features 20 peer-reviewed research articles published in a special issue of *Rangeland Ecology & Management* in October 2024.

These articles delve into the science of how, where, and why public and private partners are deploying the Sagebrush Conservation Design to conserve the sagebrush biome.

The website serves as a comprehensive, virtual version of the special issue, including presentations on the individual papers from the 2024 symposium from the Society for Range Management, highlight interviews with authors and co-authors, and related communications resources.

What are some of the key findings from this research?

- The sagebrush biome is one of the most intact and least modified ecosystems in the world, on par with the Amazon or the Serengeti.
- Despite current conservation efforts, we are still losing 1.3 million acres of intact, core sagebrush rangelands each year- an area the size of Delaware.
- Eighty-seven (87) percent of the degradation of the sagebrush biome is caused by two threats: invasive annual grasses and conifer (tree) expansion. Land-use modification, primarily the development and conversion of native rangeland to crop agriculture, is a localized threat with severe, long-term impacts.
- Conservation investments need to be deployed in intact, core sagebrush areas because it is more efficient and effective to defend core areas from threats than to restore sagebrush rangeland once it has been impacted.
- Only about 20% of current sagebrush conservation investments are deployed in core sagebrush areas (as defined by the Sagebrush Conservation Design).
- These investments are alleviating only about 10% of the degradation across the biome annually.
- To effectively halt sagebrush biome degradation, at least 80% of conservation investments need to be deployed in core sagebrush areas.

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What were the key findings related to wildlife in core sagebrush areas?

- Conservation actions aimed at restoring habitat and increasing Sagebrush Ecological Integrity also increase wildlife populations
  - Along the California and Nevada border, the Bi-State population of sage grouse was predicted to be 37.4% more abundant after conservation efforts compared to if no conservation actions took place. Sagebrush-dependent songbirds are far more abundant in core areas.
  - Sage thrashers are 10x more abundant,
  - Sage sparrows are 6x more abundant,
  - Brewer's sparrows are 3x more abundant.

Conserving core sagebrush is synonymous with saving at-risk wildlife.

Conservation Outcomes

- Targeted conifer removal improved ecological integrity or halted declines in nine landscapes.
- Targeting and saturating cores with conservation actions is four times more effective at defending and growing cores than random dispersed conservation actions.
- Using updated maps to defend the core from invasive annual grasses, we can see exactly where to maintain sagebrush, improve it by treating weeds, or say "no" to investments where change is irreversible.
- Some of the best remaining opportunities to defend core sagebrush areas from conifer expansion occur in the eastern portion of the biome in Wyoming, Montana and Idaho.
- While climate change is amplifying ongoing threats to the biome, 2/3 of core sagebrush habitat is resilient to severe impacts from a changing climate. Maintaining these core areas will help us sequester carbon.

Policy Needs

- We need to build capacity for large-scale conservation within government agencies and in rural communities, particularly for using spatial targeting and planning tools to focus conservation in core areas.
- It's imperative to coordinate across land and jurisdictional boundaries to empower local practitioners to direct resources to the right places, especially in places where people are already working together to address the main threats.

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