

Interdisciplinary science for land managers: Lessons learned in the context of public land management

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Introduction

- Public lands are managed by government policies around the world
- Land management decisions require a diversity of stakeholder, public, and management input

National Environmental Policy Act

- In the U.S., any public land management must undergo the National Environmental Policy Act (NEPA) process
- NEPA requires that both social and ecological impacts are documented through an Environmental Impact Statement (EIS)
- NEPA processes have two “levels” of decision-makers:
 - A)** public land managers develop different management alternatives and choose the final alternative
 - B)** citizens and stakeholders locally and across the U.S. give input on their preferred alternative

Key #1: Developing Relationships

- Connect w/: **A)** public managers, and **B)** citizens and stakeholders
- Our team met w/ both groups at the start and throughout
- We network and attended relevant meetings to develop more relationships – to meet people “on their turf”



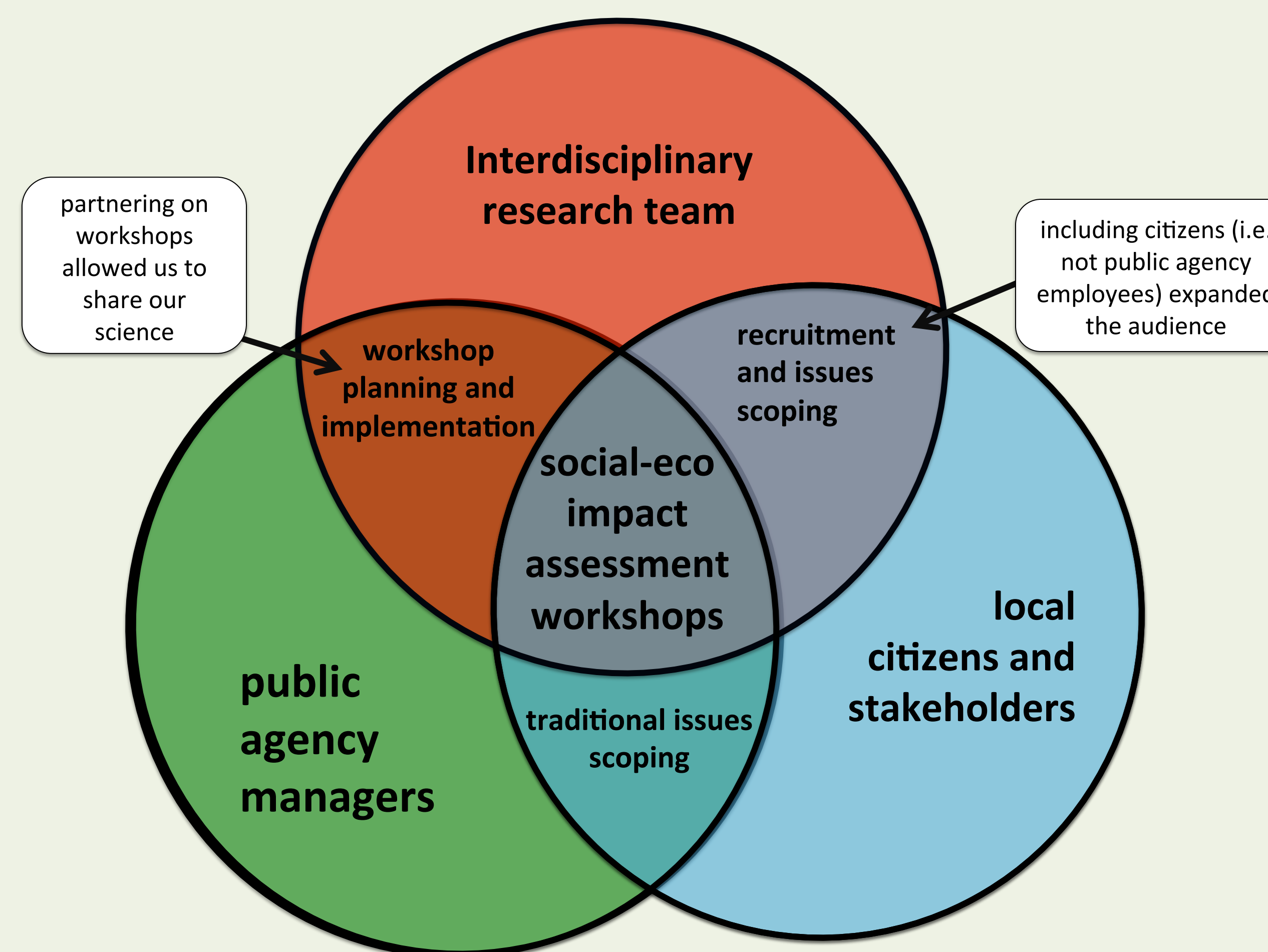
Key #1 Lessons

- meet early and often with stakeholders
- meet stakeholders on “their turf”
- use initial contacts to build a network of partnerships

Key #2: Integrate with NEPA process

- NEPA requires an EIS of both social and ecological impacts
- Only ~0.1% of BLM employees are social scientists
- Our team included a hydrologist and two ecologists, but we responded to their need by focusing on social impacts
- We developed a social-ecological impact assessment
- Conducted assessment with and during existing NEPA workshops

Diagram of integration in the NEPA process



Key #2 Lessons

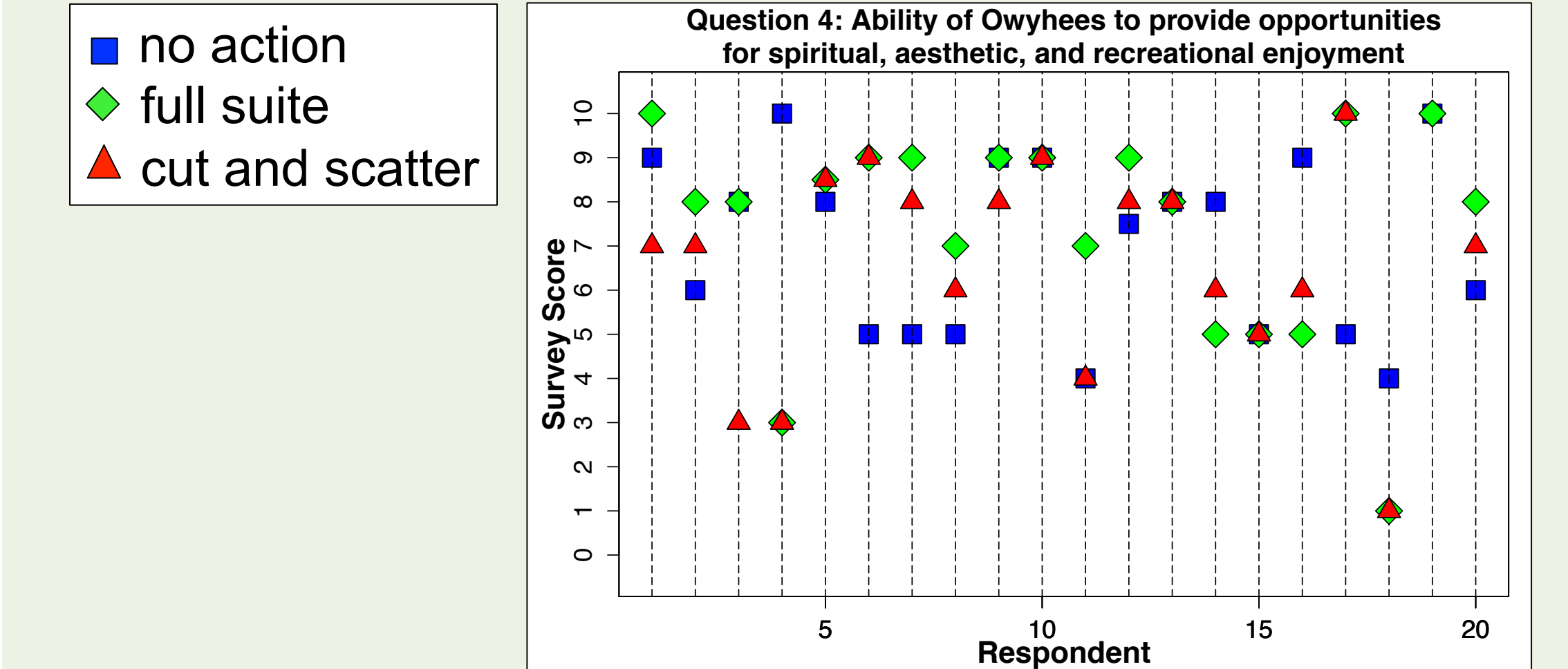
- develop science that meets specific NEPA-related needs
- partner with existing NEPA meetings/stakeholders

Key #3: EIS and Management Alternatives

- Part of an EIS process is to propose different management alternatives, one of which is always no action
- This provides a framework through which scientists can communicate their research
- Our social-ecological framework addressed issues across the three proposed BOSH management alternatives:
 - 1) no action
 - 2) full suite
 - 3) cut and scatter only



example analysis framed by management alternatives

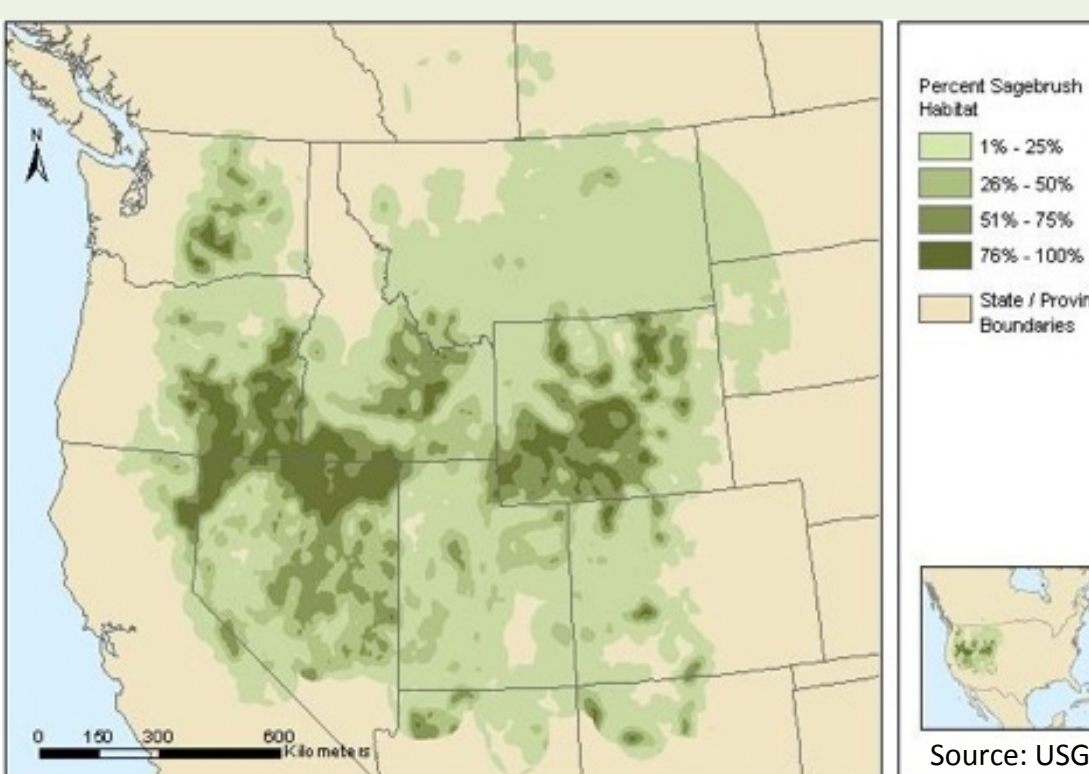


Key #3 Lessons

- understand the management alternatives
- frame science and/or presentation around alternatives

Bruneau-Owyhee Sage-grouse Habitat Project

- The Bruneau-Owyhee Sage-grouse Habitat (BOSH) project was proposed by the Bureau of Land Management (BLM)
- BOSH project seeks to improve habitat for the sage grouse
- The project is in response to expansion of juniper of up to 10-fold in many areas
- Goal: remove any low density juniper within 10 km of a sage grouse breeding sites

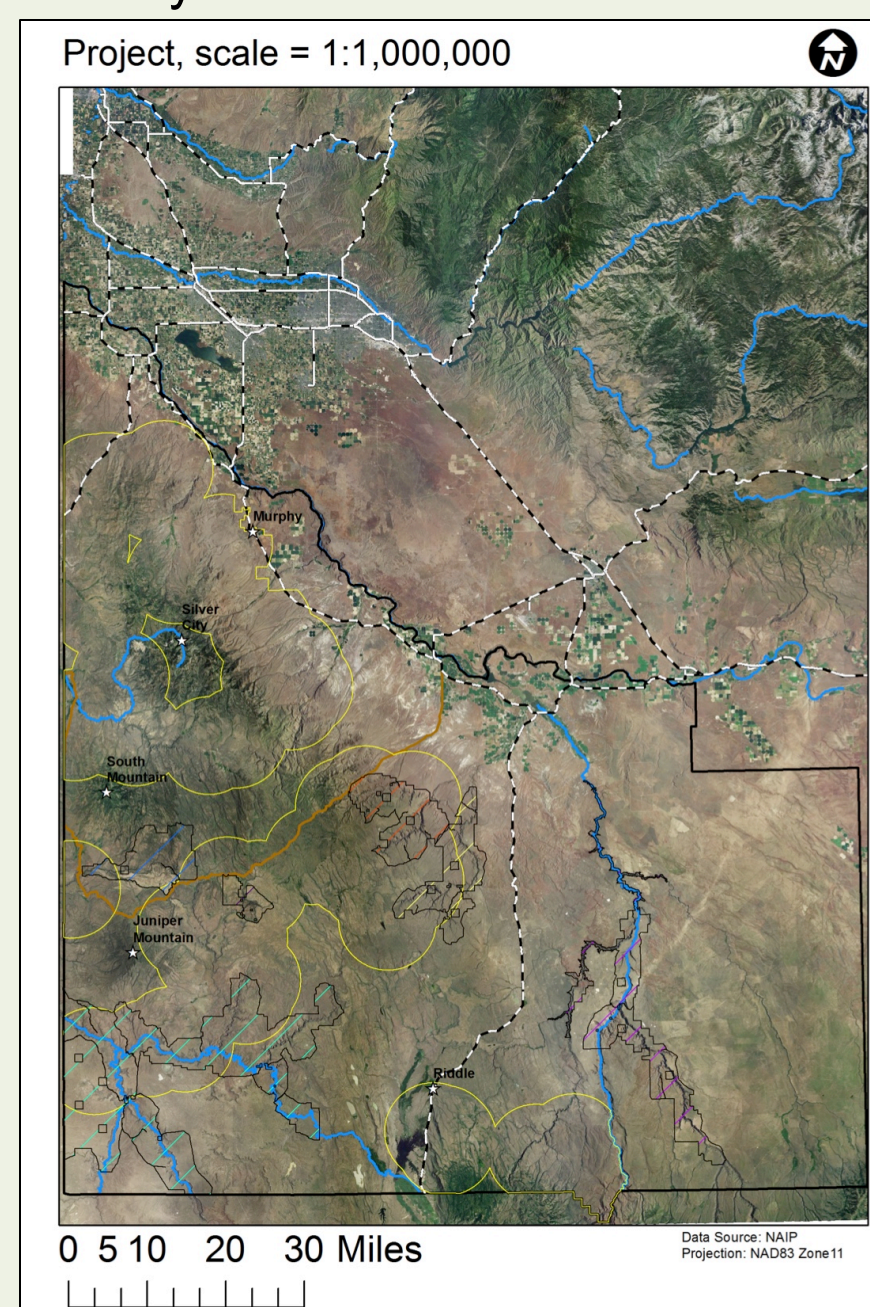
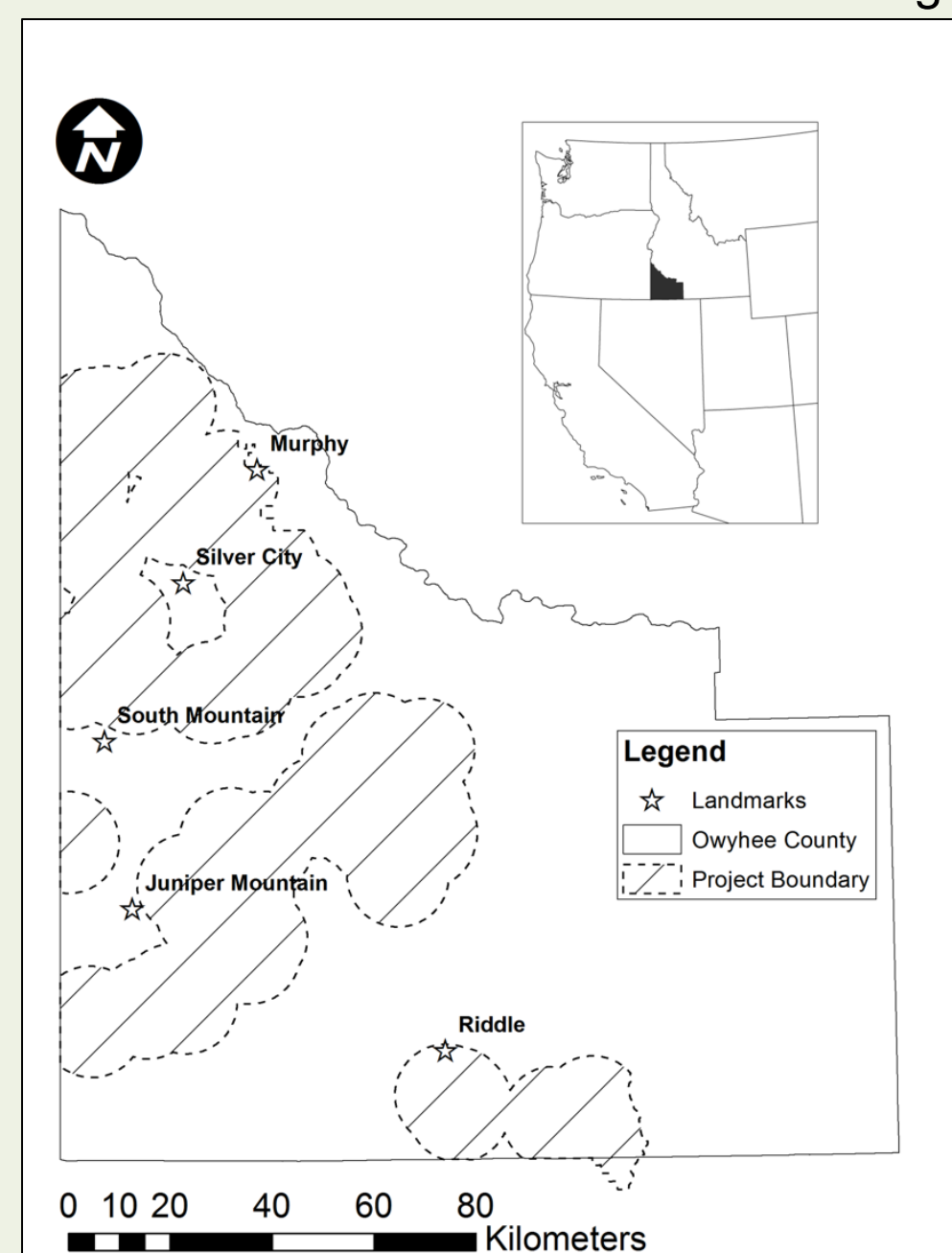


Flint Creek, Owyhee Mtns, Idaho

- Project area:** 7100 km² area in SW Idaho
- BOSH project developed an EIS with three management alternatives

Owyhee Count w/ project boundary
hatched area: 10 km buffers around breeding sites

Aerial view of project area
Owyhee count outlined in black



Benefits to Scientists

- While improved communication benefits the decision-makers, it also benefits scientists:

benefit	examples from our project
increased communication of science	held televised forum in capital building on sage-grouse issues
informed of new funding opportunities	we were made aware of, applied for, and were awarded BLM and state of Idaho grants
federal grants often require stakeholder collaboration	we applied for two federal grants that included stakeholder collaboration

Conclusion

- Collaboration requires time and effort, but can result in improved decisions and greater impact of science

Acknowledgements

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Want more information?

- open source journal article:** Bentley Brymer et al., 2016, “A social-ecological impact assessment for public lands management: application of a conceptual and methodological framework” *Ecology and Society* 21(3):9.