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Yale SCHOOL OF FORESTRY &
ENVIRONMENTAL STUDIES

Ucross High Plains
Stewardship

Introduction

Greater sage-grouse (GRSG) habitat includes 173-million acres across eleven states in the western U.S. This landscape consists of a mosaic of land ownership and management agencies, including but not limited to, U.S. Fish and Wildlife Services (USFWS), Bureau of Land Management (BLM), U.S. Forest Service (USFS), National Park Service (NPS), state agencies (state, county, and city), and private landowners. The current spatial data sources for the GRSG range are developed at the state and federal levels by individual agencies. The multiplicity of owners and administrators leads to differences in data management and currency of data, which causes inconsistencies in reporting. In many cases, the inconsistencies result from differences in data formats, such as spatial projections. Additionally, differences in boundary delineations and an inability to share current information among diverse entities leads to discrepancies in reporting from federal agencies and between federal, state and private entities.
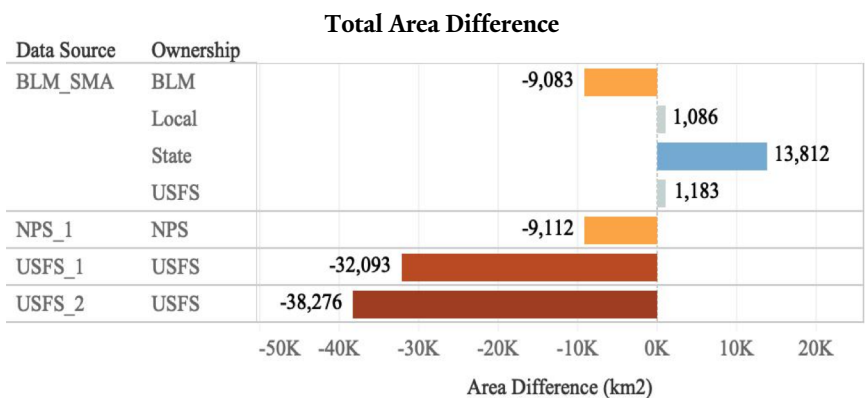
Objectives

This project attempts to identify the areas of discrepancy between the varying data sources. This project does not attempt to reconcile the differences in the sources, such as manipulation of ownership boundaries. Rather, the goal of this project is to detect where the largest sources of error occur and determine if there is a pattern in the distribution of these errors. In the future, it is likely that a single data source will become the primary source, for which all agencies will use to complete spatial information requests. The data sources compared were:

- BLM_SMA (BLM_Surface Management Agency)
- PADUS (Protected Area Database)
- USFS_1 (S_USA.Proclaimed_Forest)
- USFS_2 (S_USA.ProclaimedForest_Grassland)
- NPS_1 (nps_boundary)

Methods

1. Identify and gather the data from partners at USFWS and USGS
2. Re-project all layers to a consistent Projected Coordinate System (NAD_1983)
3. Categorize land ownership by individual entities within the specific data source
4. Calculate the area (km2) of ownership within each specific state
5. Compare the calculated area by state between different data sources
6. Determine sources of discrepancy in area between states
7. Visualize data

Results

Total Area Difference

Data Source	Ownership	Area Difference (km2)
BLM_SMA	BLM	-9,083
	Local	1,086
	State	13,812
	USFS	1,183
NPS_1	NPS	-9,112
USFS_1	USFS	-32,093
USFS_2	USFS	-38,276

Conclusion:

- *BLM and State Agencies:* The first source of discrepancy is between the BLM_SMA and PADUS data sources concerning Bureau of Land Management and state agency lands. These land bases often consist of small parcels and checkerboarded areas, and so, an extensive review of these parcels will need to be conducted in order to reconcile the differences.

- *USFS:* The second source of difference occurs between the USFS data sources and PADUS. The USFS data sources report a considerable higher amount of land than PADUS. This is likely due to PADUS reporting the administrative forest units, whereas, the USFS data source includes the original proclaimed boundaries of the National Forest boundaries, a larger amount of land. The discrepancy in spatial data is not a difference in USFS boundaries, but a difference in definition of National Forests.

- *Private Lands:* The third trend is the significant difference in reporting of private lands across all eight states for PADUS compared to BLM_SMA. PADUS only reports land with conservation easements as private land, whereas BLM_SMA includes all privately-owned lands. This is a difference in recording criteria, not a spatial discrepancy

Legend
- PADUS
- BLM_SMA