U.S. Department of the Interior
Bureau of Land Management

Wild Horse and Burro Program

The Bureau of Land Management

Fundamentals, Land Health, Greater Sage-Grouse and Wild Horses and Burros

WH&B Advisory Board Meeting
Reno, NV
September 8 - 9, 2016

Outline

- Setting the stage
- Land Health
  - Legislation, science, and regulation
- Ecological processes
- West-wide data
- Turning data into information
  - Assessment and evaluation
- Desired future condition
- Determination

What is the condition of the land, relative to desired and/or reference condition? (FLPMA/ PRIA/ Taylor)

for sage grouse? (FLPMA-habitat, LHF, ROD)

in WH&B management areas? (WH&B Act, LHF)

Land Health

LEGISLATION, SCIENCE, AND REGULATION

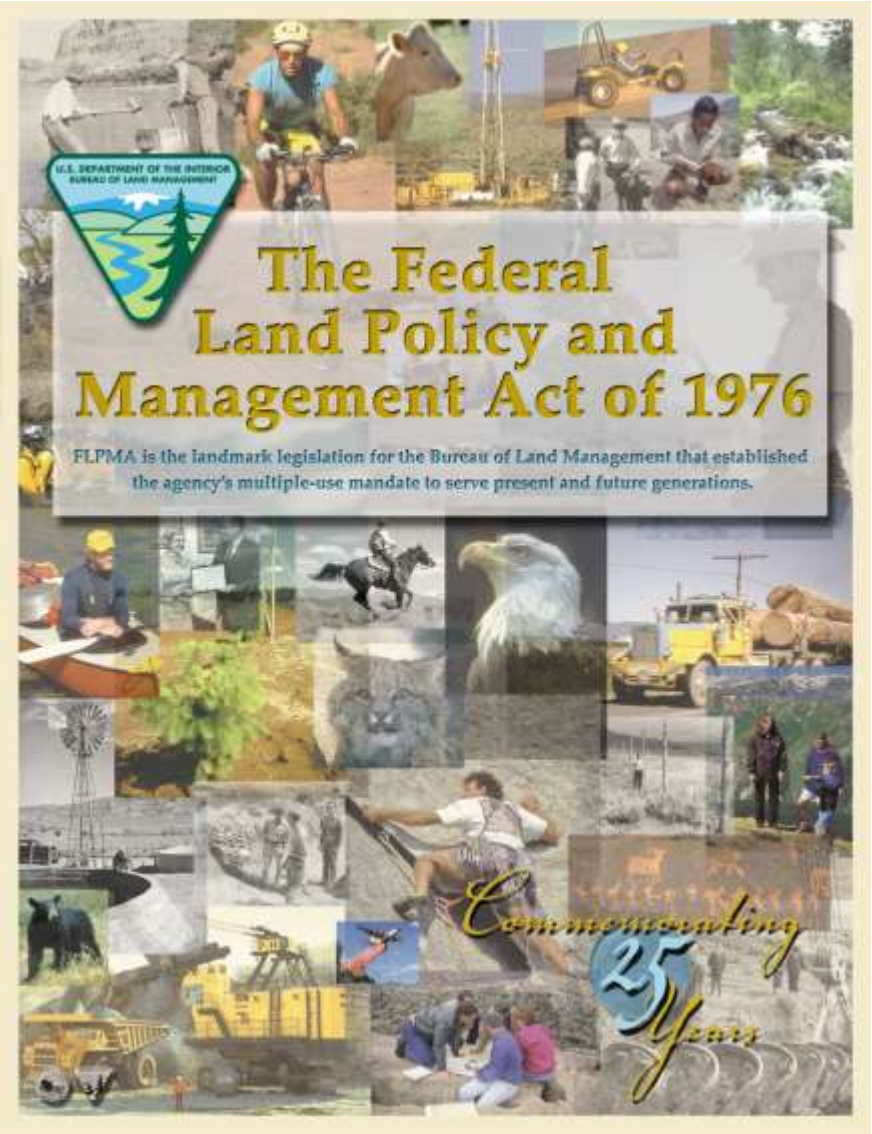
Legislation

Wild and Free-Roaming Horses and Burros Act of 1971

Long title	An Act to require the protection, management, and control of wild free-roaming horses and burros on public lands.
Acronyms (colloquial)	WFRHBA
Enacted by	the 92nd United States Congress
Effective	December 15, 1971
Citations	
Public law	92-195
Statutes at Large	85 Stat. 649
Codification	
Titles amended	16 U.S.C.: Conservation
U.S.C. sections created	16 U.S.C. ch. 30 § 1331 et seq.

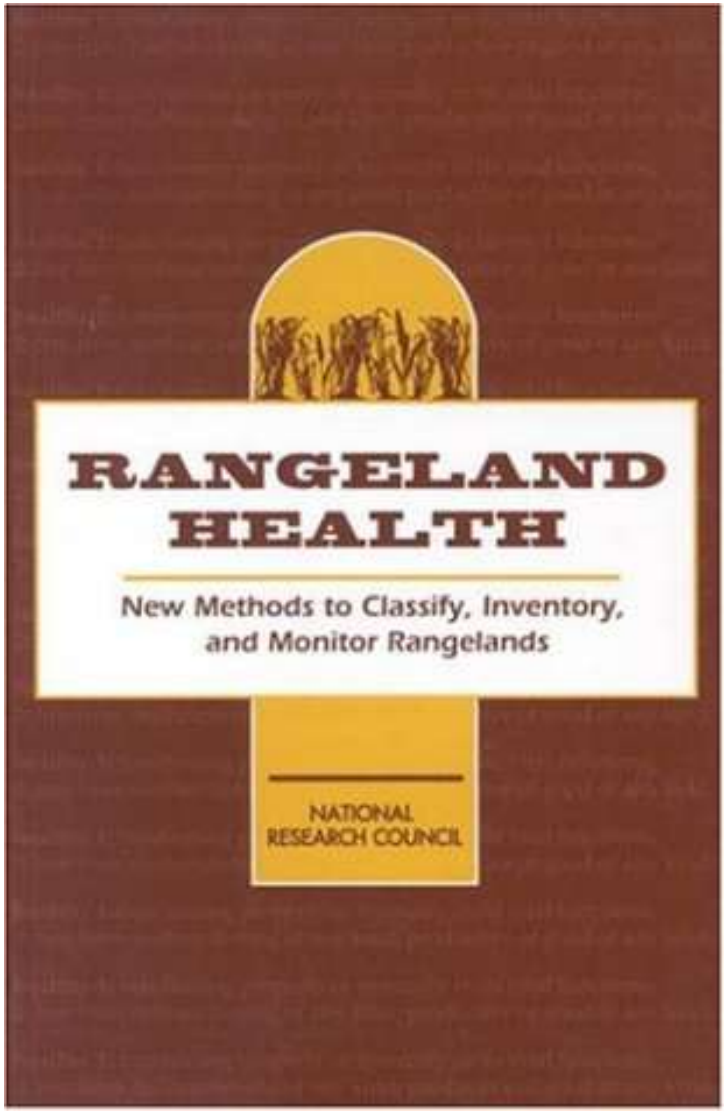
- Maintain thriving natural ecological balance and multiple-use relationships
- Protect natural ecological balance of all wildlife species
- Current inventory of WH&B
- Determine if overpopulation exists and achieve AML

Legislation



- Periodic and systematic inventory
- Goals and objectives based on multiple use and sustained yield
- Managed in a manner to protect values and provide services
- Prepare and maintain an inventory
- Prevent undue and unnecessary degradation

Science—National Research Council



- "Hampered in the ability to make decisions because of inability to answer questions about the condition or quality of our rangelands", 1994
- Developed criteria
  - Soil stability and watershed function
  - Nutrient cycle and energy flow
  - Presence of recovery mechanism
- Cooperate

The Charge

- The committee offers it to the profession of rangeland management and to society as a whole with this challenge: test it and change it, but do it in the same cooperative manner that this committee used to produce the strategy recommended in this report.

Frank E. “Fee” Busby, Chair

Agricultural Research Service

NRCS Natural Resources Conservation Service

EPA

UtahStateUniversity

WAFWA Western Association of Fish & Wildlife Agencies

USGS science for a changing world

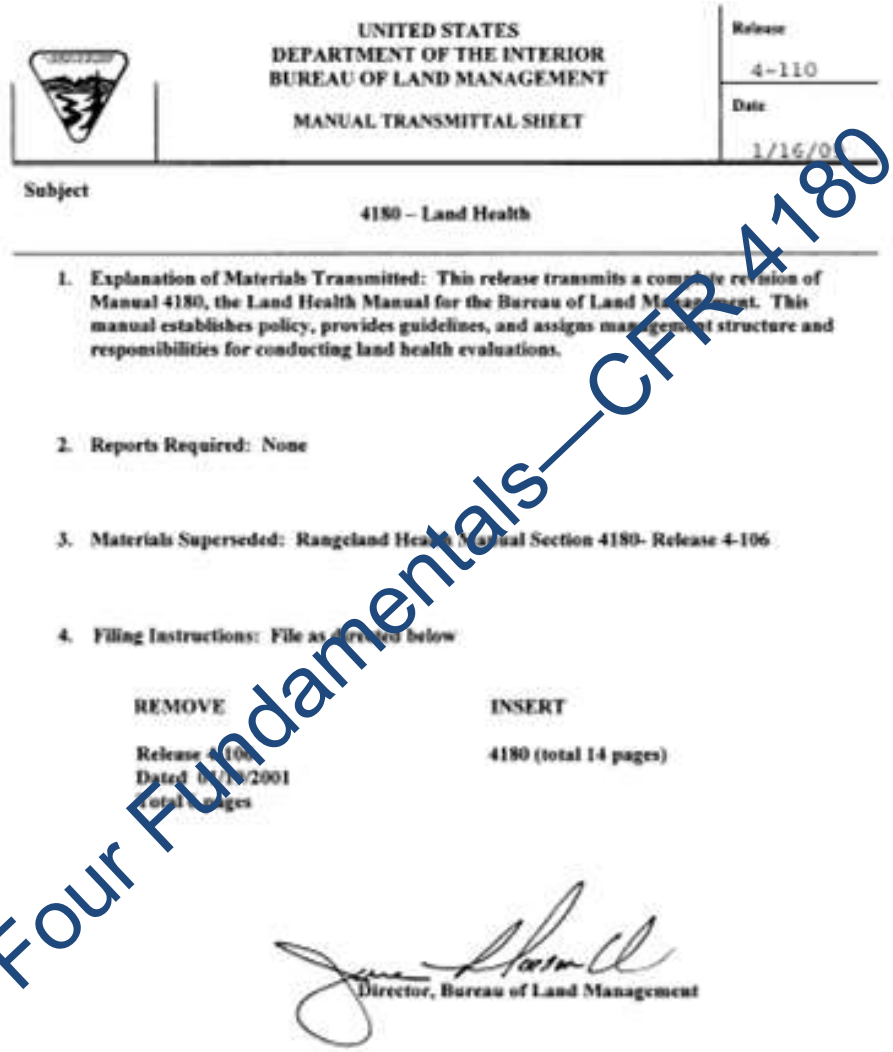
Alaska Natural Heritage Program University of Alaska Anchorage

Iowa State University

Forest Service U.S. Department of Agriculture

LANDFIRE

Regulation



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MANUAL TRANSMITTAL SHEET

Release 4-110

Date 1/16/0

Subject

4180 – Land Health

1. Explanation of Materials Transmitted: This release transmits a complete revision of Manual 4180, the Land Health Manual for the Bureau of Land Management. This manual establishes policy, provides guidelines, and assigns management structure and responsibilities for conducting land health evaluations.

2. Reports Required: None

3. Materials Superseded: Rangeland Health Manual Section 4180- Release 4-106

4. Filing Instructions: File as directed below

REMOVE	INSERT
Release 4-106	4180 (total 14 pages)
Dated 8/10/2001	
Total 1 pages	

Director, Bureau of Land Management

Four Fundamentals—CFR 4180

- Watersheds, uplands, riparian and aquatic are in properly functioning physical condition
- Ecological processes supporting healthy biota
- Water quality complies with state standards
- Habitats are maintained for threatened and endangered species

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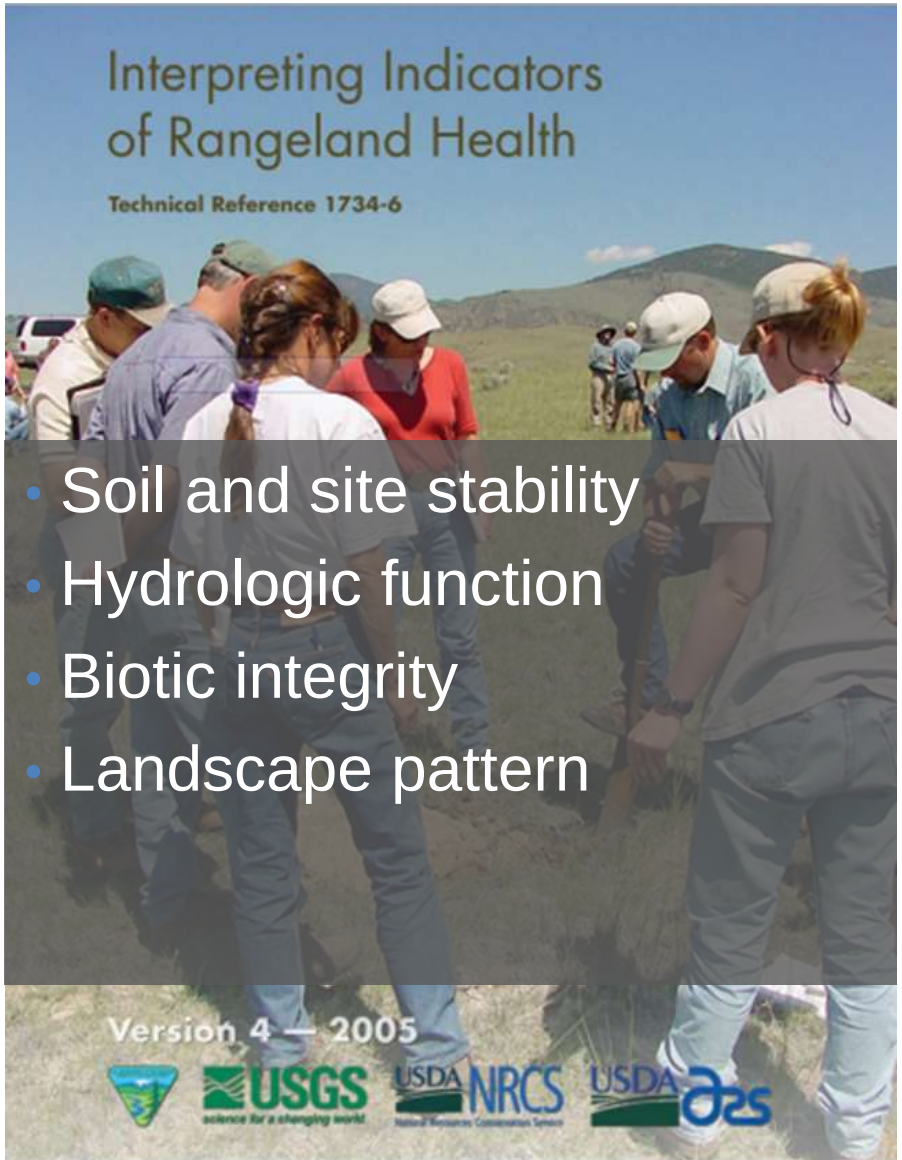
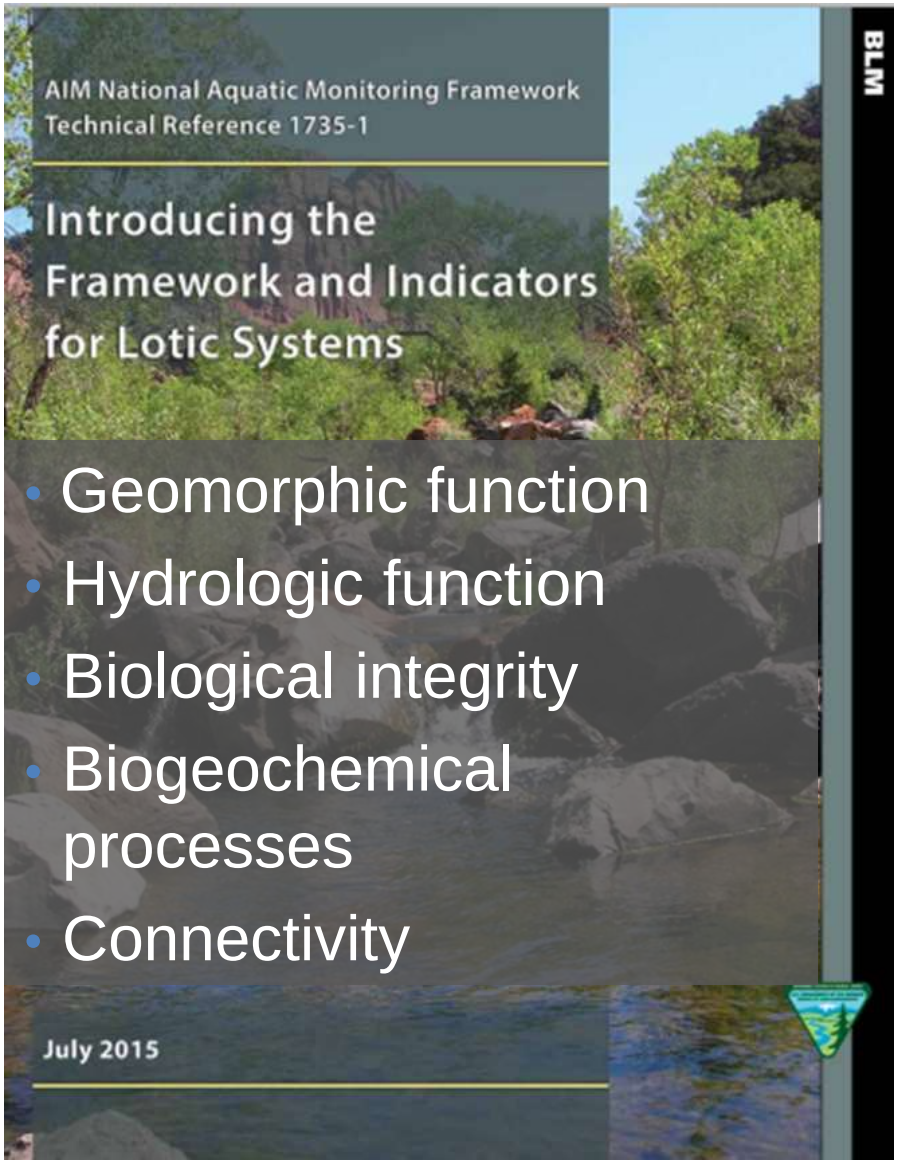
Ecological Processes

INDICATORS AND MEASURES

Ecological Processes

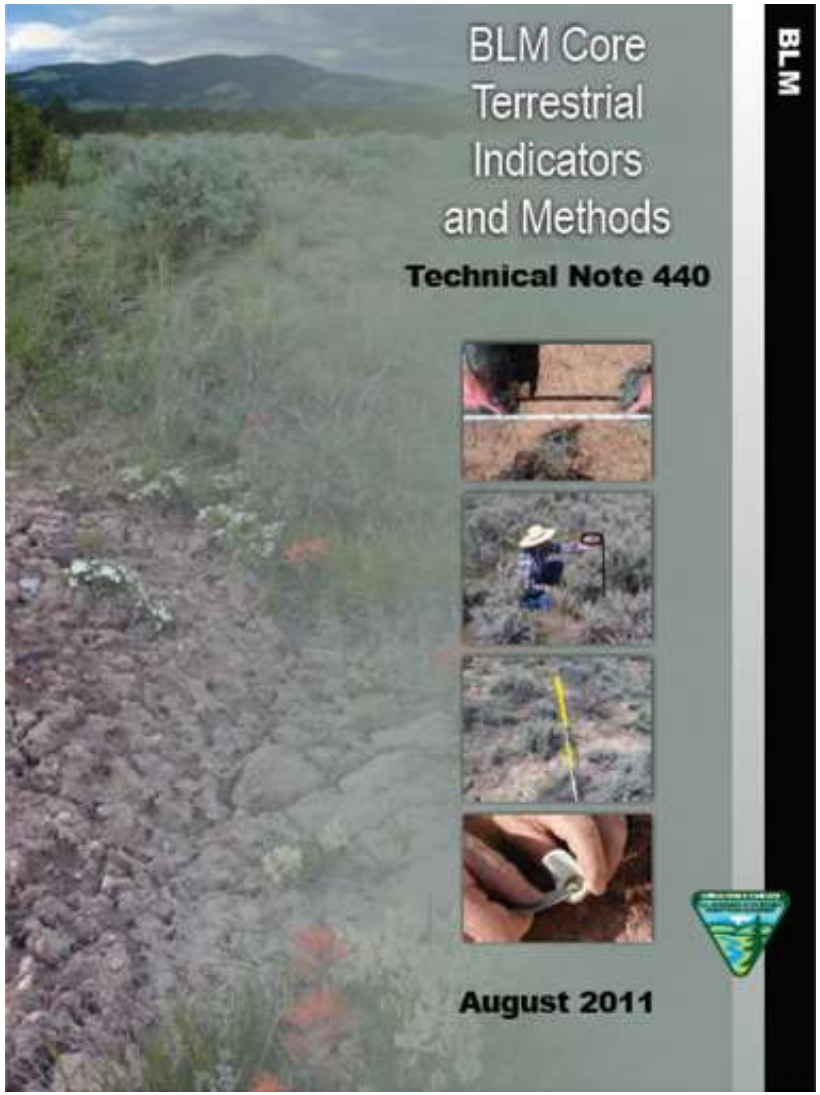


- Soil and site stability
- Hydrologic function
- Biotic integrity
- Landscape pattern



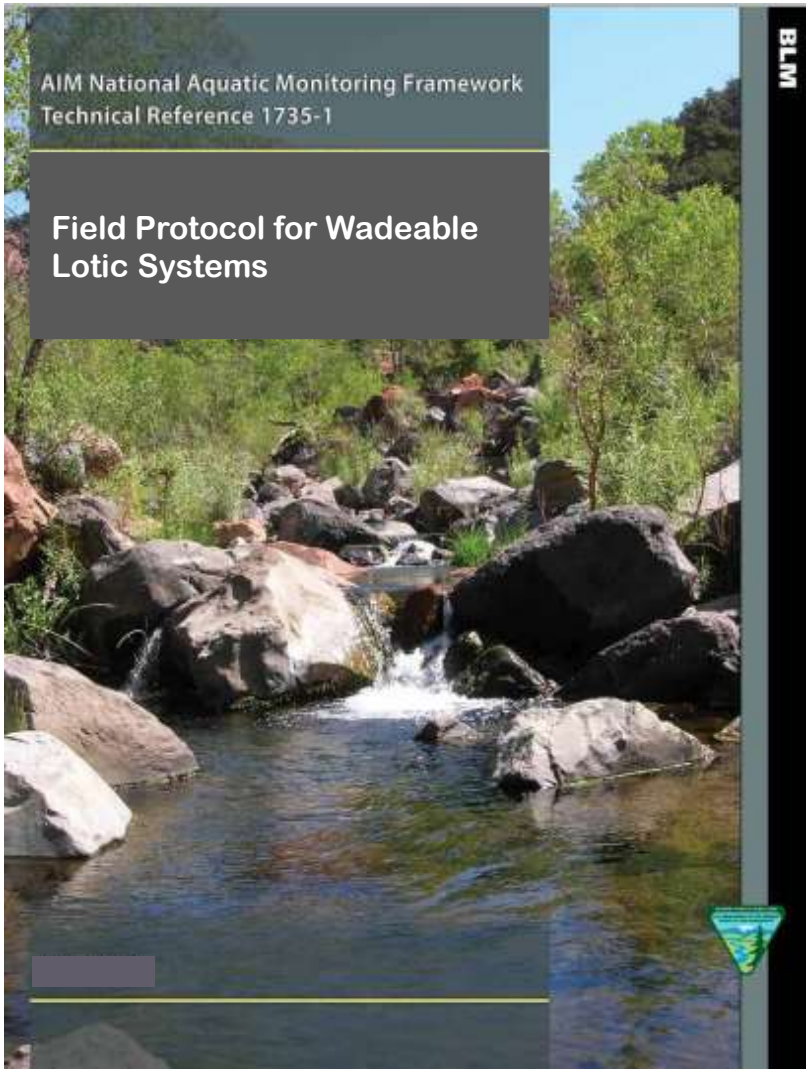
- Geomorphic function
- Hydrologic function
- Biological integrity
- Biogeochemical processes
- Connectivity

Indicators --Terrestrial



- Bare ground
- Vegetation composition
- Nonnative invasive plant species
- Plant species of management concern
- Vegetation height
- Proportion of soil surface in large intercanopy gaps
- Soil aggregate stability

Indicators -- Aquatic



- Acidity
- Salinity
- Temperature
- Residual pools
- Streambed particle size
- Bank stability and cover
- Floodplain connectivity
- Large woody debris
- Microinvertebrates
- Riparian vegetation
- Canopy cover

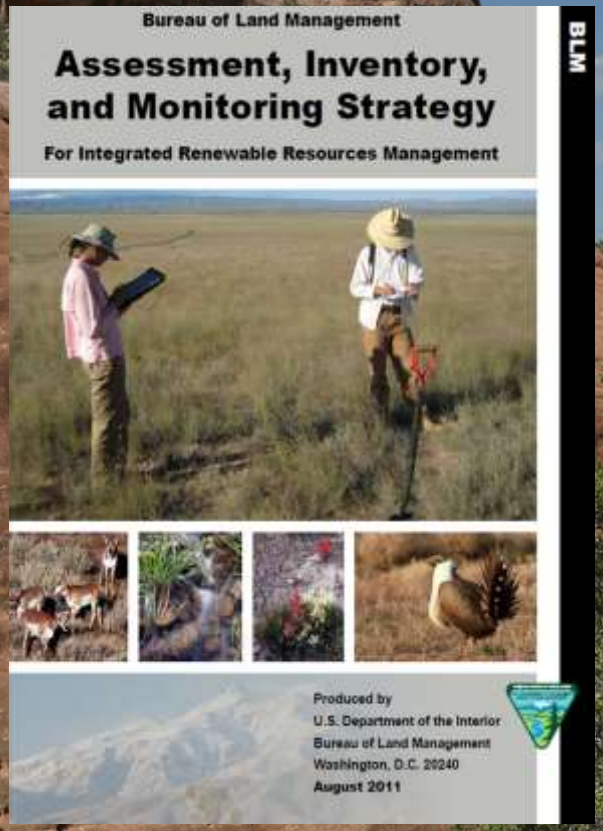
Indicators—Riparian/ Wetlands

- Technical Reference in development
- Proper functioning condition
  - 17 riparian indicators

West-wide Data

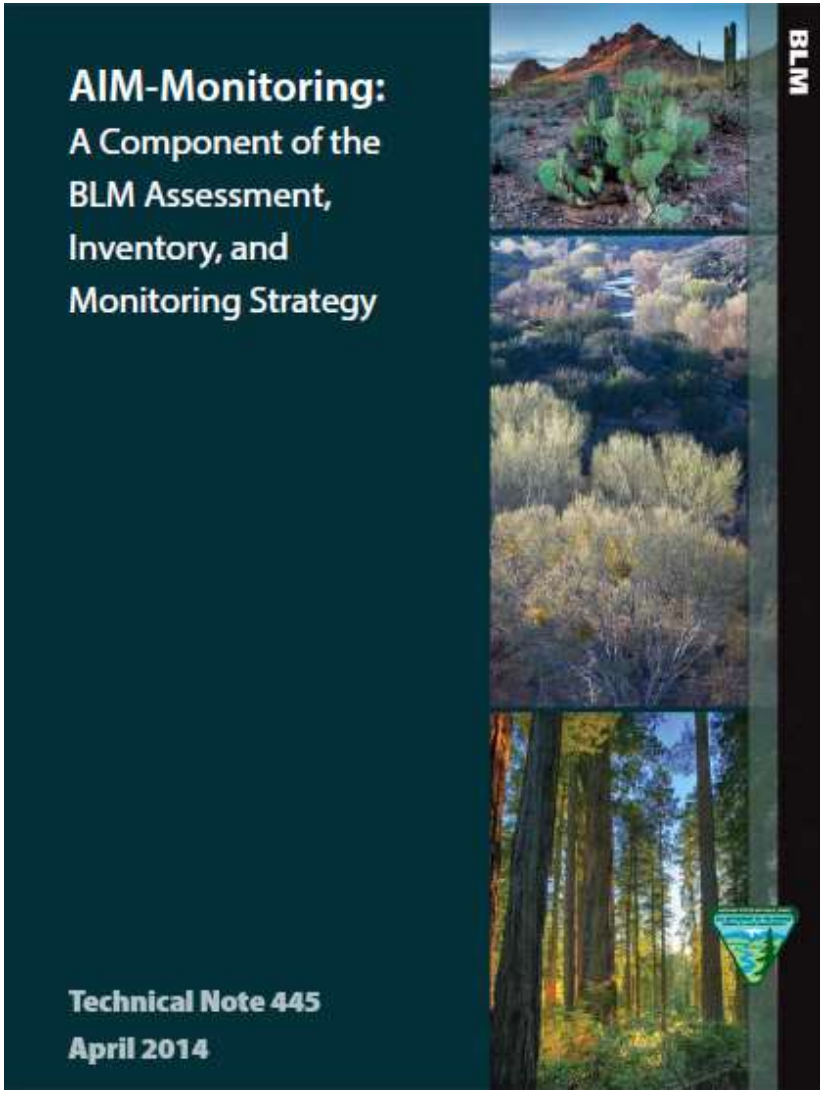
ASSESSMENT, INVENTORY, AND MONITORING STRATEGY

The AIM Strategy



The goal of the AIM Strategy is to report on the status and trends of public rangelands at multiple scales of inquiry, to report on the effectiveness of management actions, and to provide the information necessary to implement adaptive management.

The Five Principles of AIM



- Core indicators and methods
- Statistically valid sample design
- Integration with remote imagery
- Electronic data capture and management
- Timely information—adaptive management

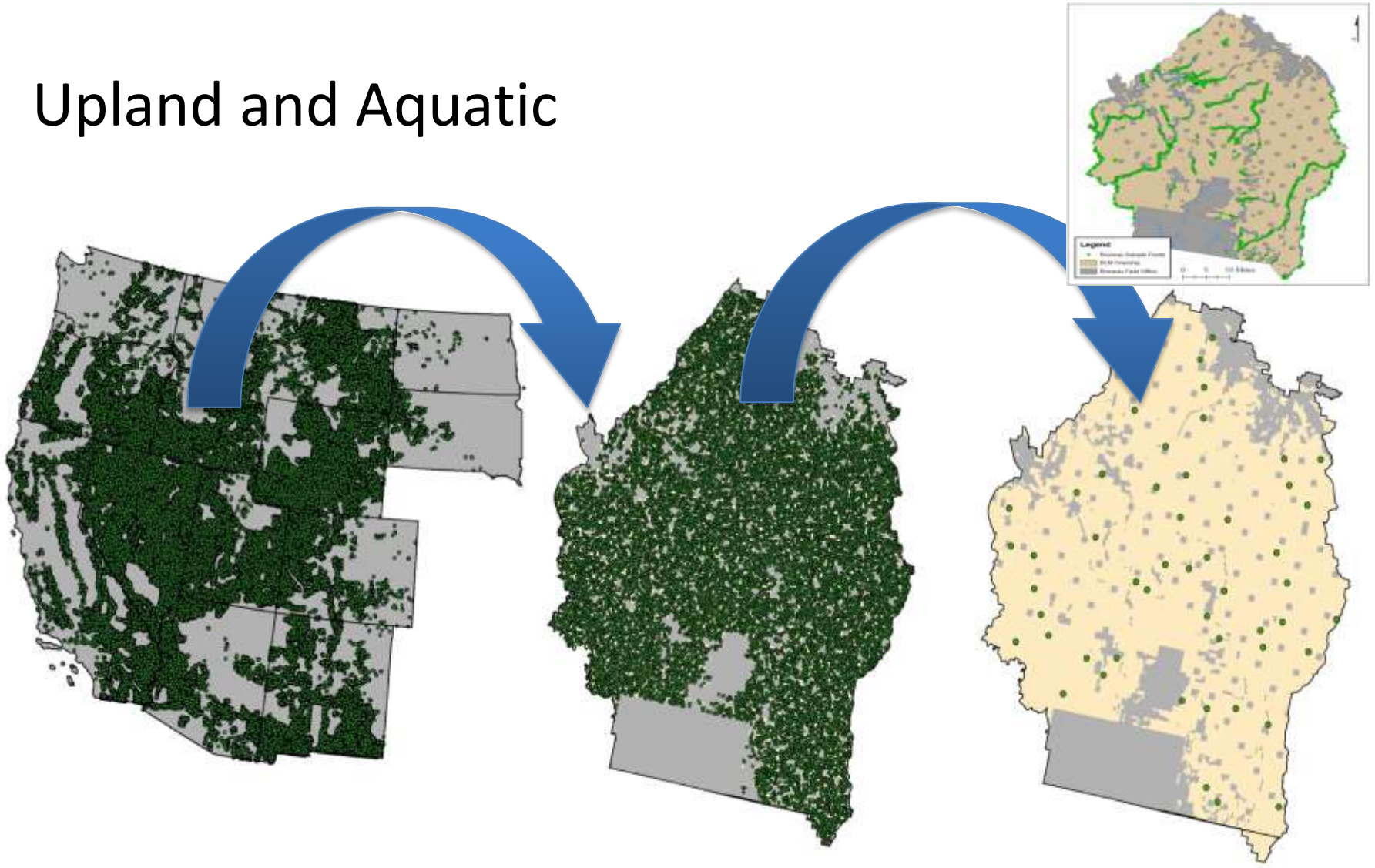
Standard Indicators and Measures

- Bare Ground
- Vegetation Composition
- Non-native Invasive Species
- Plants of Management Concern

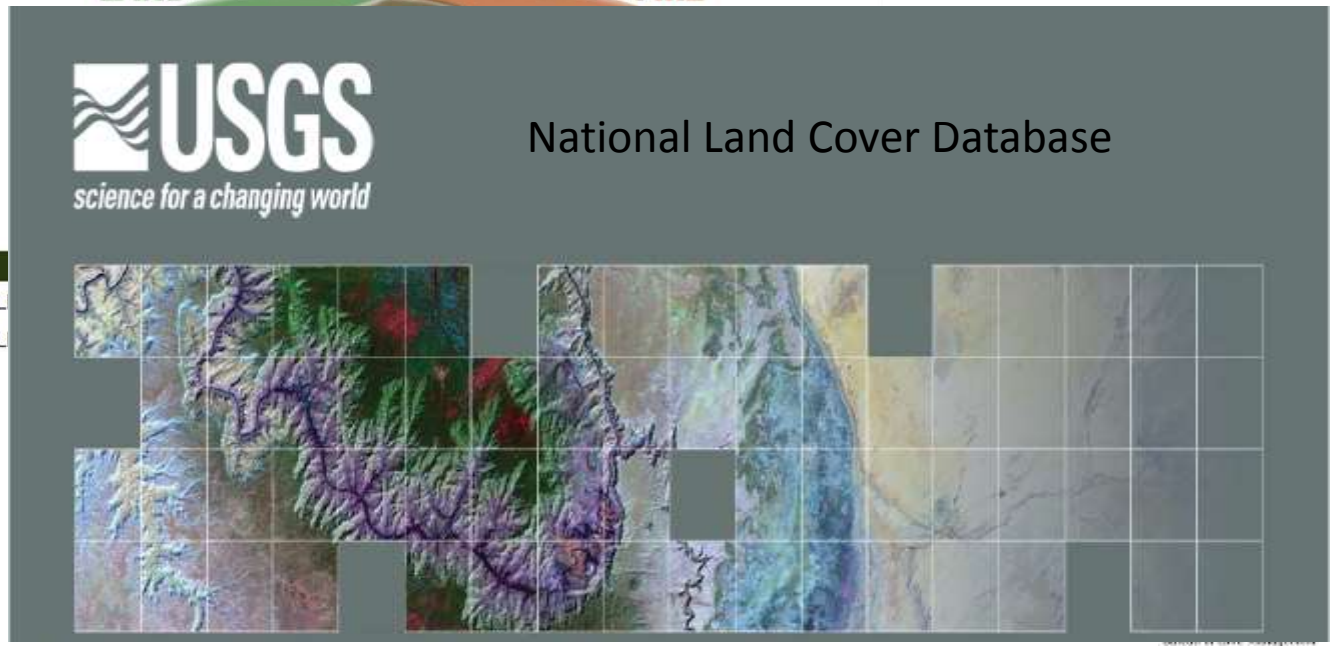
- Canopy Gap
- Height
- Species Search
- Soil Aggregate Stability

Statistically Valid Sample Design

Upland and Aquatic



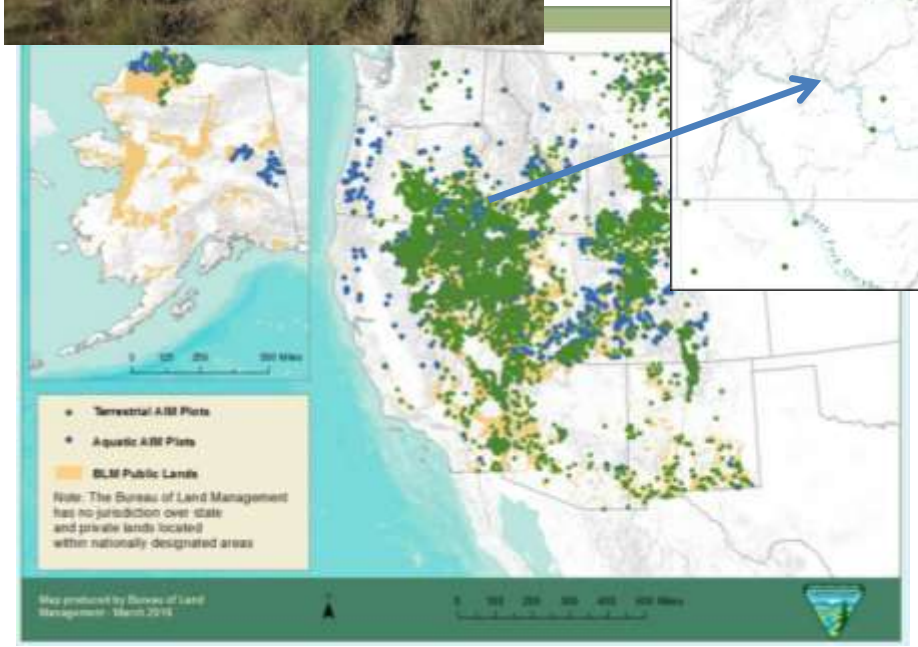
Integration with Remote Imagery

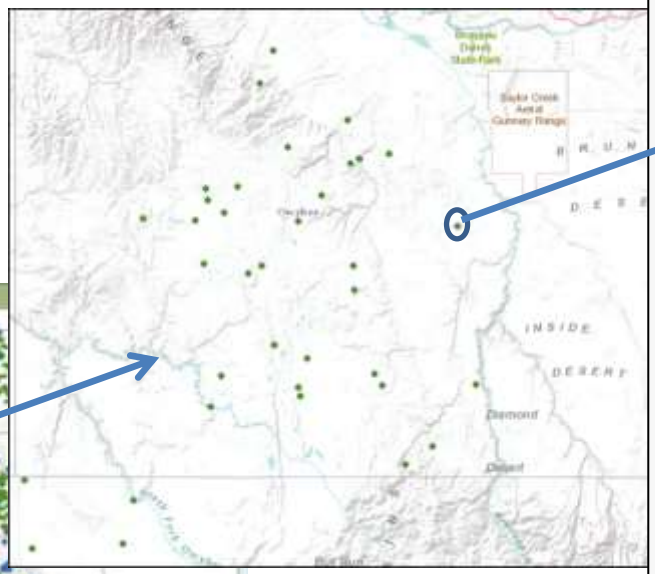


Data Management

Electronic data capture

Centralized data storage





(2 of 3)

BLM AIM Terrestrial: Idaho Bruneau FO 2015

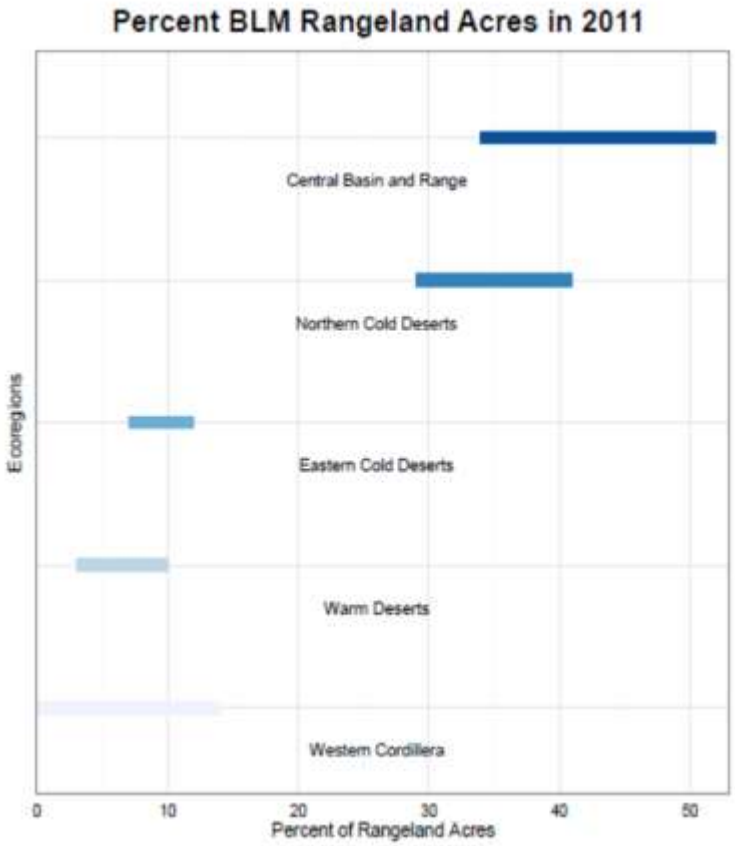
Project Name	Idaho Bruneau
Ecological Site Id	R025XY011ID
Plot ID	LowCM-125
Plot Key	15072413483
Date Established	July 23, 2015
Date Visited	July 23, 2015
Gaps 25-50 cm(%)	17.20
Gaps 51-100 cm(%)	19.90
Gaps 101-200 cm(%)	14.70
Gaps > 200 cm(%)	9.80
Gaps > 25 cm(%)	60.60
Bare Soil Cover (First Hit%)	28.00
Total Foliar Cover (First Hit%)	31.33
NonInv Peren Forb Cover (Any Hit %)	0.00
NonInv Ann Forb Cover (Any Hit %)	0.00
NonInv Peren Grass Cover (Any Hit %)	28.67
NonInv Ann Grass Cover (Any Hit %)	0.00
NonInv Ann Forb/Grass Cover (Any Hit %)	0.00
NonInv Peren Forb/Grass Cover (Any Hit %)	28.67
NonInv Succulent Cover (Any Hit %)	0.00
NonInv Shrub Cover (Any Hit %)	2.67
NonInv Sub-shrub Cover (Any Hit %)	0.00
NonInv Tree Cover (Any Hit %)	0.00
Inv Peren Forb Cover (Any Hit %)	0.00
Inv Ann Forb Cover (Any Hit %)	0.00
Inv Peren Grass Cover (Any Hit %)	0.00
Inv Ann Grass Cover (Any Hit %)	0.00
Inv Ann Forb/Grass Cover (Any Hit %)	0.00
Inv Peren Forb/Grass Cover (Any Hit %)	0.00
Inv Succulent Cover (Any Hit %)	0.00
Inv Shrub Cover (Any Hit %)	0.67
Inv Sub-shrub Cover (Any Hit %)	0.00
Inv Tree Cover (Any Hit %)	0.00
Sagebrush Cover (Any Hit%)	1.33
Woody Hgt Avg (cm)	5.85
Herbaceous Hgt Avg (cm)	46.47
Sagebrush Hgt Avg (cm)	19.50
Other Shrub Hgt Avg (cm)	39.67

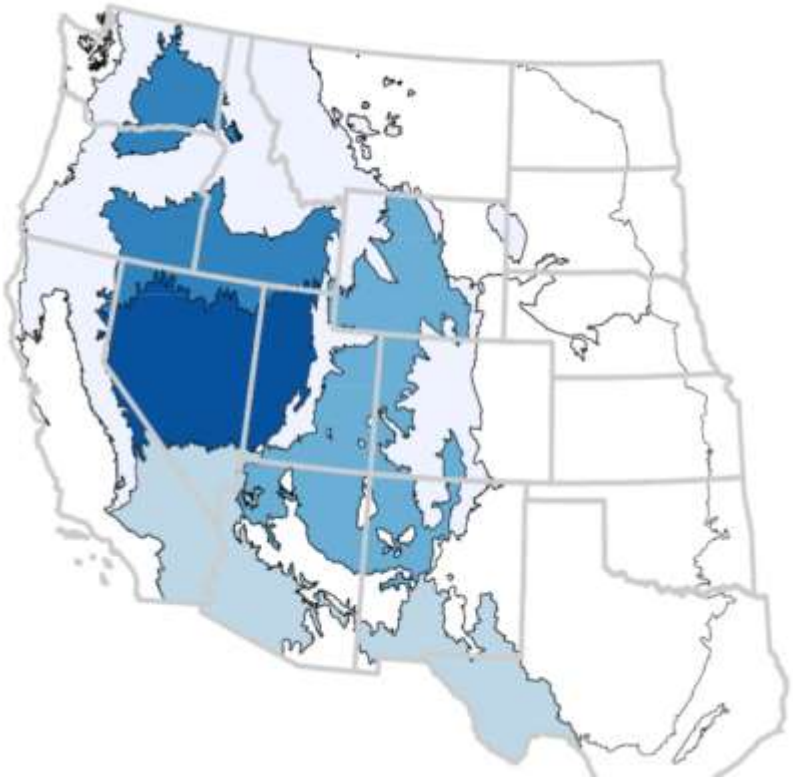
Zoom to

Turning Data into Information

LAND HEALTH ASSESSMENTS

Non-Native Invasive Species





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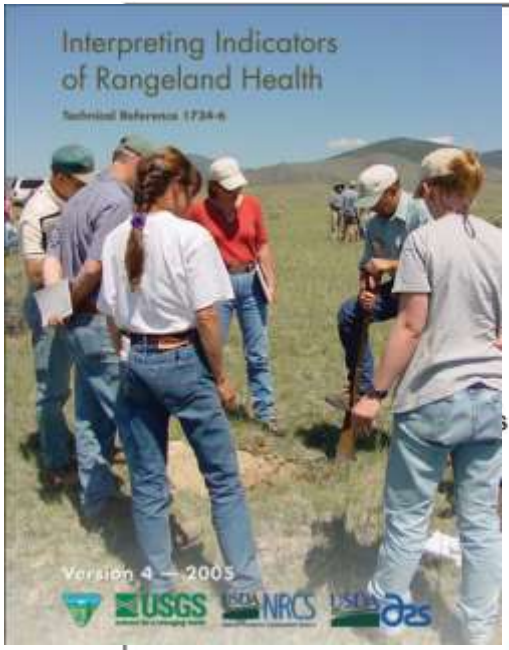
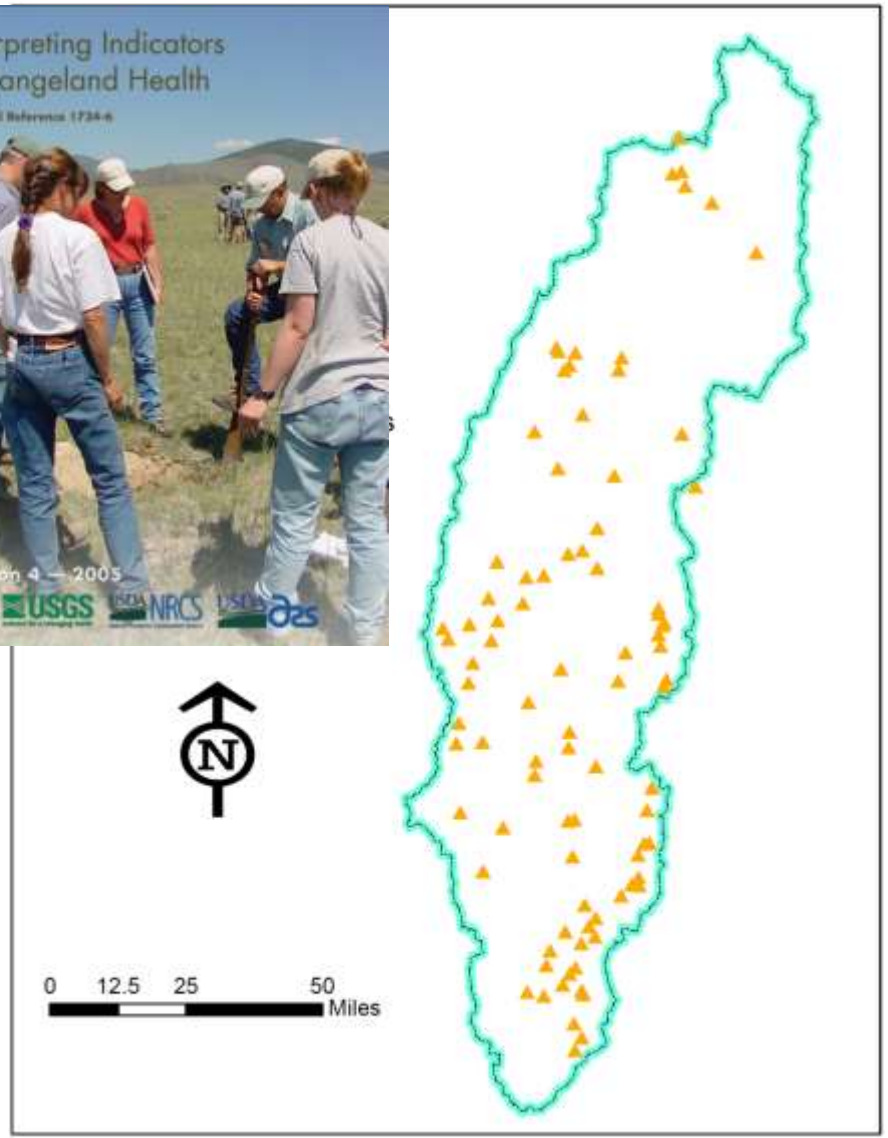
Rangeland Health

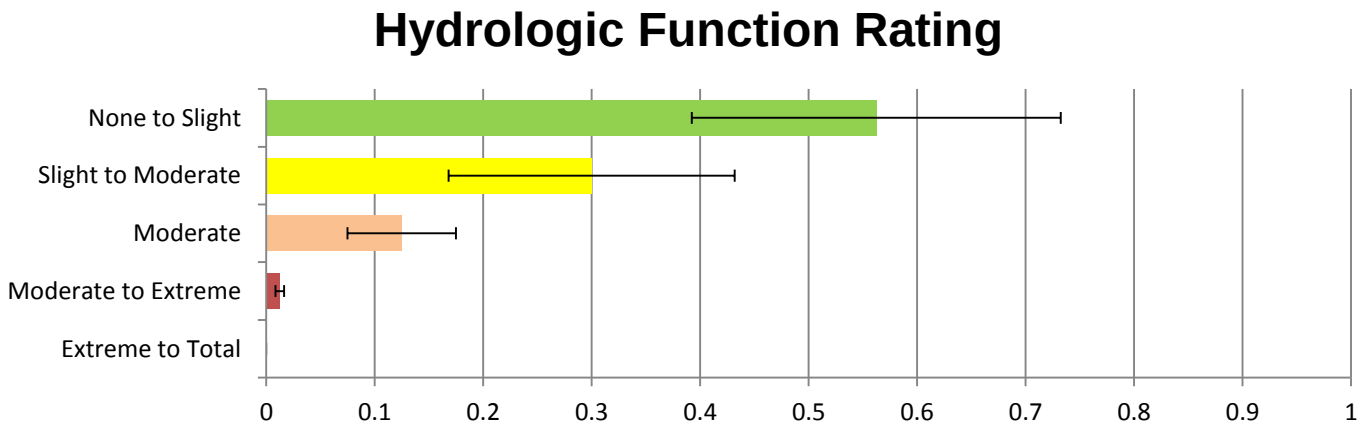
What is the condition of resources, relative to desired and/or reference conditions?

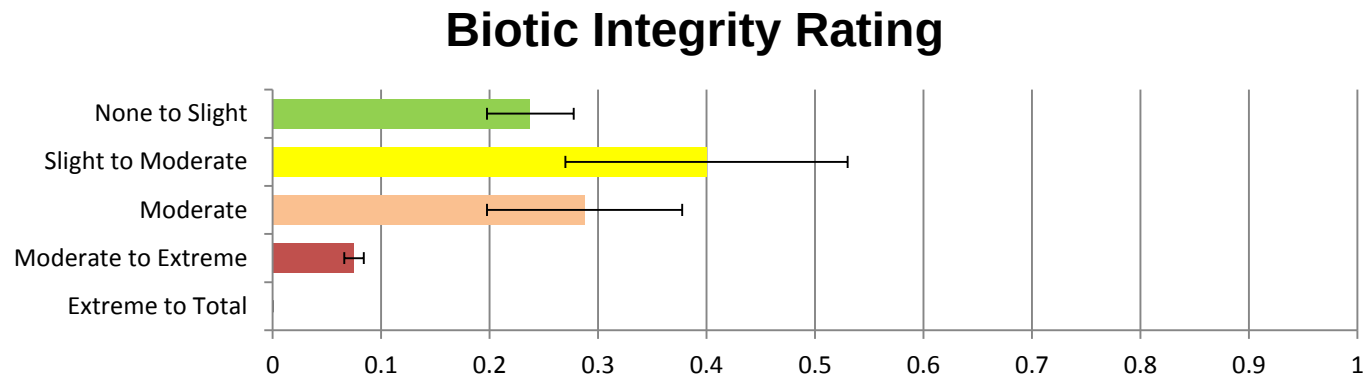


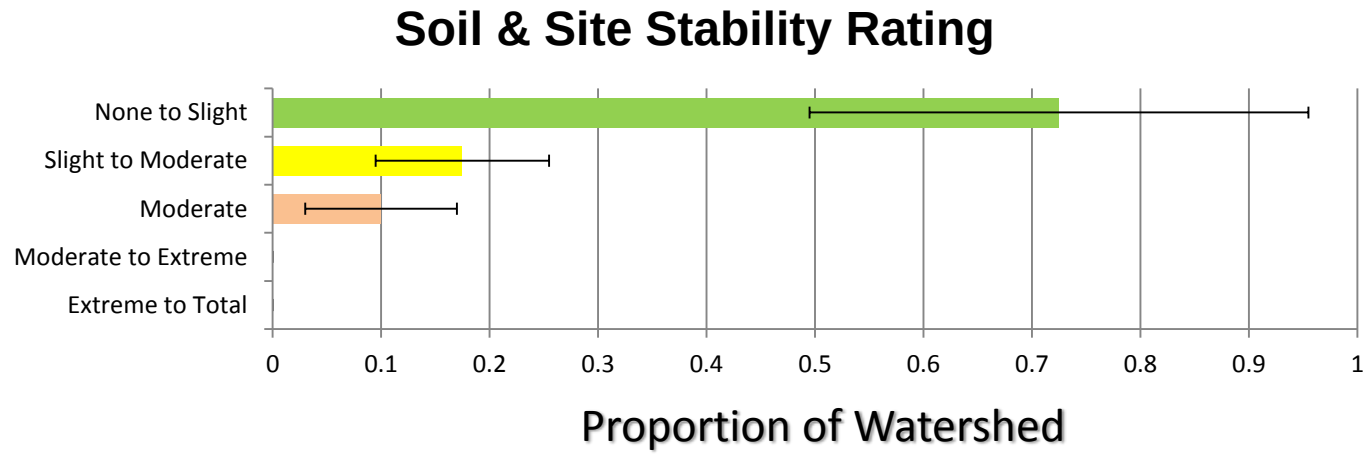


Each data point is assessed in relationship to the soil and site potential

Departure from Reference Conditions



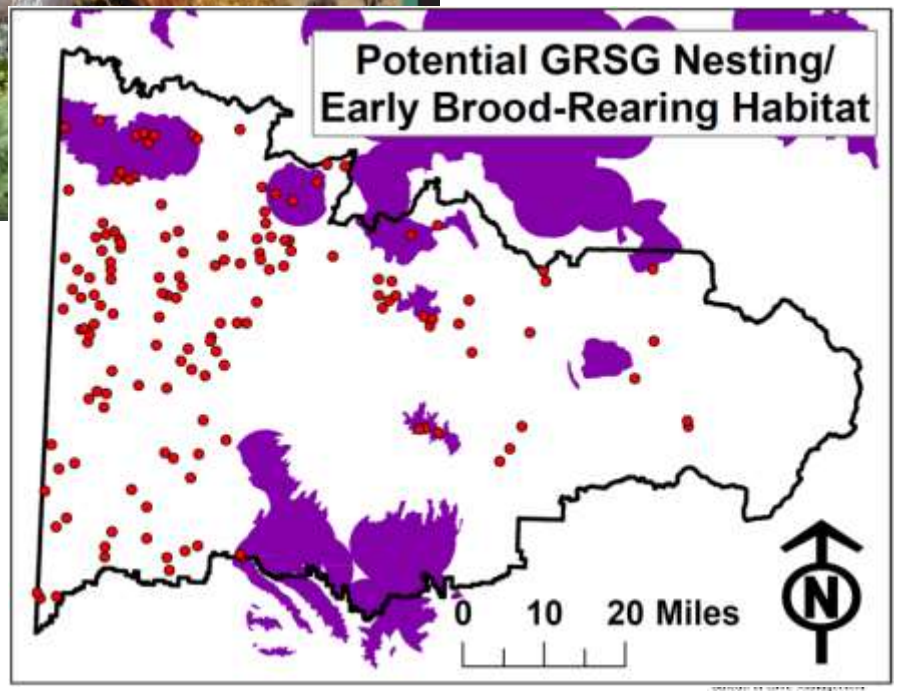




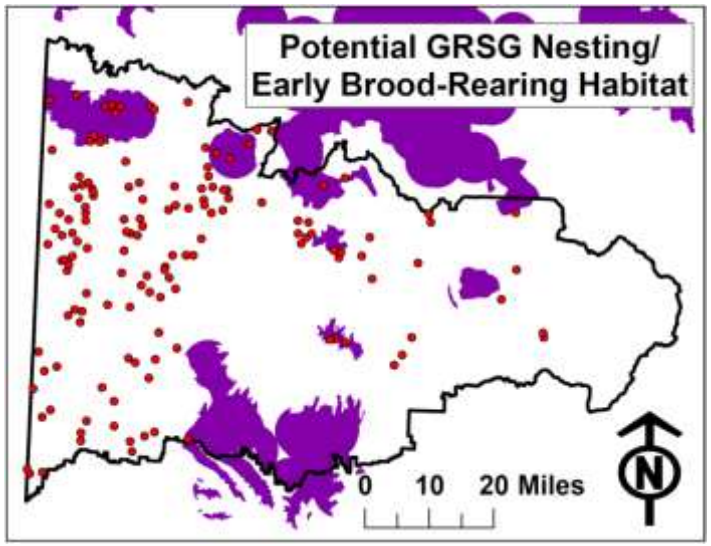
Land Health and Sage-Grouse

What is the condition of resources, relative to desired and/or reference conditions for sage-grouse habitat?

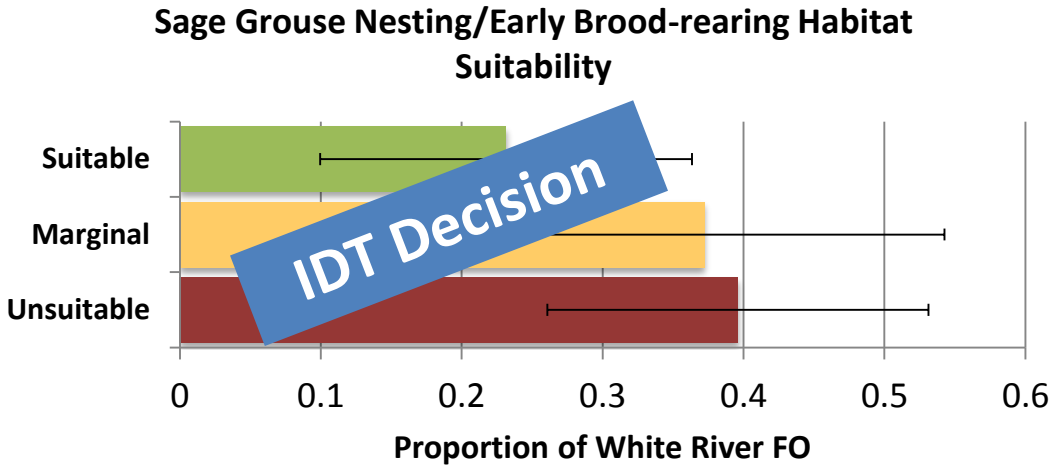
Data points are grouped in relationship to the seasonal habitat and assessed in relationship to the soil and site potential

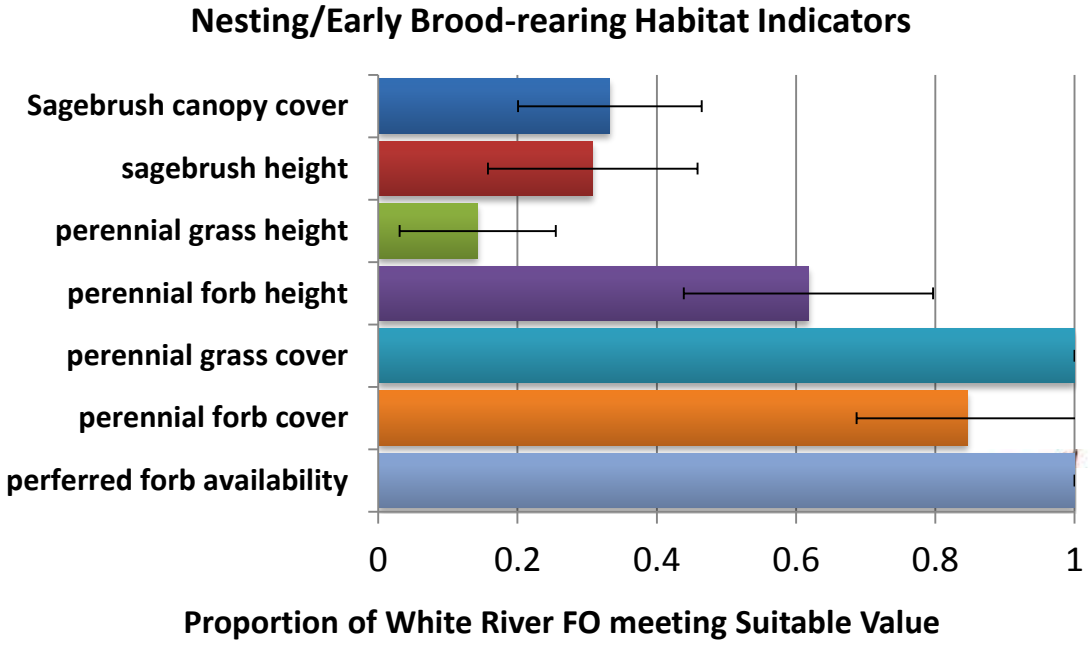


GRSG Habitat Assessment

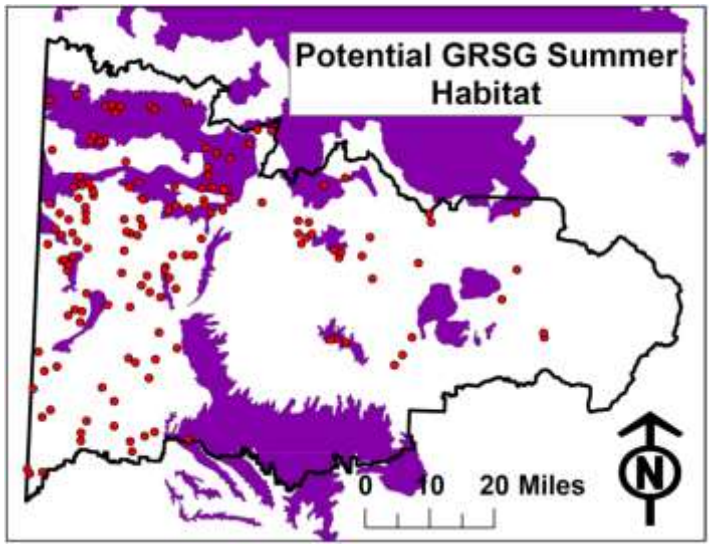


AIM Plots within GRSG nesting habitat: 19

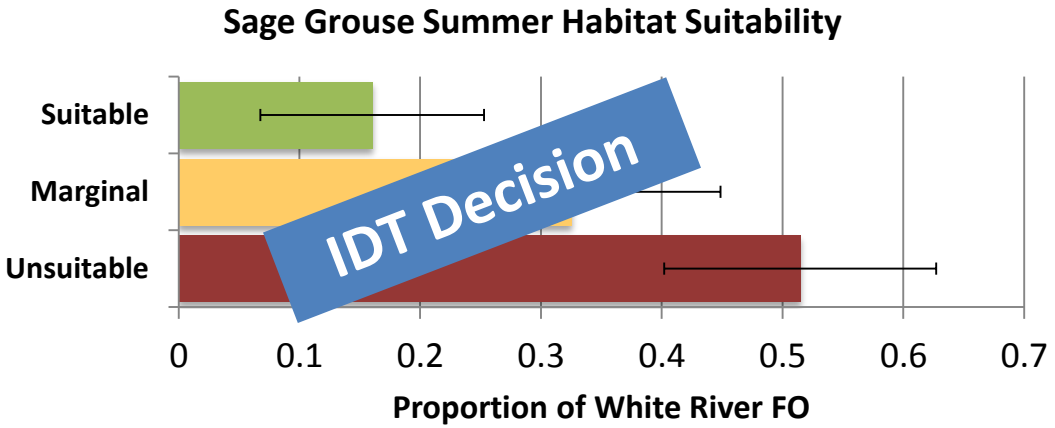


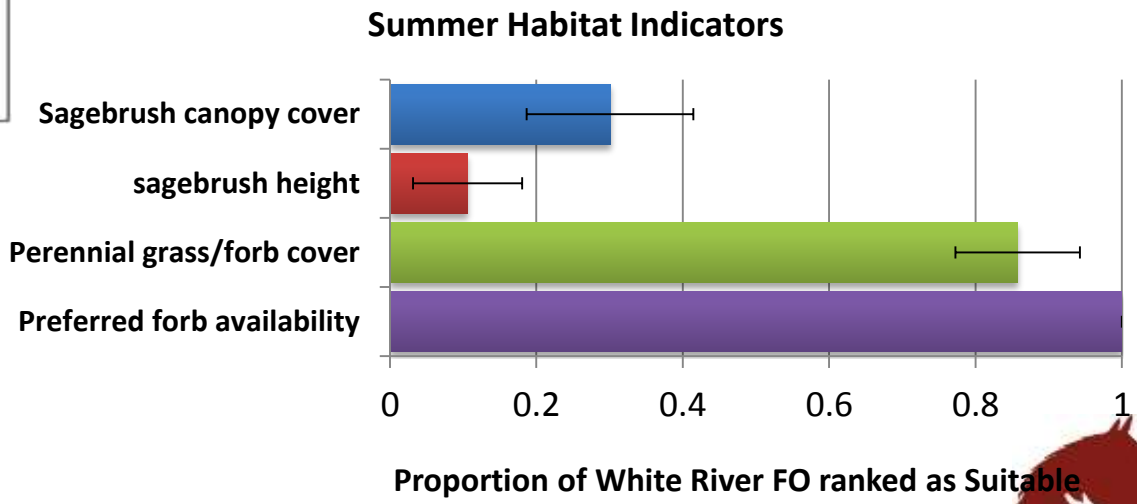


Summer Habitat

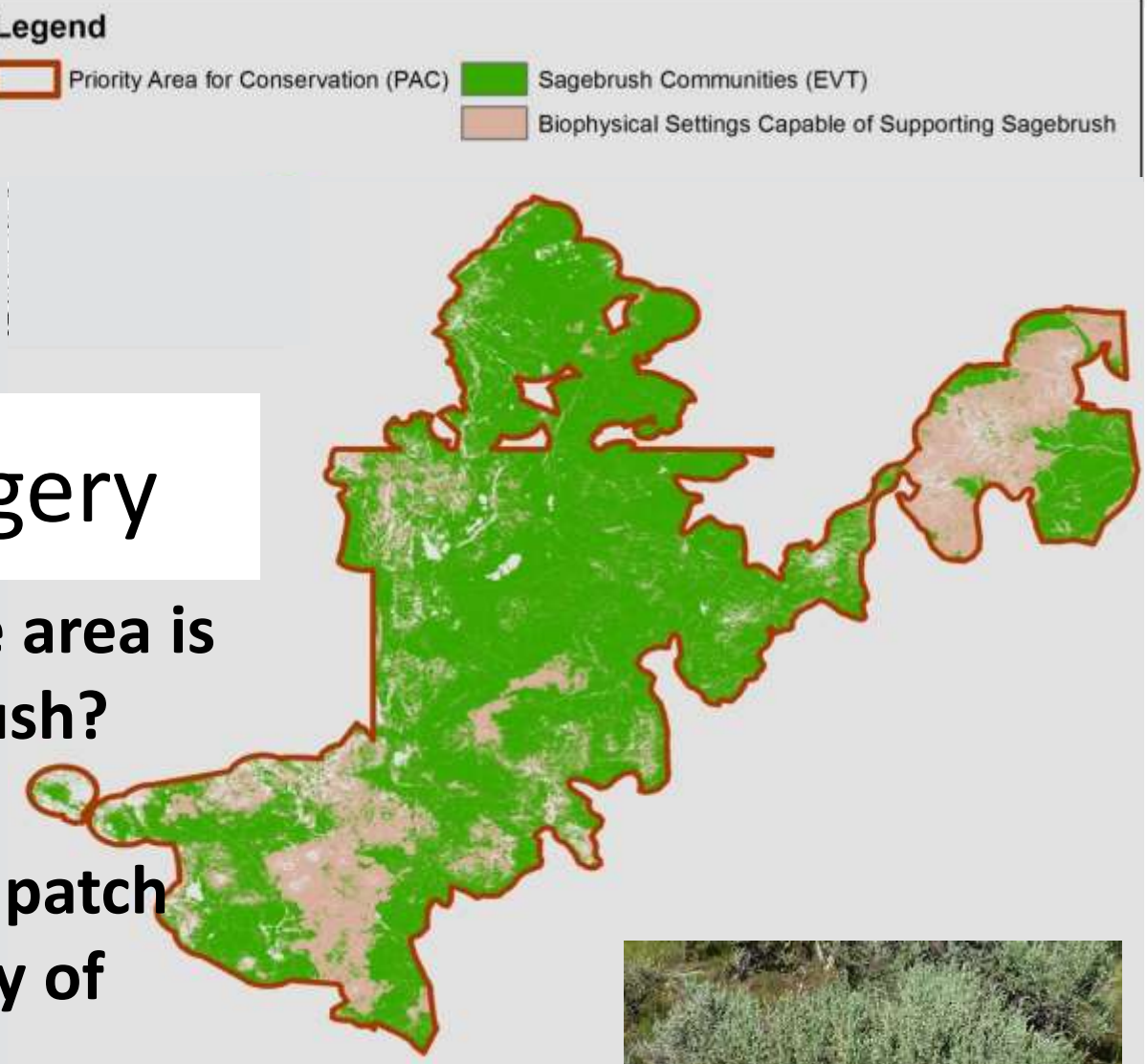


AIM Plots within GRSG summer habitat: 36





LANDFIRE Biophysical Settings Capable of Supporting Sagebrush (BpS) within the PAC - 5,631,000 acres	
BpS	90%
Non-BpS	10%
Total	100%
LANDFIRE Existing Sagebrush Community Vegetation Types (EVT) - 5,631,000 acres	
EVT	67%
Non-BpS	33%
Total	100%
Percent of BpS that is EVT in the PAC	**74%**



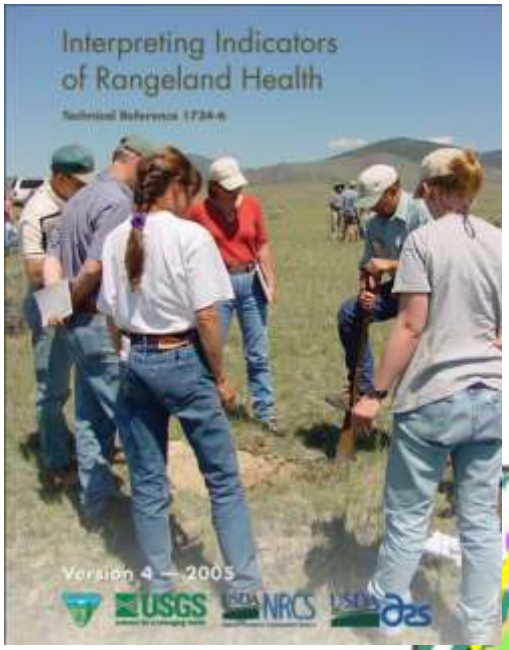
Remote Imagery

What percent of the area is classified as sagebrush?

What is the pattern, patch size, and connectivity of sagebrush patches?

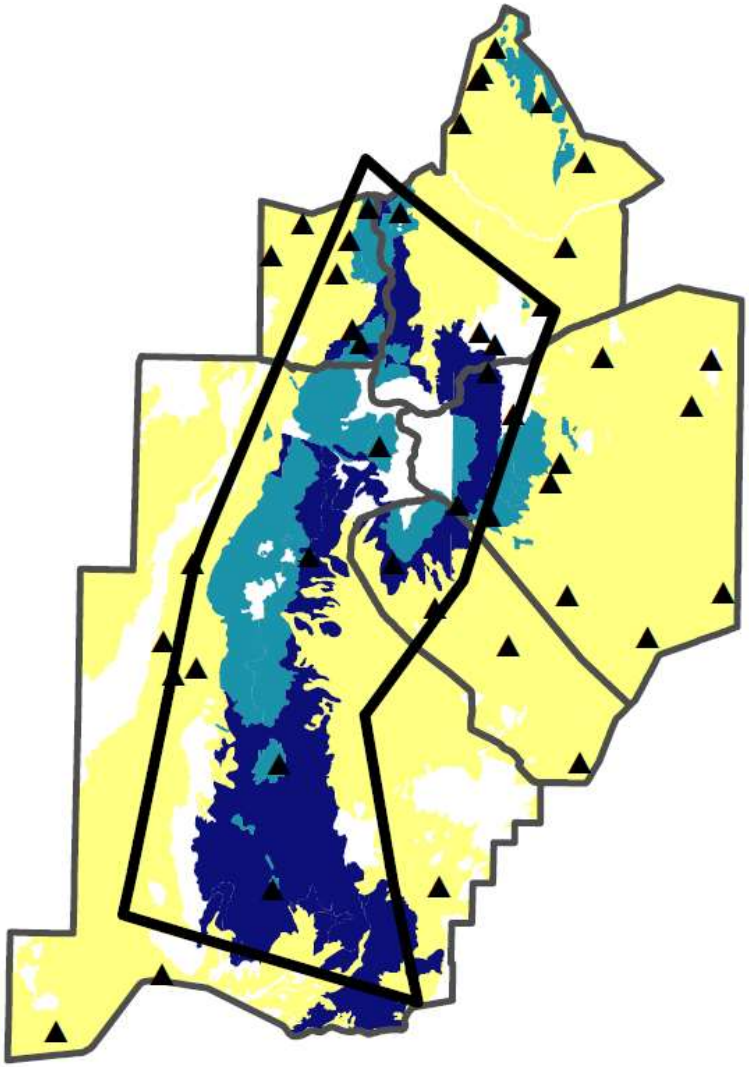
Land Health and Wild Horses

What is the condition of resources, relative to the desired thriving natural ecological conditions for herd management areas?



Data points are grouped in relationship to soil and site potential and assessed in relationship to the desired condition.

Perennial Grass Cover



Legend

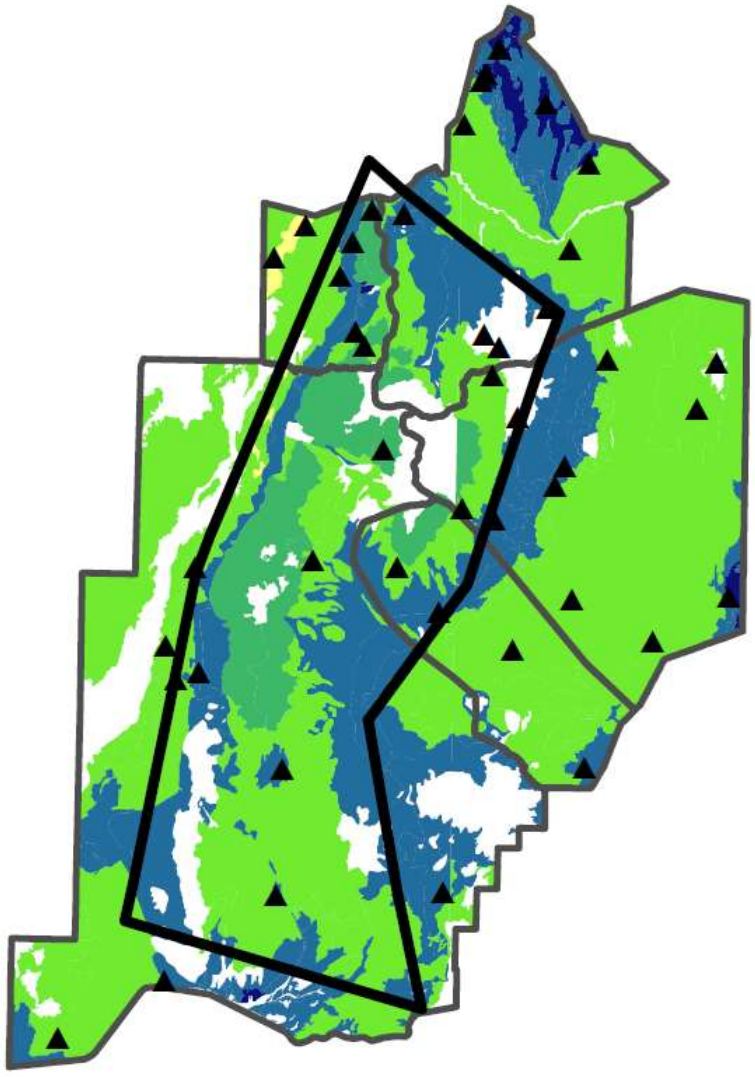
- AIM Plots
- HMA Boundary
- Allotments

AIM Indicators by Dom. DRG

Perennial Grass Cover

- 0.000000 - 10.000000
- 10.000001 - 20.000000
- 20.000001 - 30.000000
- 30.000001 - 40.000000

Invasive Plant Cover



Legend

- AIM Plots
- HMA Boundary
- Allotments

AIM Indicators by Dom. DRG

Invasive Plant Foliar Cover

- 7.700000 - 15.000000
- 15.000001 - 30.000000
- 30.000001 - 45.000000
- 45.000001 - 60.000000
- 60.000001 - 75.000000

Desired Future Condition

BENCHMARKS

Land Health and Core Measurements

Land Health Standard	Indicator	Benchmark	% Area Allowed to Deviate from Benchmark
Soil	Bare Ground	Less than 10%	10%
Biodiversity	Percent Cover of Invasive Species	None	5%
Special Status Species – Sage Grouse	Percent Sagebrush Cover	Greater than 15% and less than 25%	30%
	Sagebrush Height	Greater than 25 cm	30%
Watershed Function	Percent Fine Sediment	Less than 20%	15%
…Other Land Health Standards	*…Additional Terrestrial and Aquatic Core Indicators*		

Next Step

DETERMINATION & MANAGEMENT ACTION(S)

Preponderance of Evidence

Natural systems are complex

Season of use

Authorized Use

Trend in resource condition

Appropriate Management Level

Summary Notes

- Land Health is not only regulatory but essential to sustain productivity
- Areas not meeting land health must develop a action plan to make progress toward desired condition
- Land Health provides the BLM and the public a process to adaptively manage to sustain productivity
- Consistent, high quality data provide the framework to determine changes over time and the opportunity to adjust management in a timely manner

Q&A Session