

# Monitoring for Adaptive Management

## Nevada's Land Health Assessment/AIM Implementation

Nevada Sagebrush Ecosystem Council  
May 13, 2014

Joe Tague, BLM NV-CA Sage-grouse Team Lead

# Need

- Respond to USF&WS 'warranted but precluded' decision for Greater Sage-grouse
- Respond to USF&WS proposed listing of Bi-State Sage-grouse
- Report on the condition of public lands (FLPMA requirement)

# Purpose

- Interpret Indicators of Rangeland Health qualitative assessment for all programs
- Assess sage-grouse habitat conditions
- Identify renewable energy mitigation sites
- Roll up BLM NV's monitoring data to landscape scale
- Implementation of Assessment, Inventory, and Monitoring (AIM) Strategy

# Rangeland Health Monitoring

- Existing Direction:
  - Interpreting Indicators of Rangeland Health
  - AIM Strategy
- These are consistent and complimentary
- One is qualitative assessment, other is quantitative monitoring
- When analyzed together, provide valuable information on condition of the land



# AIM

The goal of the AIM Strategy is:

- Report on the status and trends of public rangelands at multiple scales of inquiry
- Report on the effectiveness of management actions
- Provide the information necessary to implement adaptive management
- Consistent methodologies and data

# AIM is...

## ...standard, quantitative indicators and measurements



Bare Ground

Vegetation Composition



Height

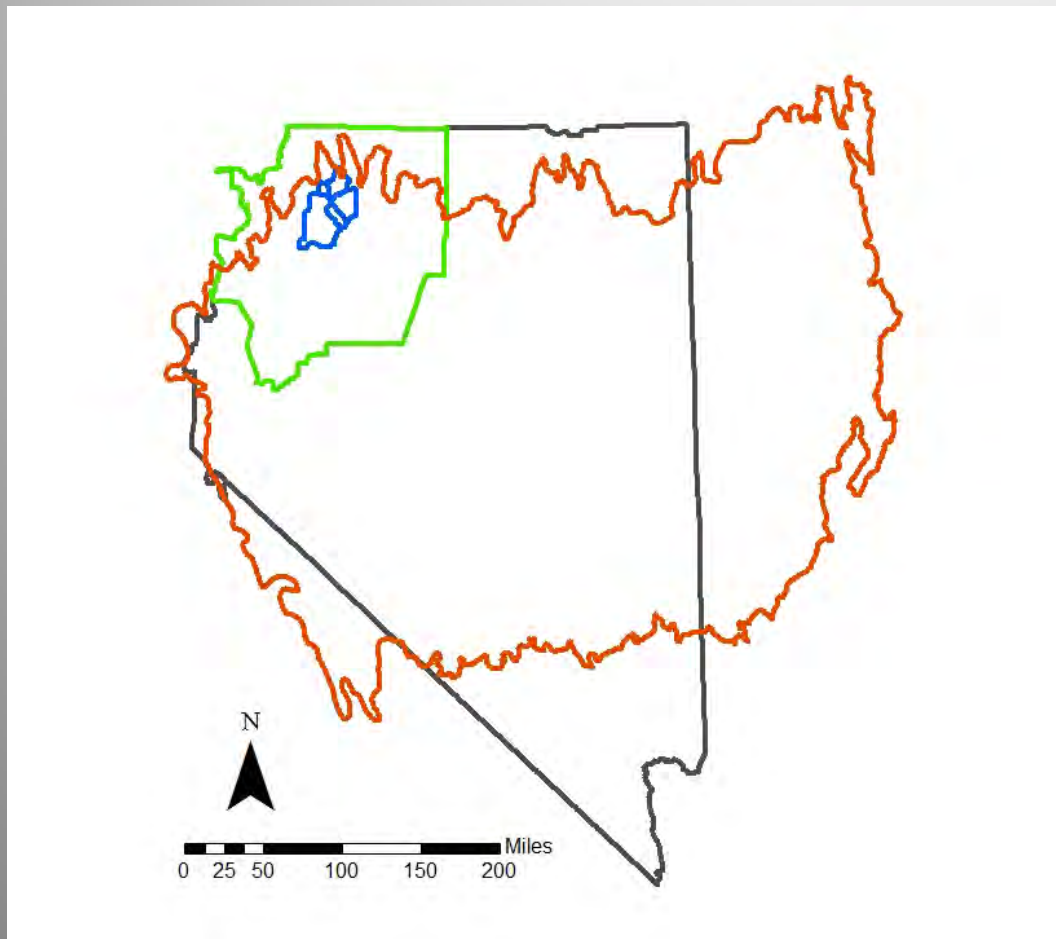


Canopy Gaps

Plants of Mgmt. Concern

Nonnative Invasive Sp.

# AIM is...



- Statistically valid, scalable sampling design
- Collect the data once, use it multiple times

# Funding

- FY11 \$600,000
  - One time sage grouse funds
  - Renewable energy (L1430)
  - WHB (Jackson Mountains pilot project)
- FY12 ~\$650,000
  - Added Data Specialist position
  - End of year funds
- FY13 ~\$750,000
  - End of year funds
- FY14 ~\$850,000



# Partnership

- Great Basin Institute was asked to provide field crews
  - Young, natural resource educated workforce
  - Crews gain natural resource management experience
- Meets Secretary of Interior's Youth Initiative
- Also have monitoring by others (NDOW) using consistent methodologies

# Accomplishments

- 2011
  - 441 plots
  - 6 crews (1 per District)
- 2012
  - 389 plots
  - 5 crews (1 shared between Ely & S. NV)
- 2013
  - 414 plots
  - 7 crews (2 crews in Elko)

# Accomplishments

2011-2013

District	# AIM Plots
Battle Mountain	167
Carson City	161
Elko	242
Ely	216
Southern Nevada	190
Winnemucca	268
Total	1,244 plots

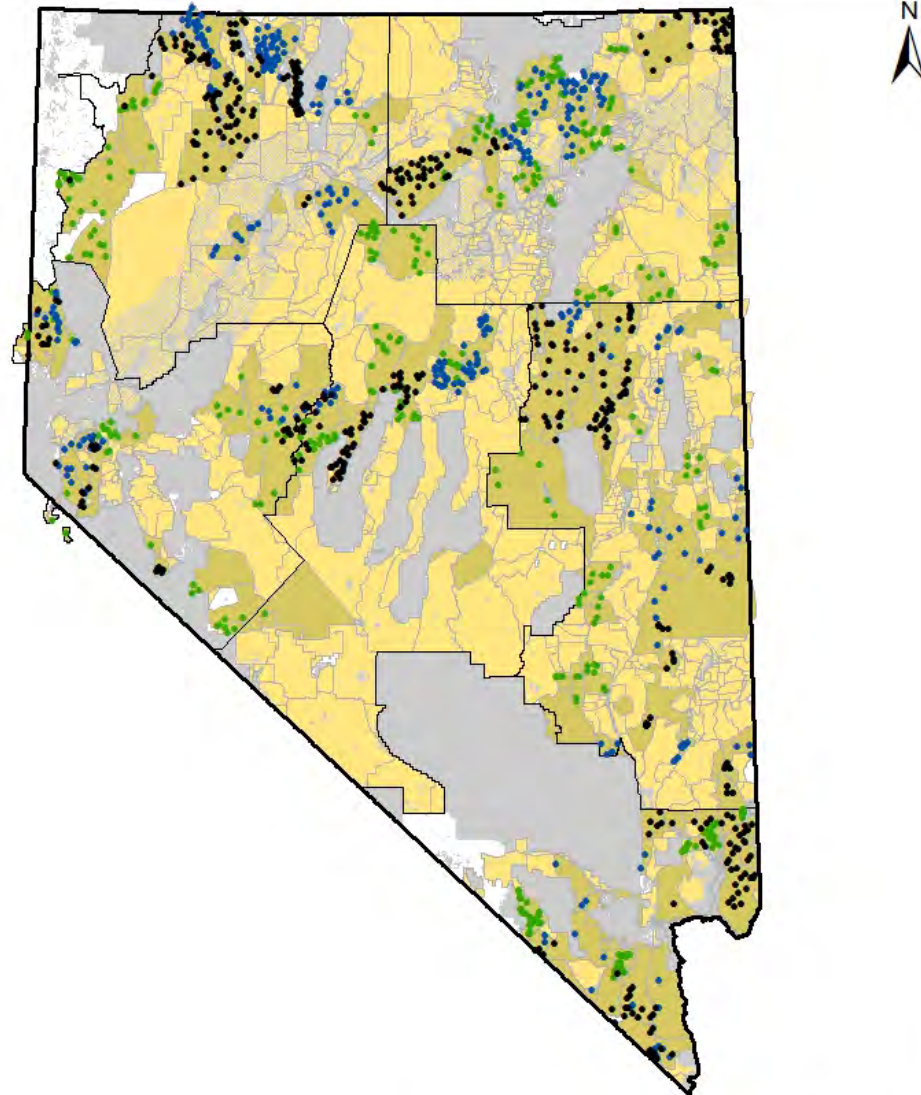
# Accomplishments

## 2013

District	AIM Plots	IIRH Plots	ESD Representative Acres
Battle Mountain	77	70	410,875
Carson City	52	50	291,217
Elko – Tuscarora	55	55	141,053
Elko – Wells	50	26	187,476
Ely	47	43	325,900
Southern Nevada	91	90	146,538
Winnemucca	42	30	240,924
Total	414	364	1,743,983



# Land Health Assessment Plots 2011 - 2013



## Legend

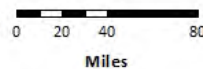
- LHA Plots (2011)
- LHA Plots (2012)
- LHA Plots (2013)
- State Boundary
- District Office Boundary
- Allotment Boundary

## BLM Land

- Sampled Allotments
- Unsampled BLM
- Non-BLM Land

- Great Basin

1:3,700,000



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No Warranty is made by Great Basin Institute or the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

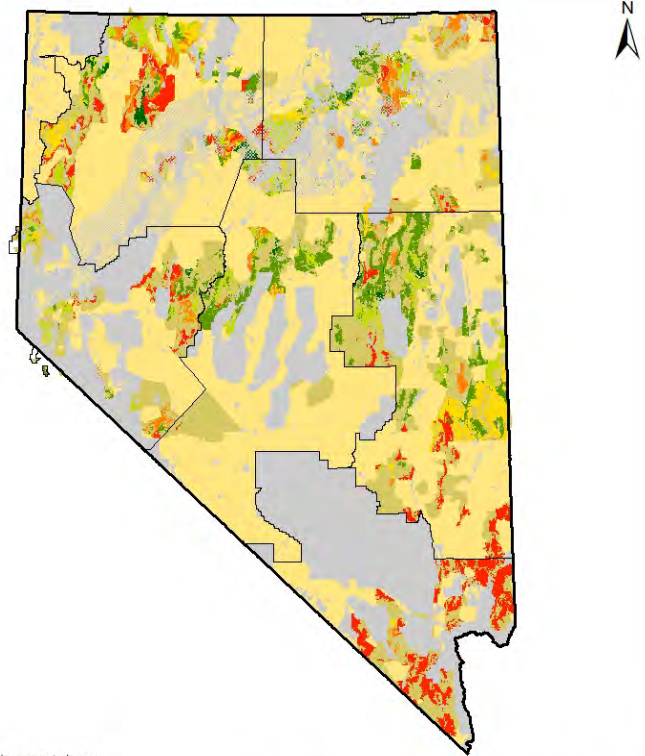


**BLM**

*Nevada's Land Health Assessment/AIM Implementation*



## Sagebrush Cover Combined LHA Data 2011 - 2013



\*average foliar cover within represented areas.

**Legend**

Sagebrush percent cover\* BLM land

- No cover
  - 0% - 5%
  - 5% - 10%
  - 10% - 20%
  - 20% - 40%
  - 40% - 60%
- Sampled Allotments
  - Unsampled BLM
  - State Boundary
  - District Offices
  - Non-BLM Land
  - Great Basin

1:3,800,000

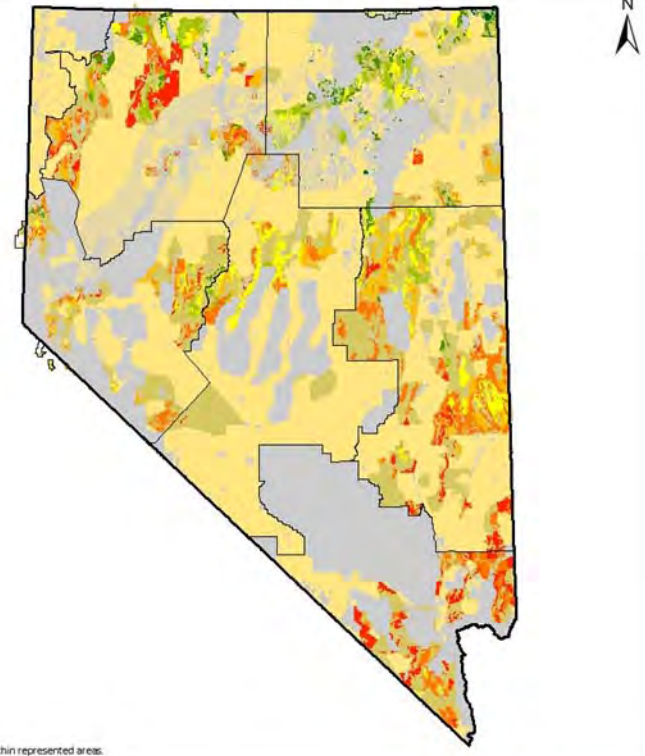
0 20 40 80 Miles

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## Perennial Grass Cover Combined LHA Data 2011 - 2013



\*average foliar cover within represented areas.

**Legend**

Perennial grass percent cover\* BLM land

- 0%
  - 0% - 5%
  - 5% - 10%
  - 10% - 20%
  - 20% - 30%
  - 30% - 50%
- Sampled Allotments
  - Unsampled BLM
  - State Boundary
  - District Offices
  - Non-BLM Land
  - Great Basin

1:3,800,000

0 20 40 80 Miles

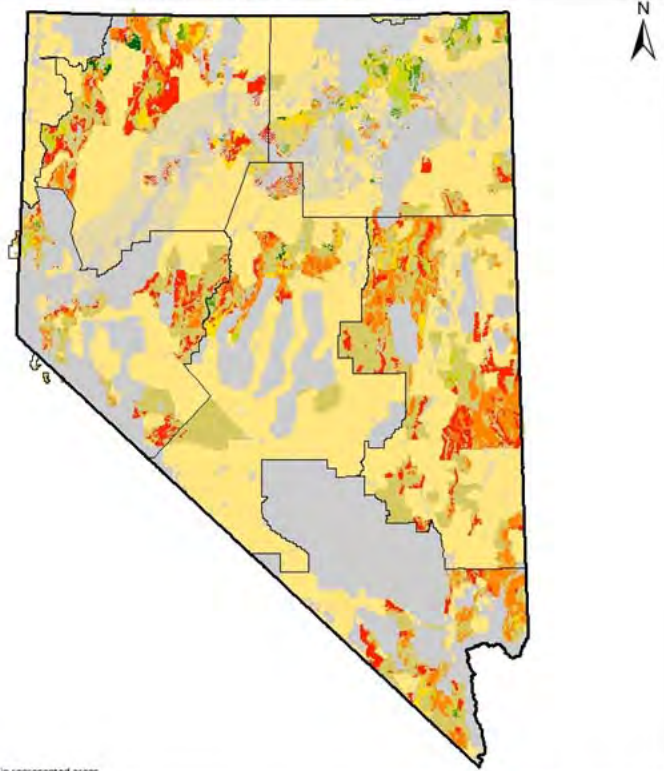
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## Perennial Forb Cover Combined LHA Data 2011 - 2013



\*average foliar cover within represented areas.

**Legend**

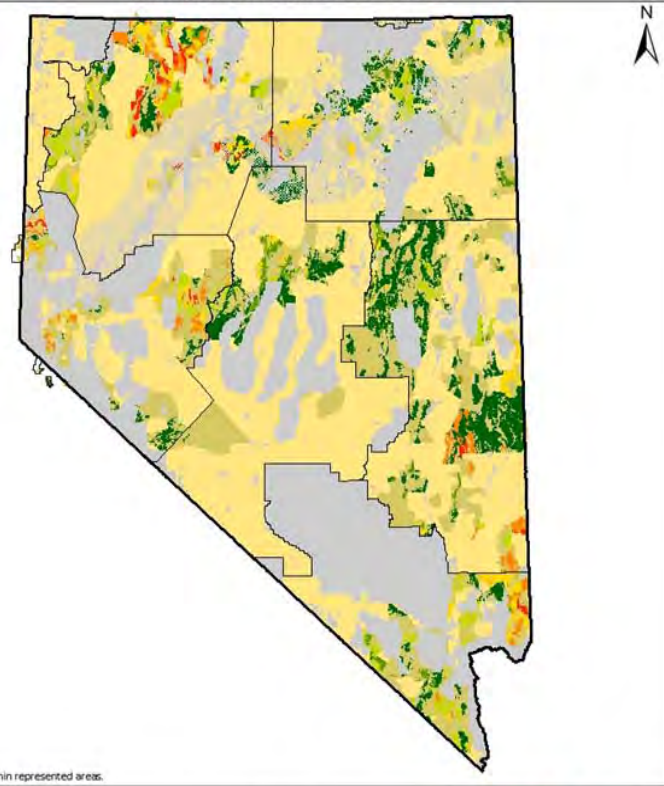
Perennial forb percent cover*	BLM land
0%	Sampled Allotments
0% - 2.5%	Unsampled BLM
2.5% - 5%	State Boundary
5% - 10%	District Offices
10% - 20%	Non-BLM Land
20% - 40%	Great Basin

1:3,800,000  
0 20 40 80 Miles  
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## Invasive Cover Combined LHA Data 2011 - 2013



\*average foliar cover within represented areas.

**Legend**

Invasive percent cover*	BLM land
0% - 5%	Sampled Allotments
5% - 10%	Unsampled BLM
10% - 20%	State Boundary
20% - 40%	District Offices
40% - 60%	Non-BLM Land
60% - 100%	Great Basin

1:3,800,000  
0 20 40 80 Miles  
Land Health Assessment  
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Bureau of Land Management

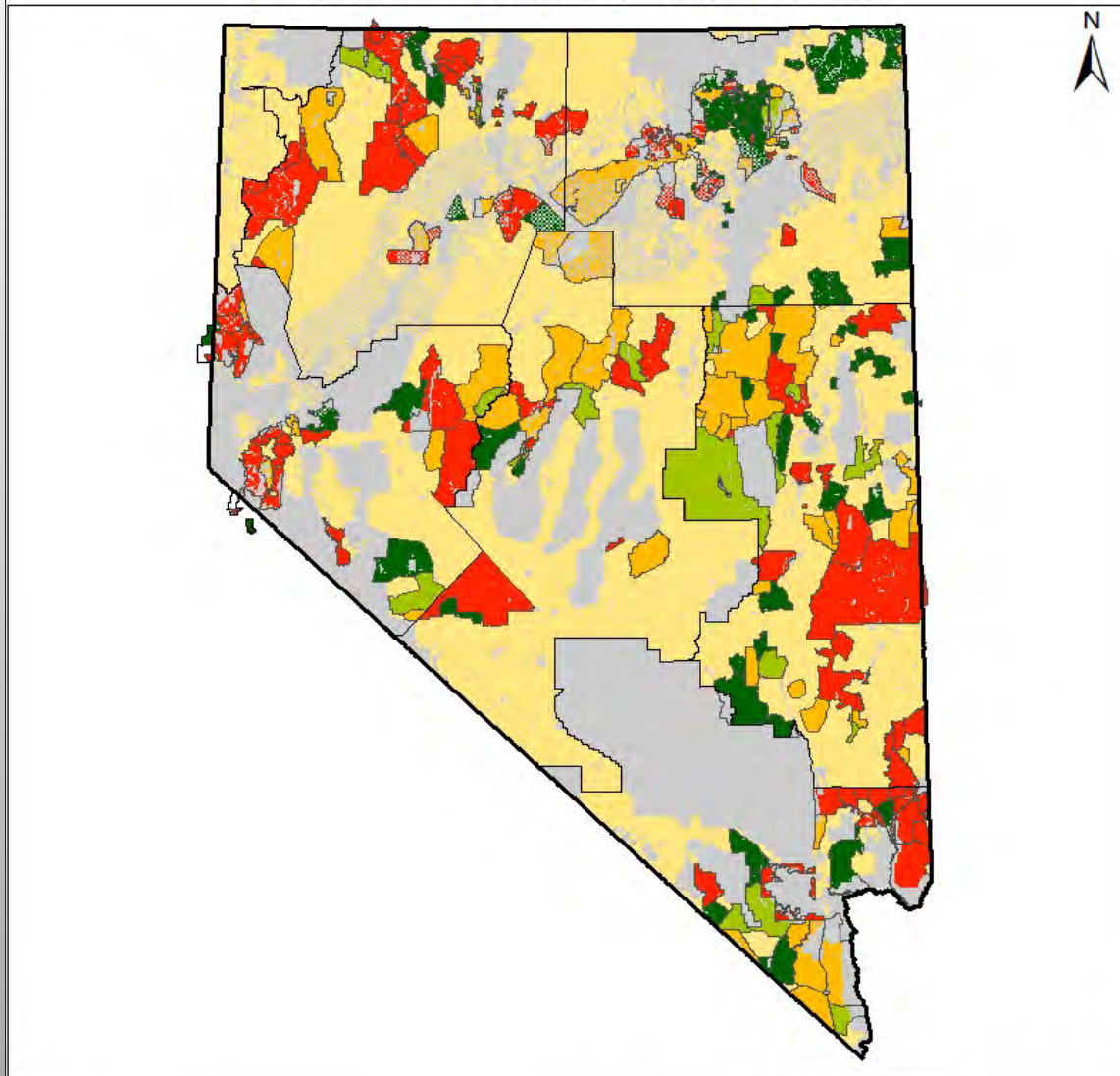
Great Basin Institute

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Interpreting Indicators of Rangeland Health by Allotment  
 All Attributes - Combined LHA Data 2011 - 2013

Interpreting Indicators of Rangeland Health

- Attribute rating percentages by allotment 2011 – 2013
- Percentages are the number of plots with at least one attribute rating with a moderate departure from reference condition divided by the total number of plots in that allotment.



Legend

■ 0% - 10%	□ State Boundary
■ 11% - 25%	□ District Offices
■ 26% - 50%	■ BLM land
■ 51% - 100%	■ Non-BLM Land
	■ Great Basin

1:3,800,000  
 0 20 40 80  
 Miles

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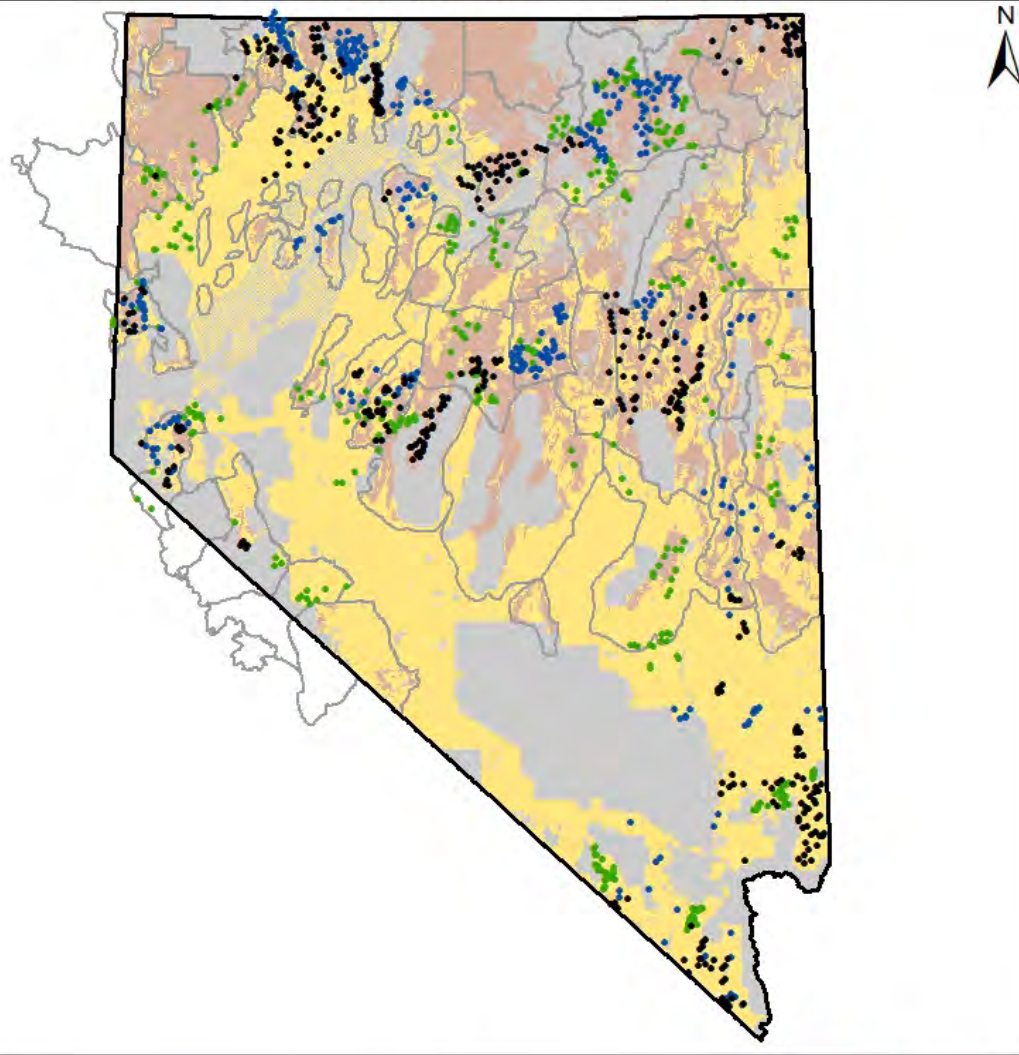
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\*With a moderate or greater departure from reference in at least one attribute.



# Land Health Assessment Plots 2011-2013 with Greater Sage-grouse Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH)

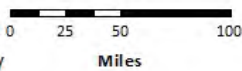


## Legend

- LHA Plots (2011)
  - LHA Plots (2012)
  - LHA Plots (2013)
- Greater sage-grouse
- Habitat (PPH / PGH)
  - Population Mgmt. Units

- BLM land
- Non-BLM Land
- State Boundary
- Great Basin

1:3,900,000



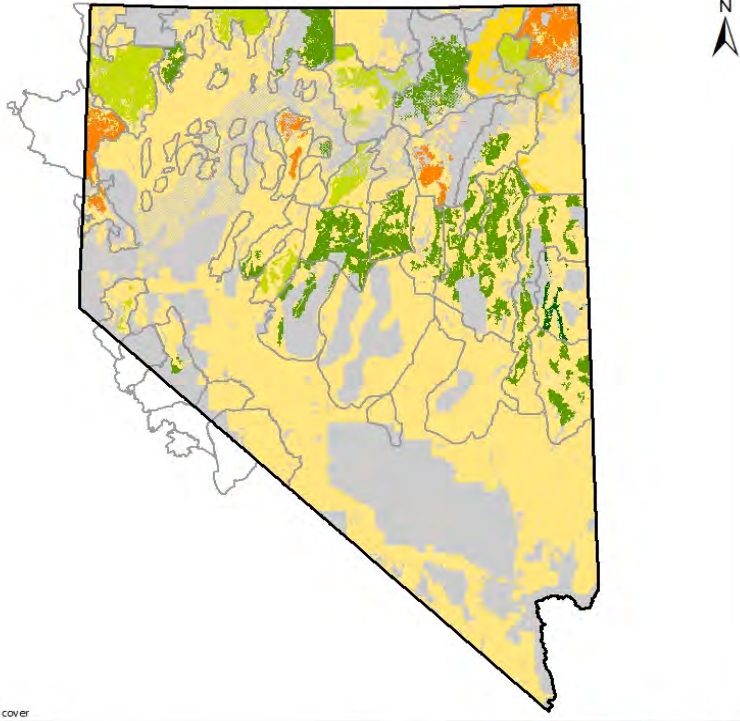
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## Sagebrush Cover Greater Sage-grouse Preliminary Priority Habitat Combined LHA Data 2011 - 2013

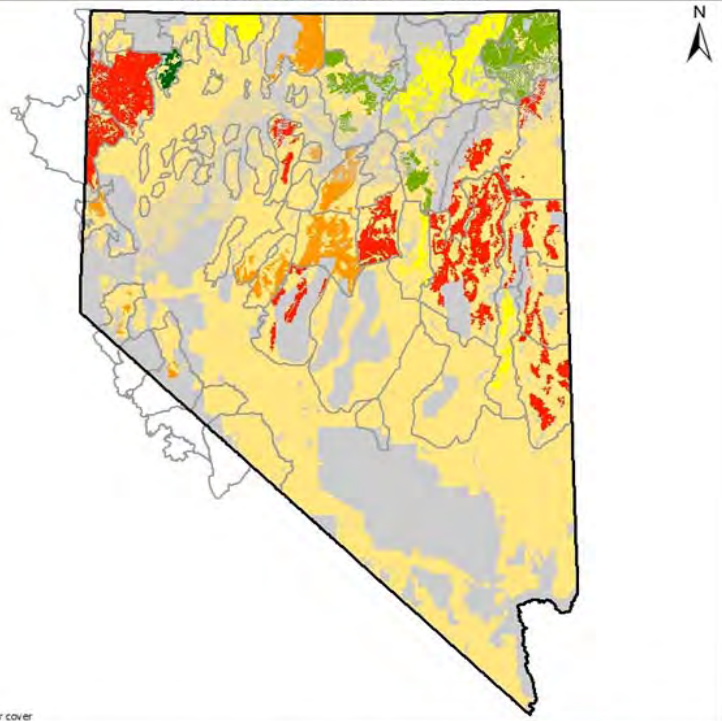


\*average foliar cover

**Legend**

Sagebrush percent cover*	□ Sage-grouse PMUs	1:3,900,000		
0% - 5%	□ BLM land	0 25 50 100 Miles		
5% - 10%	□ Sampled Allotments	Land Health Assessment Great Basin Institute and Bureau of Land Management	No Warranty is made by Great Basin Institute or the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.	
10% - 15%	□ Unsampled BLM			
15% - 20%	□ Non-BLM Land			
20% - 30%	□ State Boundary			
30% - 50%	□ Great Basin			

## Perennial Grass Cover Greater Sage-grouse Preliminary Priority Habitat Combined LHA Data 2011 - 2013



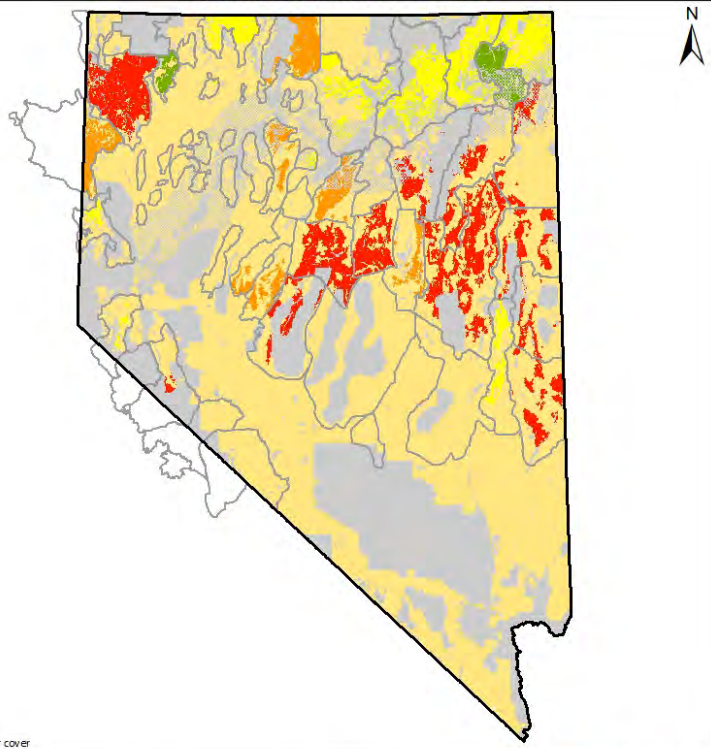
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**Legend**

Perennial grass percent cover*	□ Sage-grouse PMUs	1:3,900,000		
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10% - 20%	□ Sampled Allotments	Land Health Assessment Great Basin Institute and Bureau of Land Management	No Warranty is made by Great Basin Institute or the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.	
20% - 30%	□ Unsampled BLM			
30% - 50%	□ Non-BLM Land			
50% - 70%	□ State Boundary			
	□ Great Basin			



## Perennial Forb Cover Greater Sage-grouse Preliminary Priority Habitat Combined LHA Data 2011 - 2013

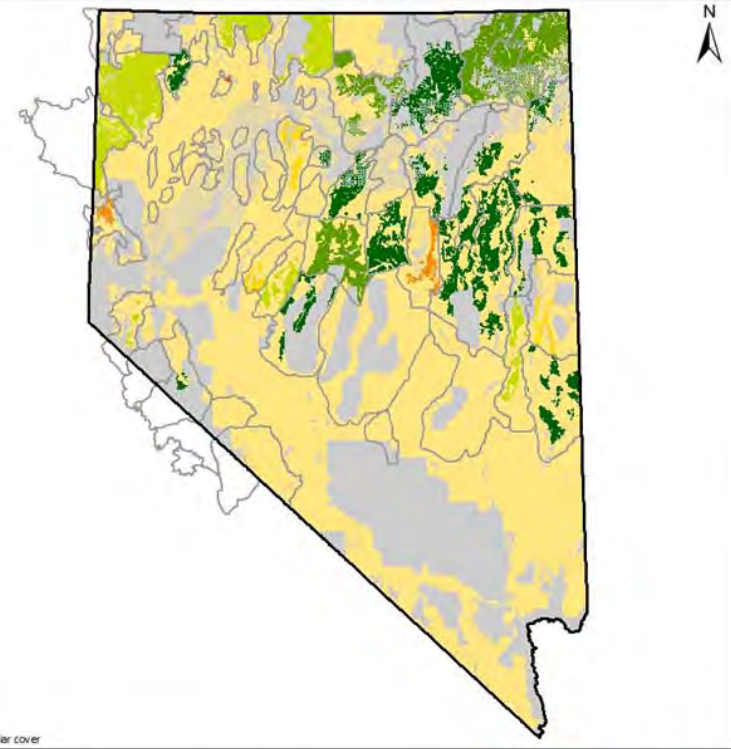


\*average foliar cover

**Legend**

Perennial forb percent cover*	□ Sage-grouse PMUs	1:3,900,000	<p>No Warranty is made by Great Basin Institute or the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.</p>
0% - 2.5%	■ BLM land	0 25 50 100 Miles	
2.5% - 5%	■ Sampled Allotments	Land Health Assessment Great Basin Institute and Bureau of Land Management	
5% - 10%	■ Unsampled BLM		
10% - 20%	■ Non-BLM Land		
20% - 40%	■ State Boundary		
	■ Great Basin		

## Invasive Cover Greater Sage-grouse Preliminary Priority Habitat Combined LHA Data 2011 - 2013

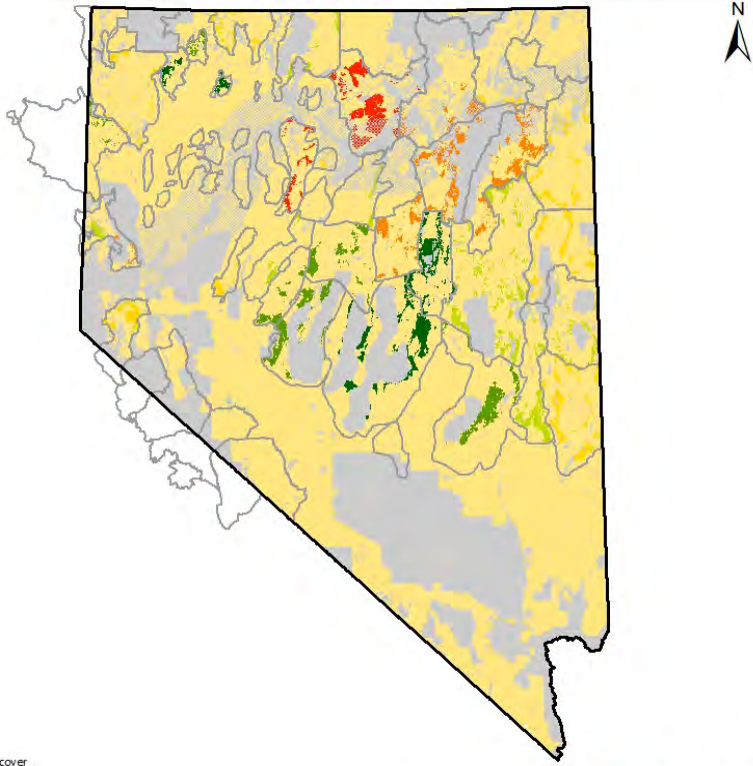


\*average foliar cover

**Legend**

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20% - 30%	■ Non-BLM Land		
30% - 50%	■ State Boundary		
50% - 70%	■ Great Basin		

## Sagebrush Cover Greater Sage-grouse Preliminary General Habitat Combined LHA Data 2011 - 2013



\*average foliar cover

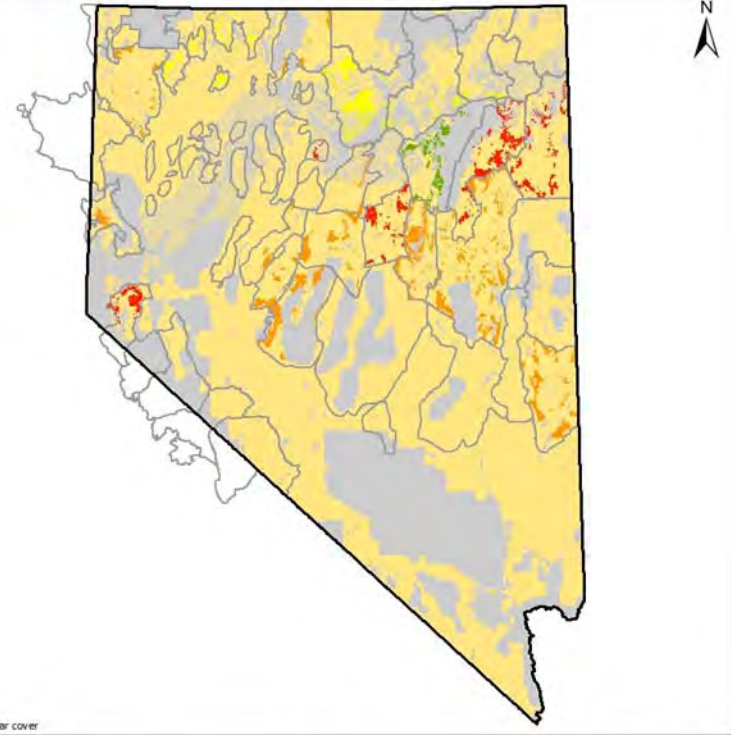
**Legend**

Sagebrush percent cover*	□ Sage-grouse PMUs	1:3,900,000	<p>Miles</p>		
<ul style="list-style-type: none"> <li>0% - 5%</li> <li>5% - 10%</li> <li>10% - 15%</li> <li>15% - 20%</li> <li>20% - 30%</li> <li>30% - 50%</li> </ul>	<ul style="list-style-type: none"> <li>□ BLM land</li> <li>□ Sampled Allotments</li> <li>□ Unsampled BLM</li> <li>□ Non-BLM Land</li> <li>□ State Boundary</li> <li>□ Great Basin</li> </ul>				

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## Perennial Grass Cover Greater Sage-grouse Preliminary General Habitat Combined LHA Data 2011 - 2013



\*average foliar cover

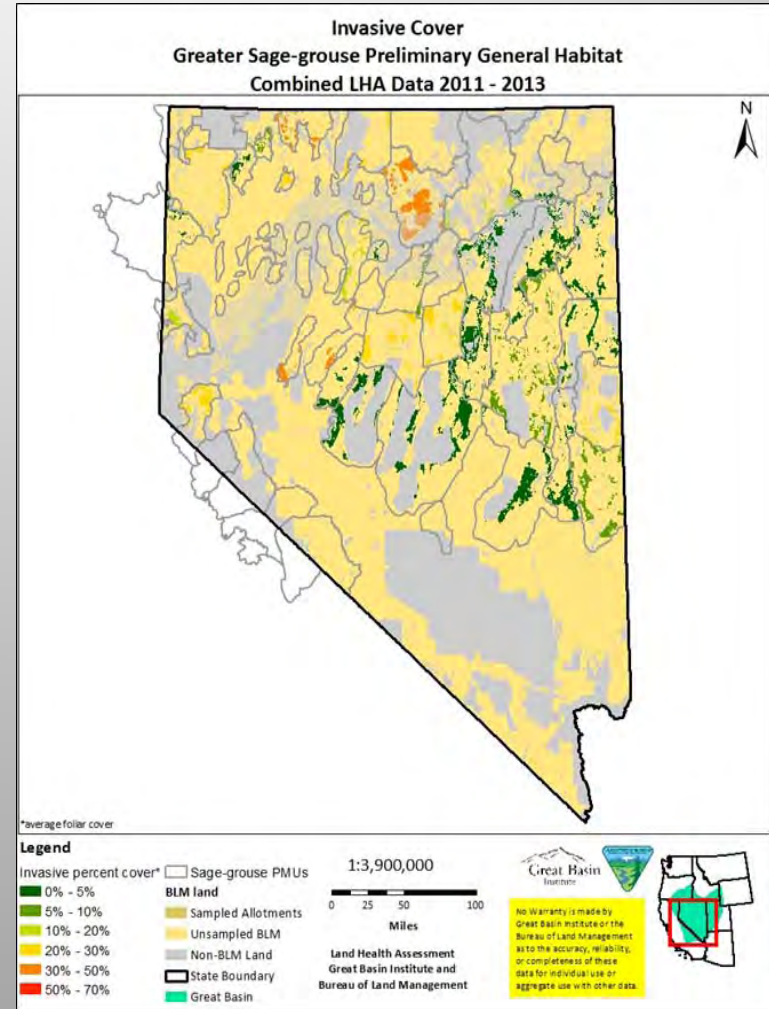
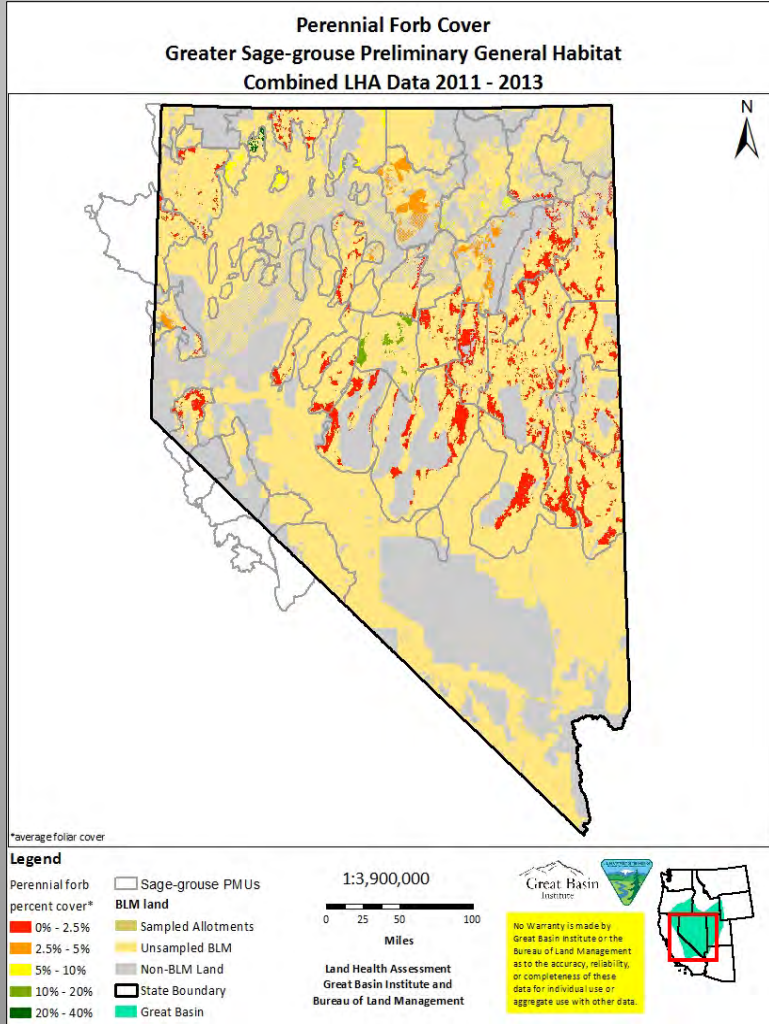
**Legend**

Perennial grass percent cover*	□ Sage-grouse PMUs	1:3,900,000	<p>Miles</p>		
<ul style="list-style-type: none"> <li>0% - 10%</li> <li>10% - 20%</li> <li>20% - 30%</li> <li>30% - 50%</li> <li>50% - 70%</li> </ul>	<ul style="list-style-type: none"> <li>□ BLM land</li> <li>□ Sampled Allotments</li> <li>□ Unsampled BLM</li> <li>□ Non-BLM Land</li> <li>□ State Boundary</li> <li>□ Great Basin</li> </ul>				

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# Going Forward

- Program not a Project
- 7-10 year cycle across Nevada
- Data storage (DIMA)
  - Nevada?
  - NOC?
- NDOW implementing similar system on other than Public Lands
- Data sharing
- Partnerships provide opportunity to accomplish more