



# Greater Sage-grouse Status Review

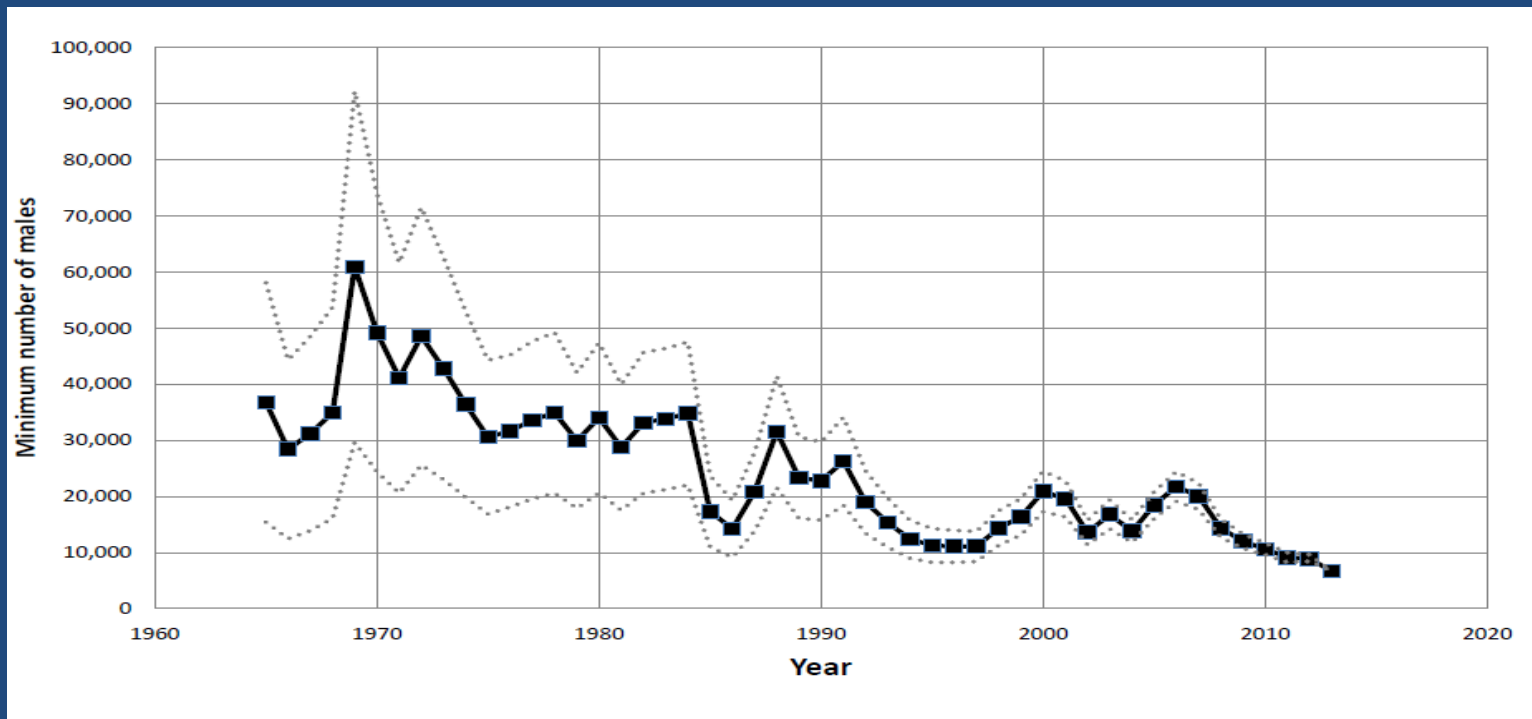
## Cumulative Effects

# Management Zone I

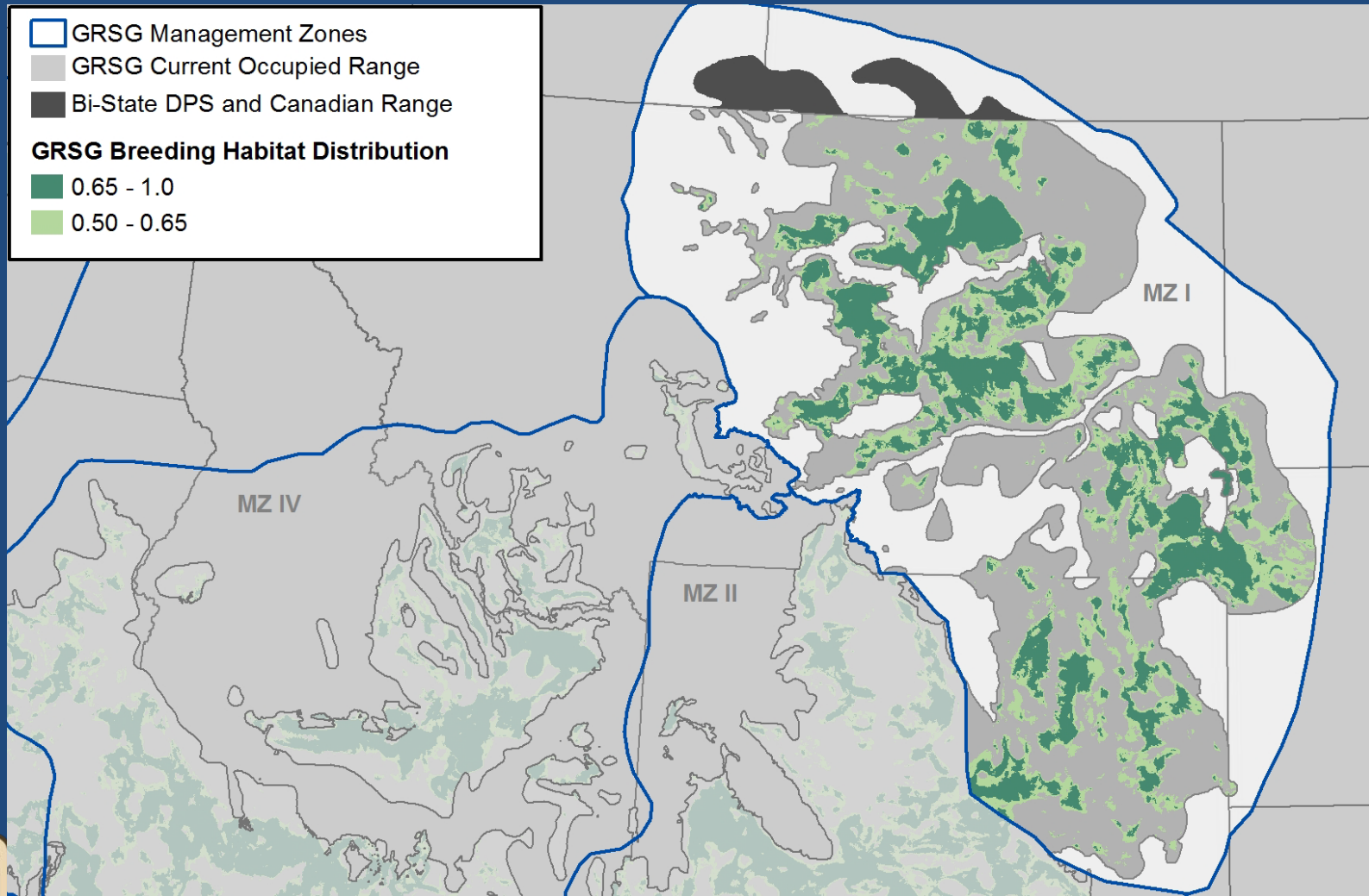
**Land Ownership:** Primarily Private and BLM

**Estimated Percent of Rangewide Population:** 12.4%

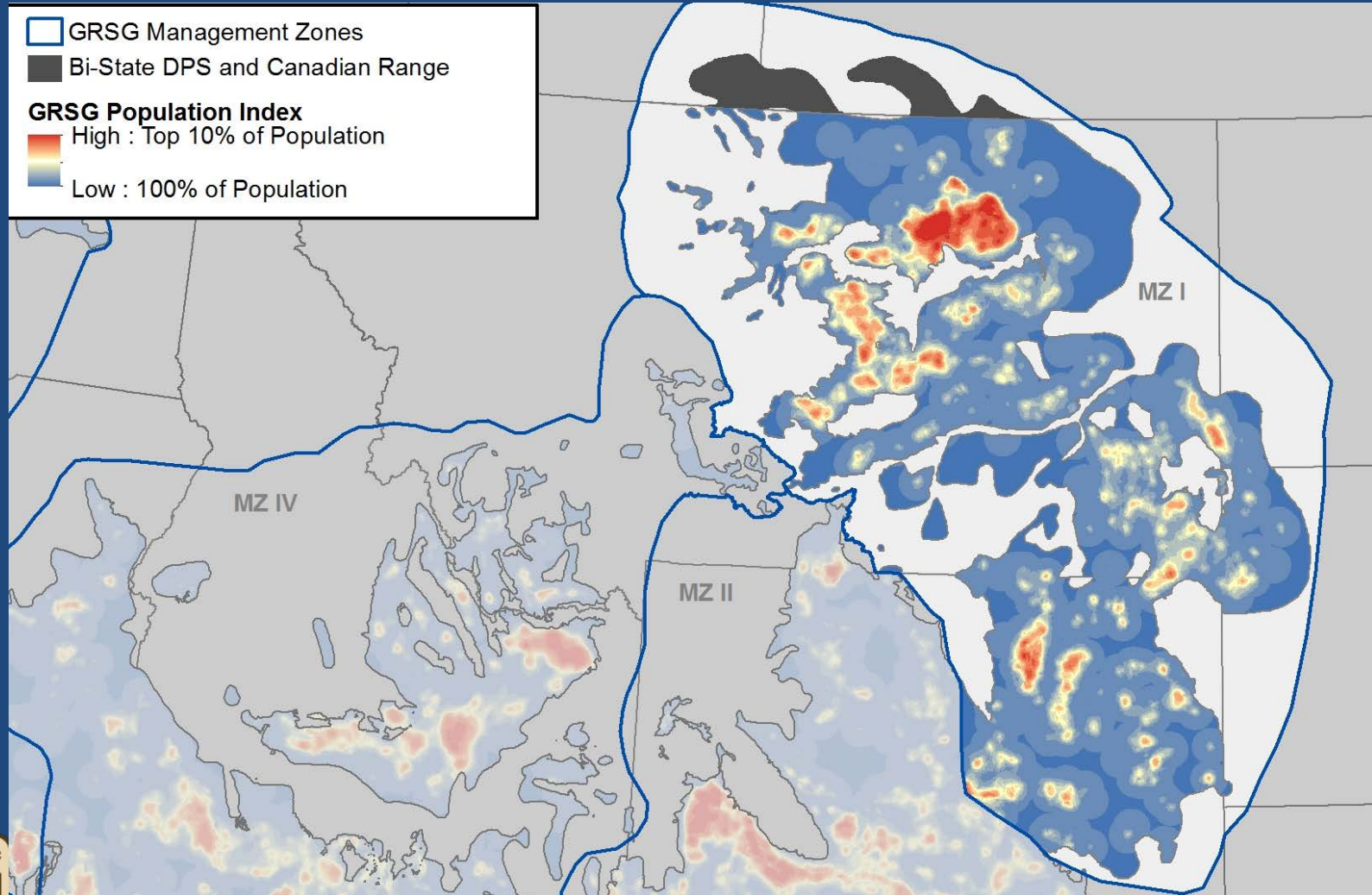
**Population Trend:** Long-term decline



# Modeled Breeding Distribution

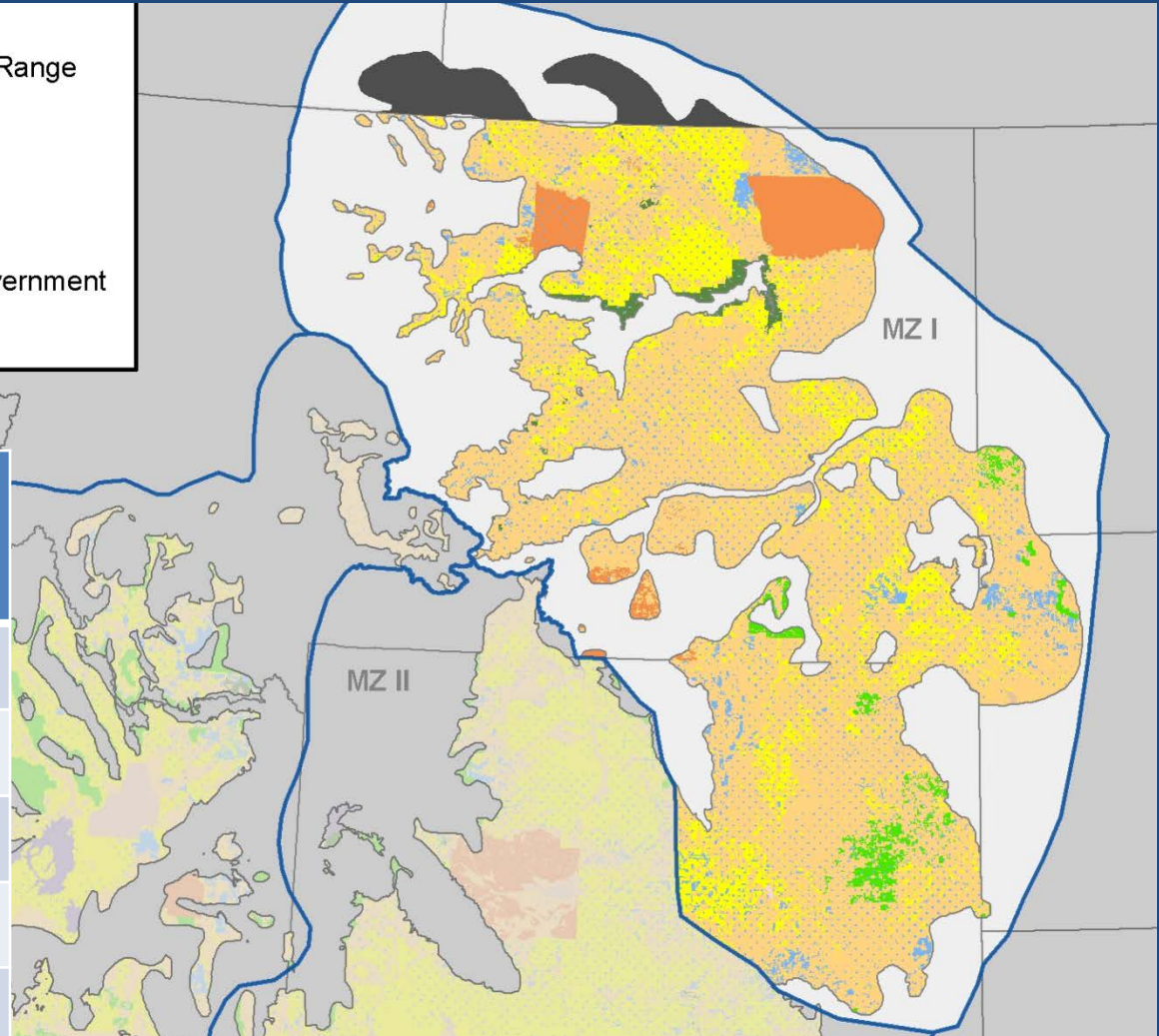


# Population Index





# Land Ownership



Land Owner	% Popln Index
Private	56.6
BLM	33.9
State	7.0
Other Fed	1.3
USFS	1.1
Tribal	0.3

# Impacts in MZ I

## Primary Impacts:

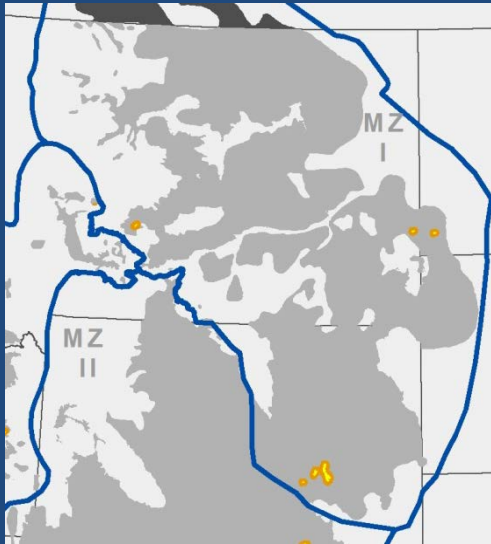
- Agricultural Conversion
- Oil and Gas Development

## Other Impacts:

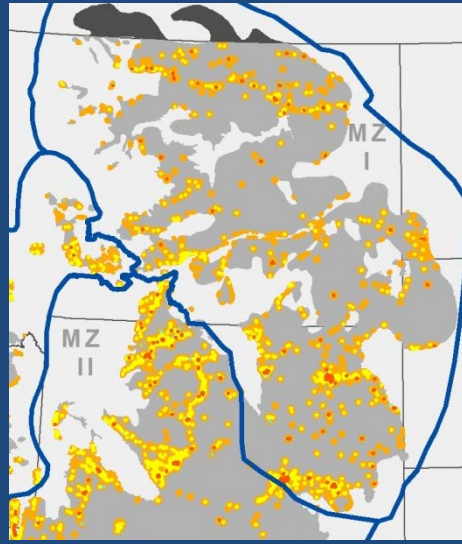
- Infrastructure
- Ex Urban Development
- Mining
- Renewable Energy
- West Nile Virus



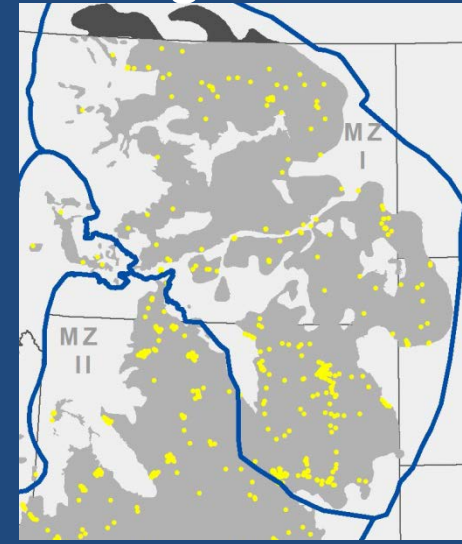
# Management Zone I



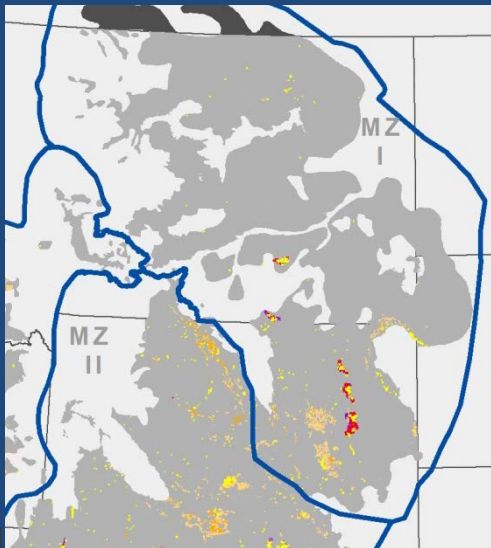
Wind Turbines



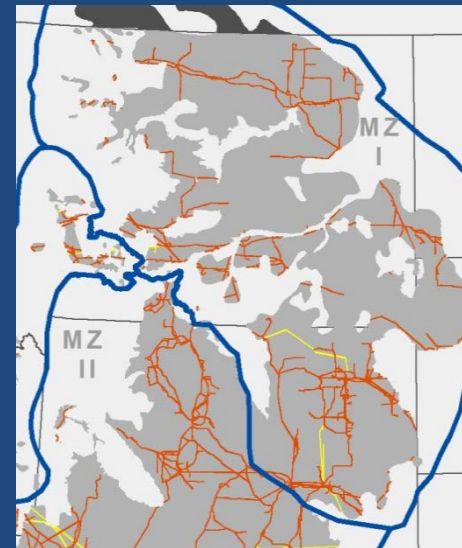
Ex-Urban Development



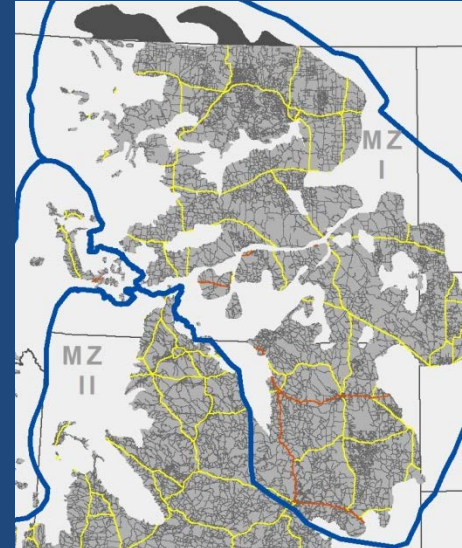
Vertical Towers



Mining



Power Lines



Roads



# Cumulative Effects

Impact	Modeled Breeding Distribution	
	Direct (ac)	Area of Influence (ac)
Wind Turbines	538	82,890
Urban & Ex-Urban	3,747	353,259
Vertical Towers	457	-
Mining	N/A	N/A
Power Lines (>115kV)	15,021	1,576,874
Interstate Roads	1,852	321,332
Federal & State Highways	2,703	710,754

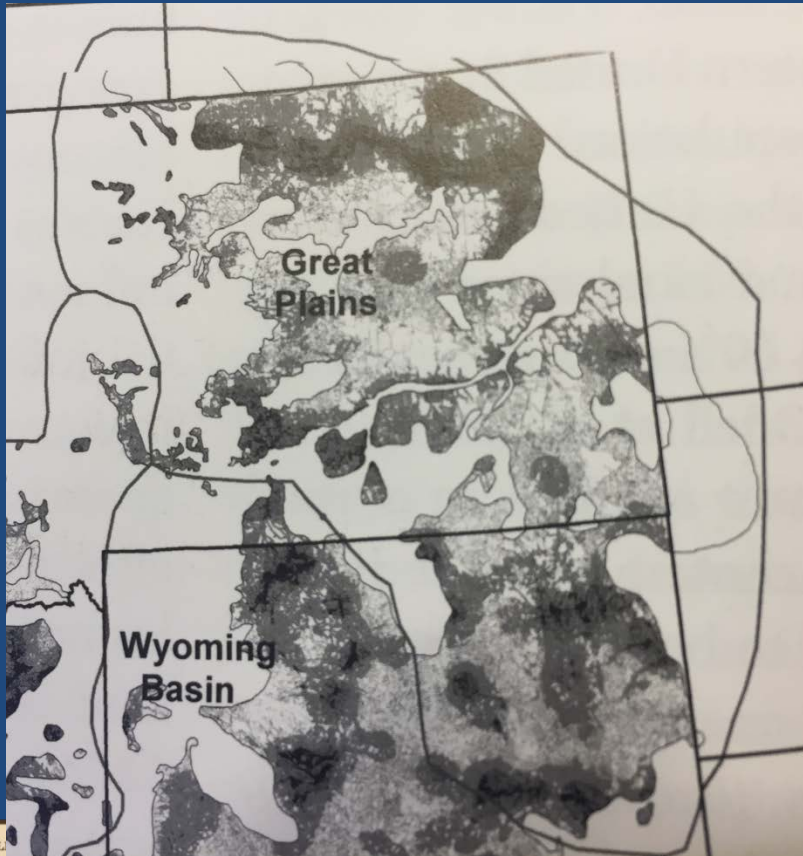




# Fragmentation

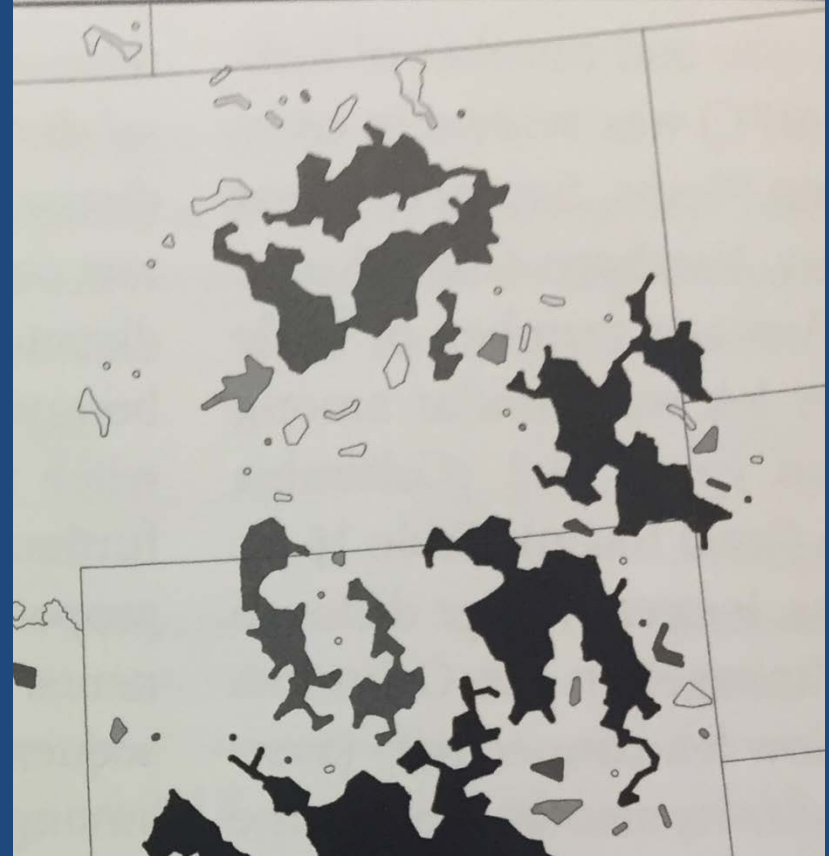
## Human Footprint

(Leu and Hanser 2011)



## Connectivity

(Knick and Hanser 2011)

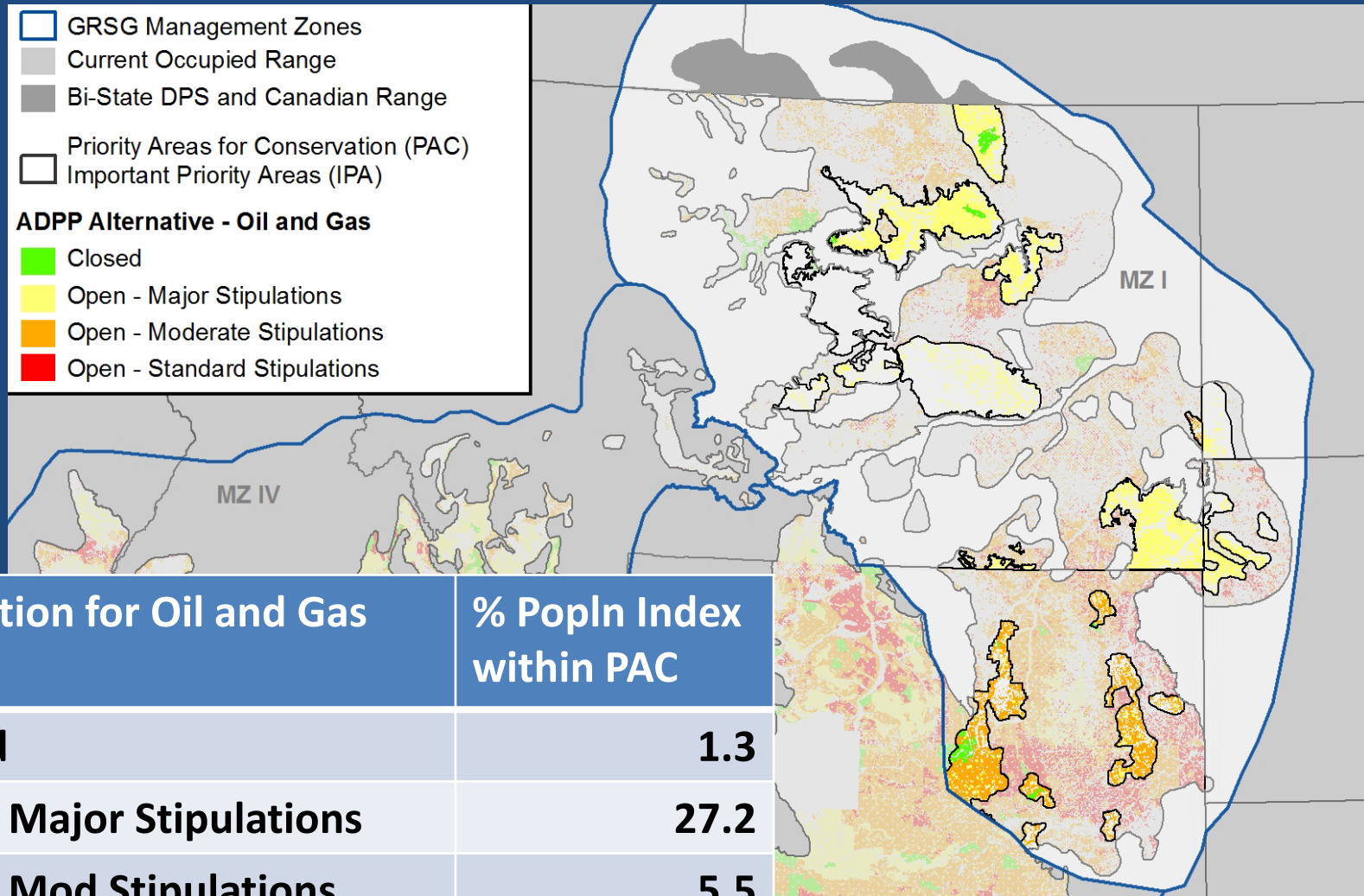


# Regulatory Mechanisms

- Federal plans and Wyoming Strategy require NSO for Oil and Gas, but uncertainty regarding extent of valid existing rights
- Federal plans and Wyoming Strategy address Ag Conversion, Renewable Energy, Infrastructure, and Mining
- Only private lands in Wyoming have Reg Mechs
- Some new protections in Canada, but population there is very small



# Oil & Gas Land Use Allocations



## Allocation for Oil and Gas

## % Popln Index within PAC

<b>Closed</b>	<b>1.3</b>
<b>Open: Major Stipulations</b>	<b>27.2</b>
<b>Open: Mod Stipulations</b>	<b>5.5</b>
<b>Open: Standard Stipulations</b>	<b>0.1</b>

# Management Zone I

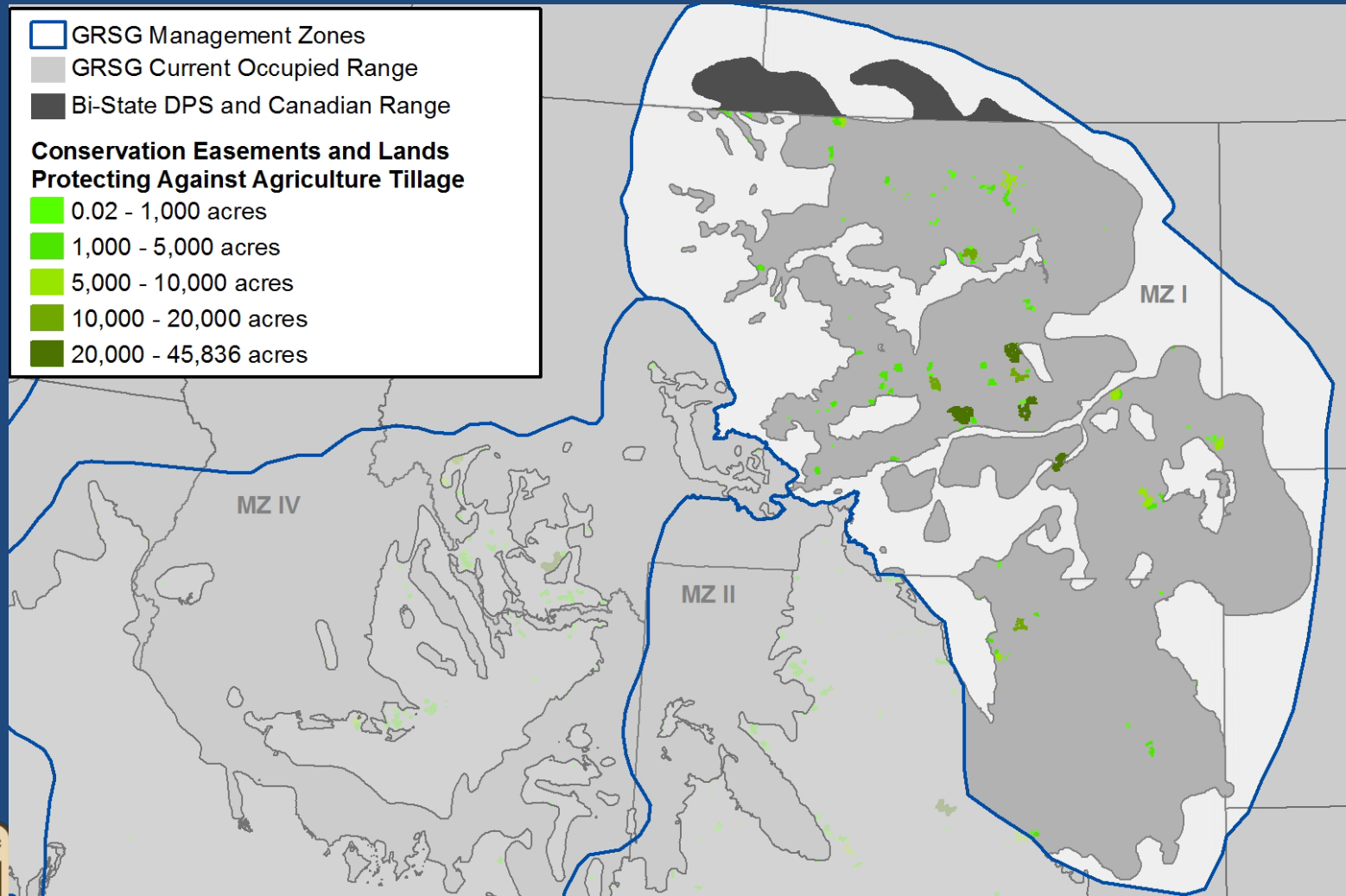
## Conservation Efforts

- Through SGI and CED reported >60,000 acres of easements in MZ I and >1.3 million acres in improved grazing systems





# Conservation Easements



# MZ I - Summary

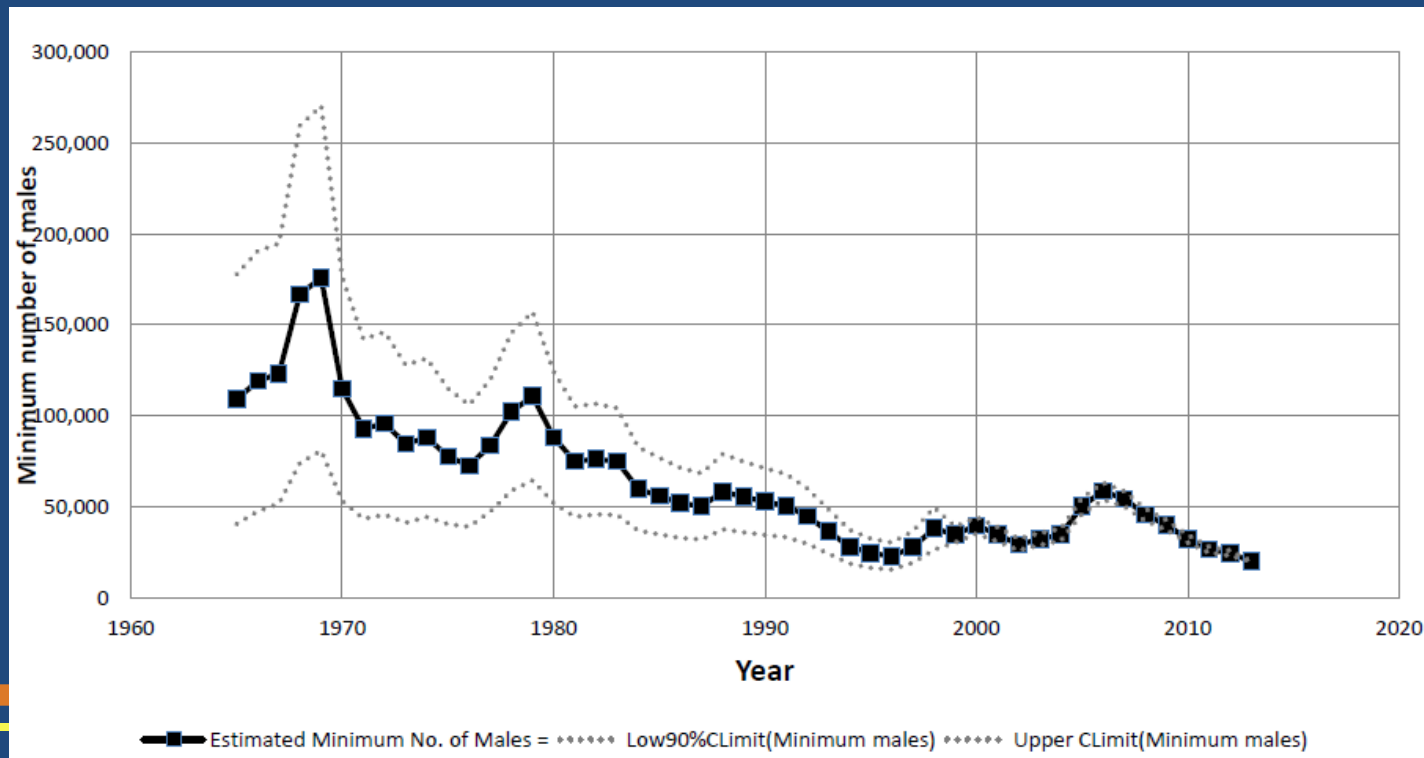


# Management Zones II & VII

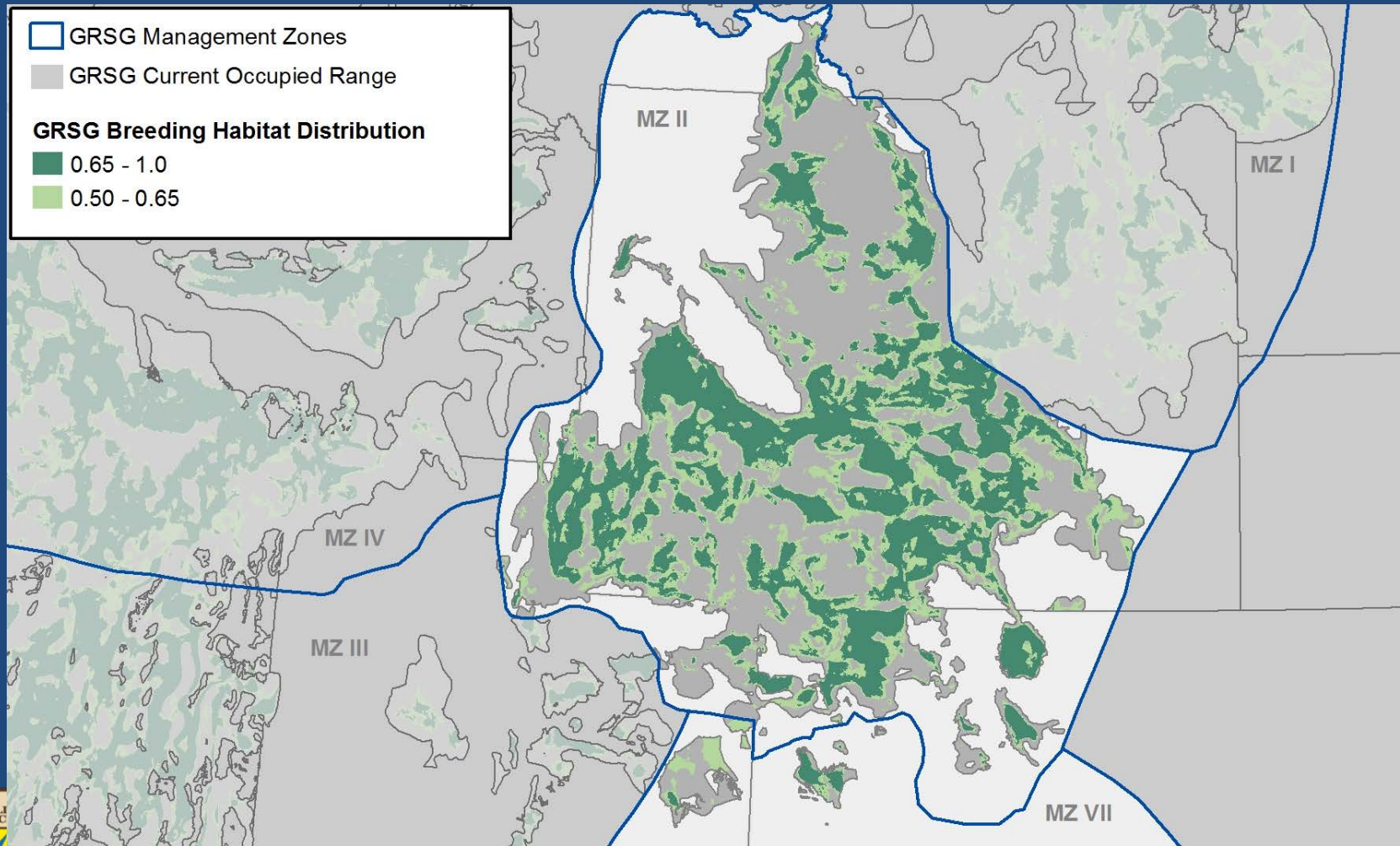
**Land Ownership:** Primarily BLM and Private

**% of Population:** 36.8%

**Population Trend:** Long-term decline

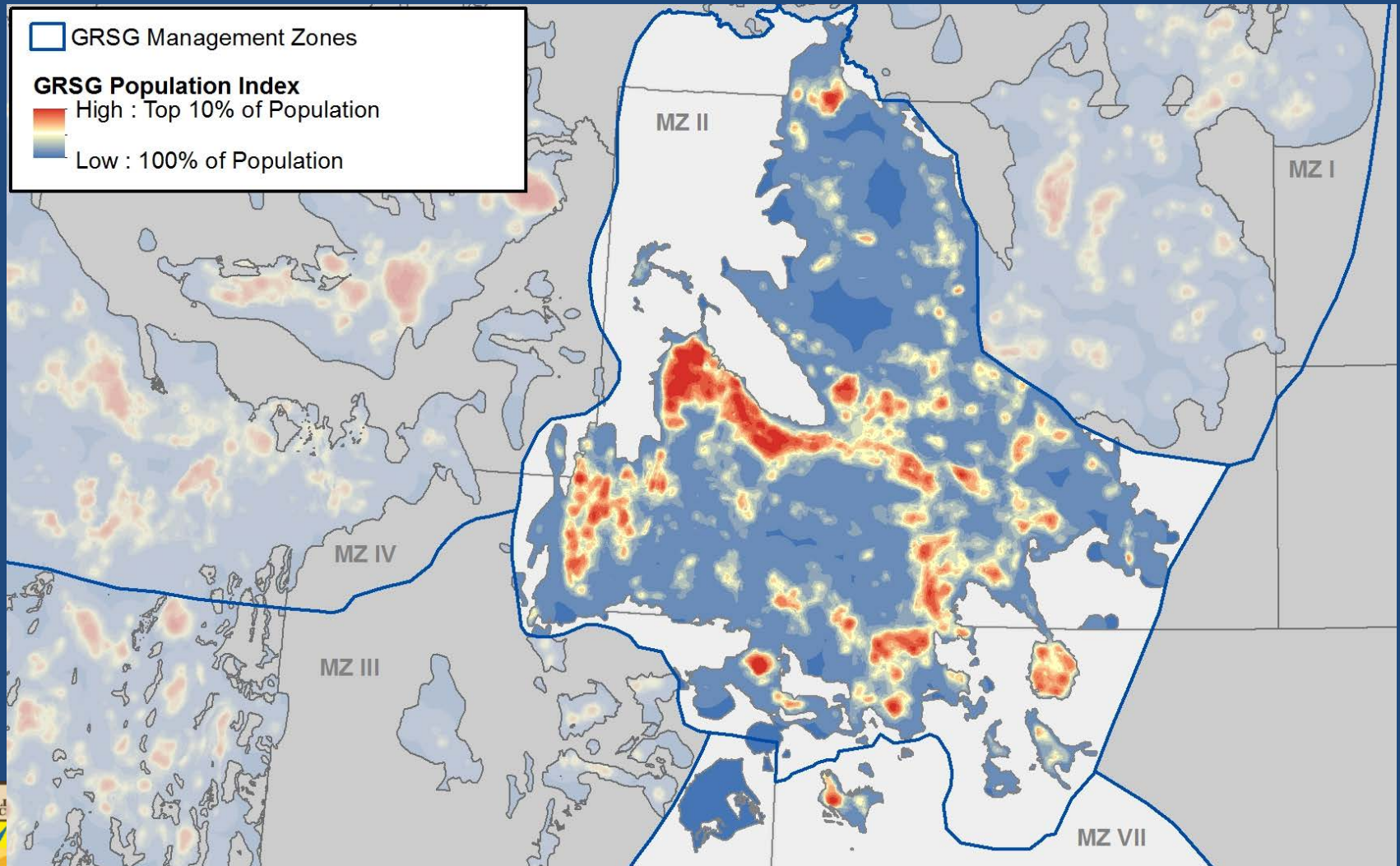


# Modeled Breeding Distribution

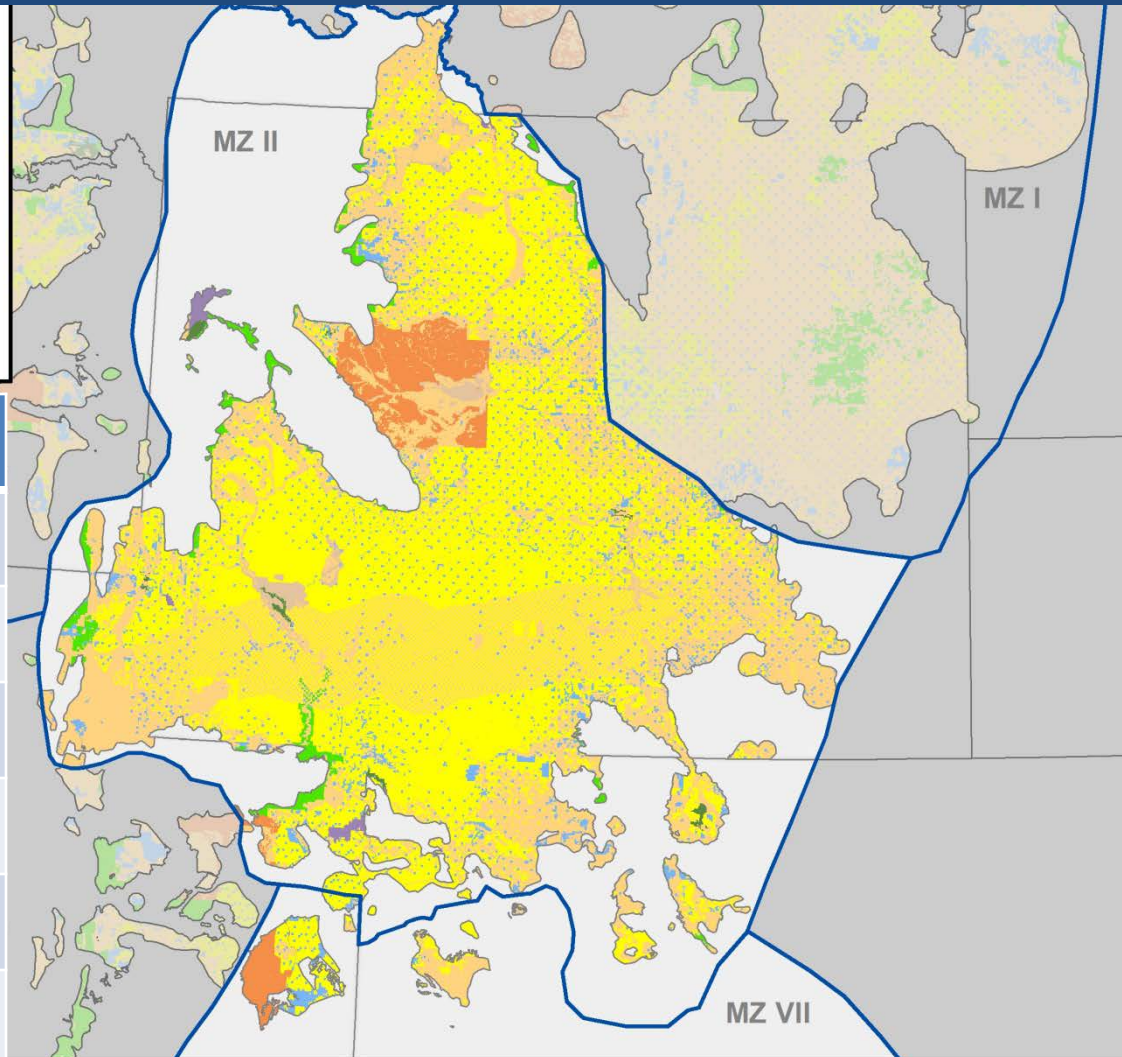




# Population Index



# Land Ownership



Land Owner	% Pop Index
BLM	58
Private	33.2
State	6.6
Other Fed	1.0
Tribal	0.8
USFS	0.3



# Management Zone I

## Primary Impacts:

- Oil and Gas Development

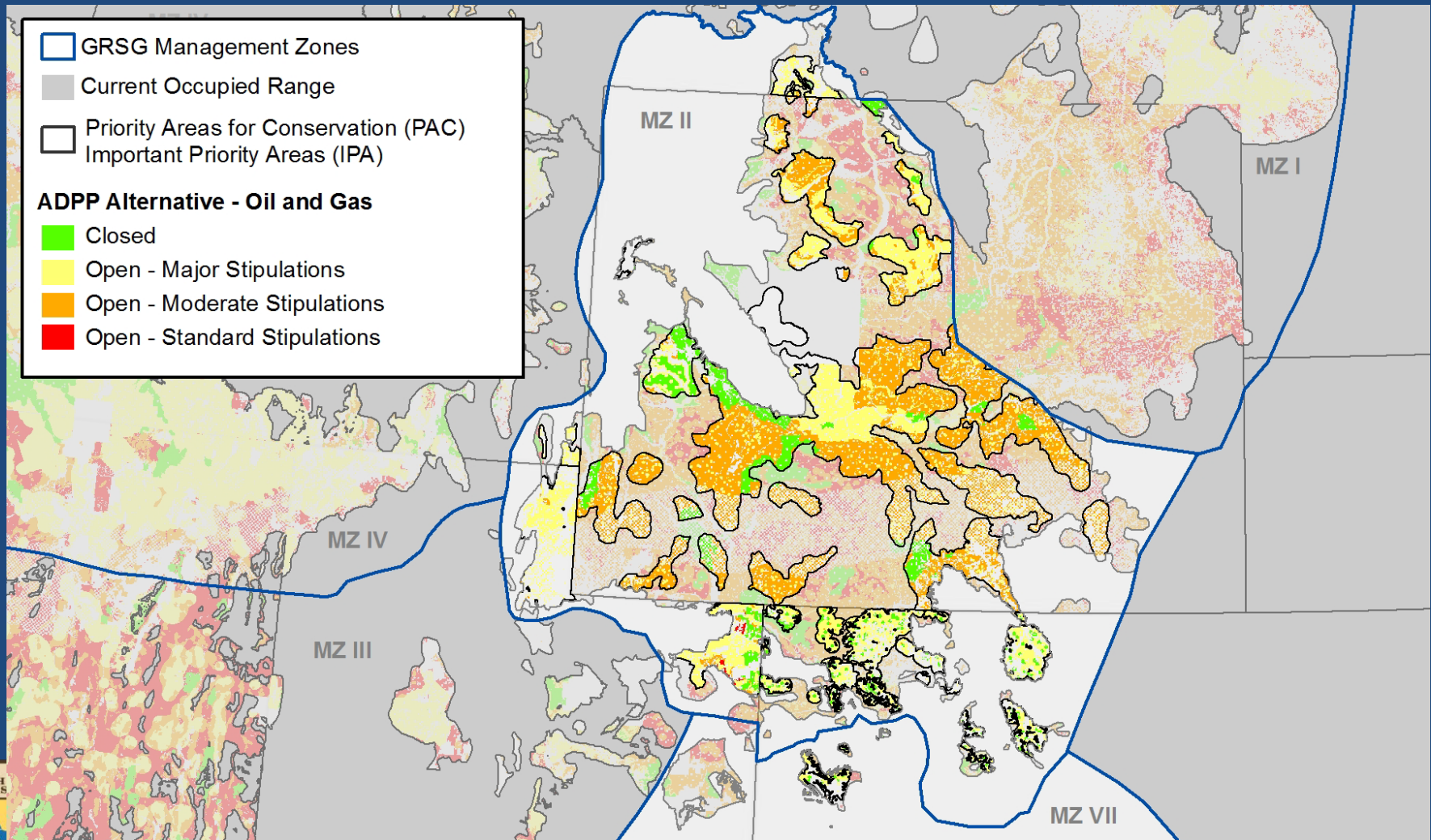
## Other Impacts:

- Infrastructure
- West Nile Virus





# Oil and Gas Land Use Allocations





# Management Zones III, IV & V

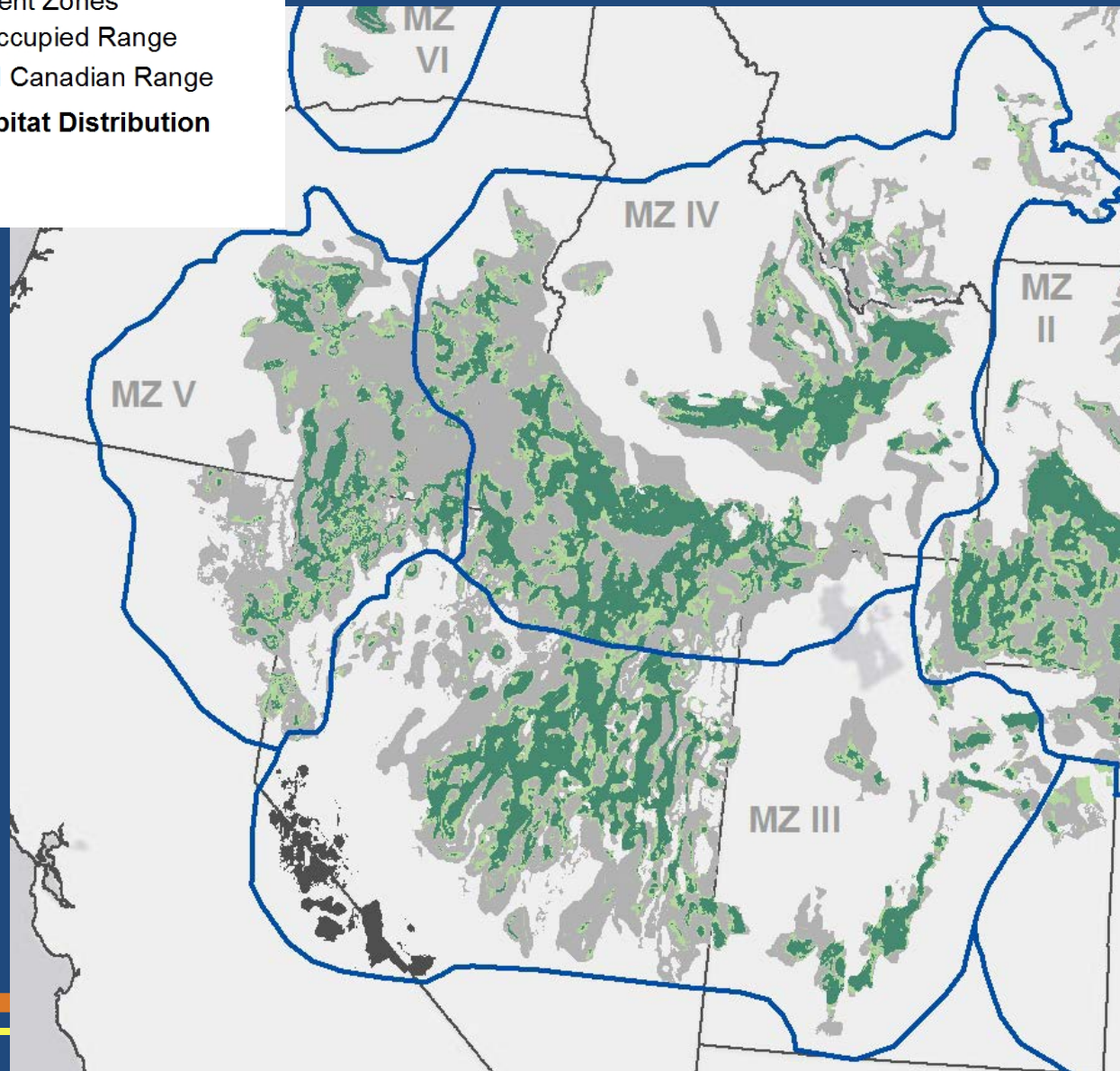
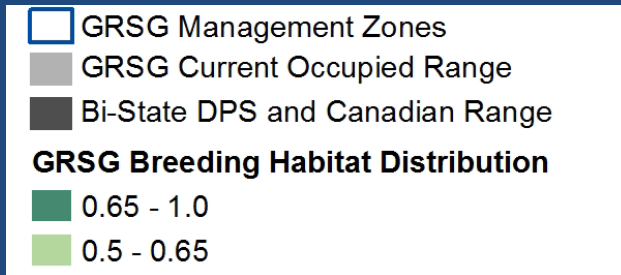
**Land Ownership:** Primarily BLM and Private

**% of Population:** 50+%

**Population Trend:** Long-term decline



# Modeled Breeding Distribution



# Modeled Breeding Distribution

- GRSG Management Zones
- Bi-State DPS and Canadian Range
- GRSG Population Index**
  - High : Top 10% of Population
  - Low : 100% of Population

