

# Prineville LIT - Assessment of Threats

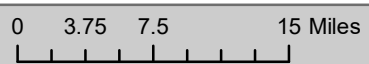
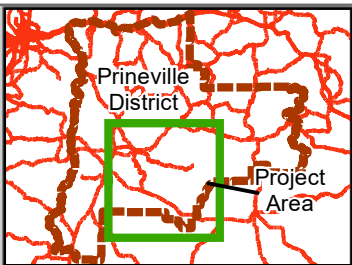
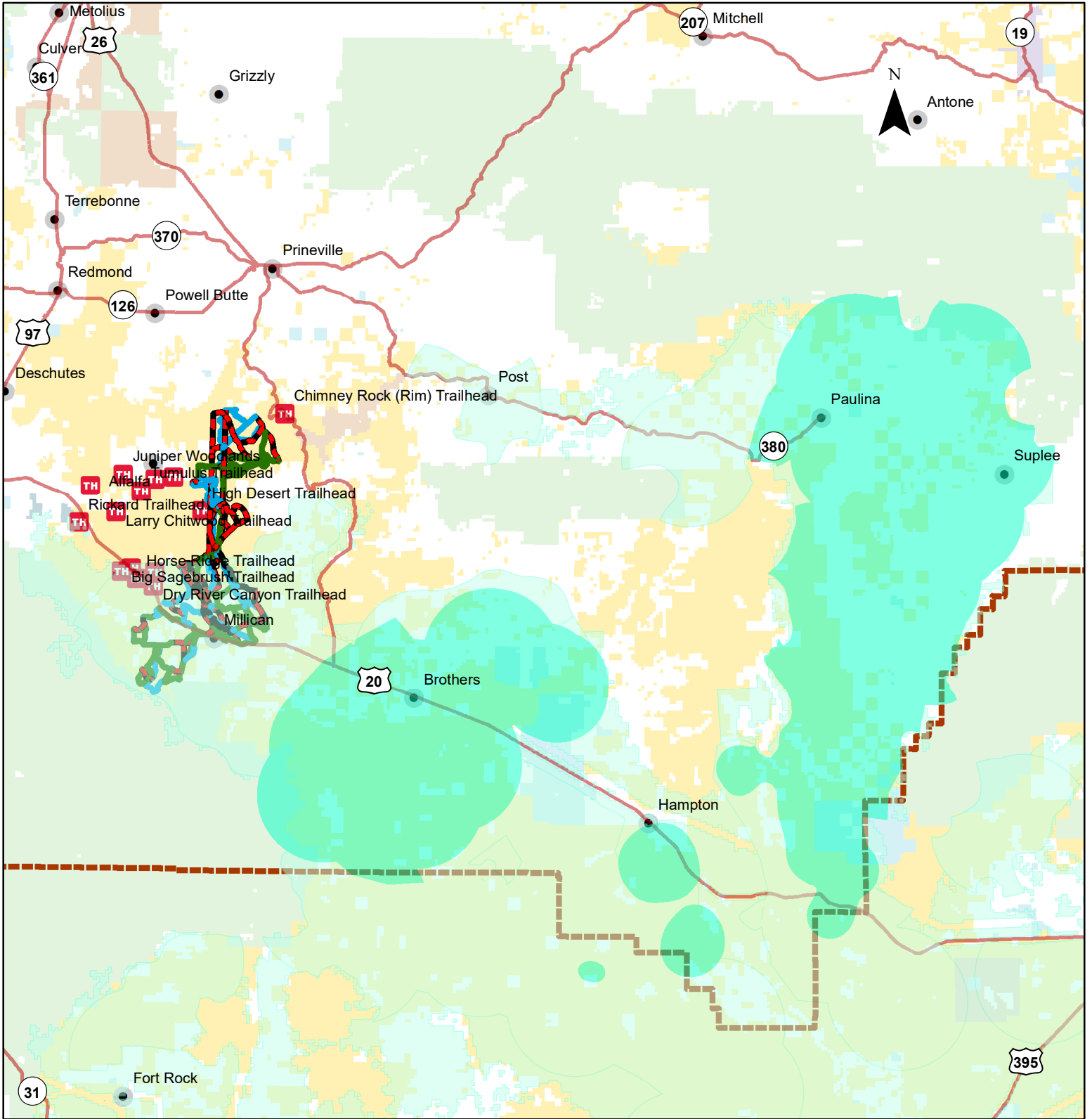
Threat Category	Threat	Survey Ranking	Source and Layers used to Develop Assessment
Development	Recreation	3.7	BLM and USFS datasets
Development	Land use conversion	3.2	National Land Cover Database – <b>Development/Land Conversion</b>
Development	Human development	2.3*	Landscape Planning Tool (LPT) – <b>Existing Developments</b>
Habitat	Wildfire	4.3	LPT – <b>Wildfire Perimeters</b>
Habitat	Juniper encroachment	4.1	Rangeland Analysis Platform version 2 (RAPv2) map summaries – <b>Tree Cover</b>
Habitat	Mesic habitat	3.9	Sage Grouse Initiative (SGI) - Mesic Resources tool
Habitat	Invasive annual grasses (IAG)	3.9	SageCon Invasives Initiative – Geographic Strategy
Habitat	Loss of connectivity and small habitat patch size	3.3	LPT - <b>Habitat Connectivity</b>
Habitat	Loss of grass and forb cover (and height)	3.3*	LPT, RAPv2 – <b>Perennial Grass and Forb Cover tool</b>
Habitat	Other invasive plant species**	3.2	Crooked River WMA
Habitat	Loss of sagebrush	3	LPT – <b>Shrub Cover tool</b>
Habitat	Grazing	2.5	BLM and USFS datasets
Habitat	Wild horses	1.8	BLM and USFS datasets
Population	Predation	3.5	ODFW
Population	West Nile virus**	2.8	USFWS
Population	Hunting	2.1	ODFW

\*multiple, similar threats consolidated; scores averaged

\*\*waiting on assessments from partners

- PowerPoint slides are in the same order as threats listed in this table.

# Prineville District Recreation



U.S. Department of the Interior  
Bureau of Land Management  
Prineville District Office

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**Legend**

**GRSG Habitat**

- Priority Habitat Management Area (PHMA)
- General Habitat Management Area (GHMA)

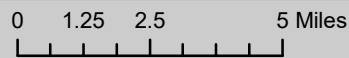
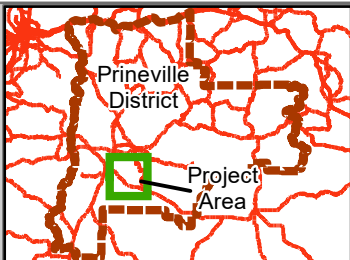
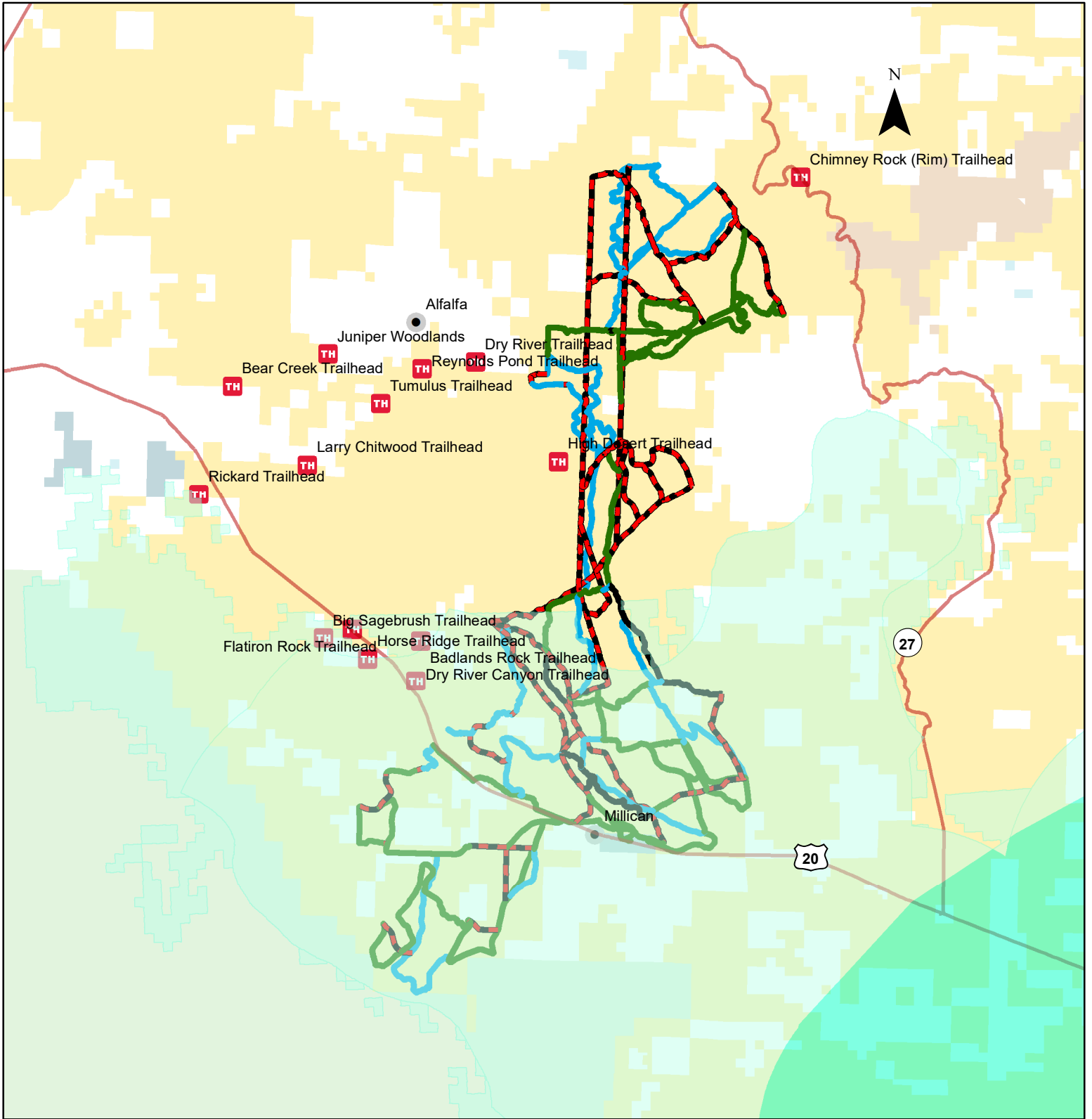
**Recreation Site Type**

- Easiest
- More Difficult
- Most Difficult
- Shared Use Road
- Trailhead

**Ownership**

- Bureau of Land Management
- U.S. Forest Service
- National Park Service
- U.S. Fish and Wildlife Service
- Bureau of Indian Affairs
- Other Federal
- State
- Local Government
- Private/Unknown

# Prineville District Recreation



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### Legend

#### GRSG Habitat

- Priority Habitat Management Area (PHMA)
- General Habitat Management Area (GHMA)

#### Major Highways with shields DISTRICT

- Easiest
- More Difficult
- Most Difficult
- Shared Use Road

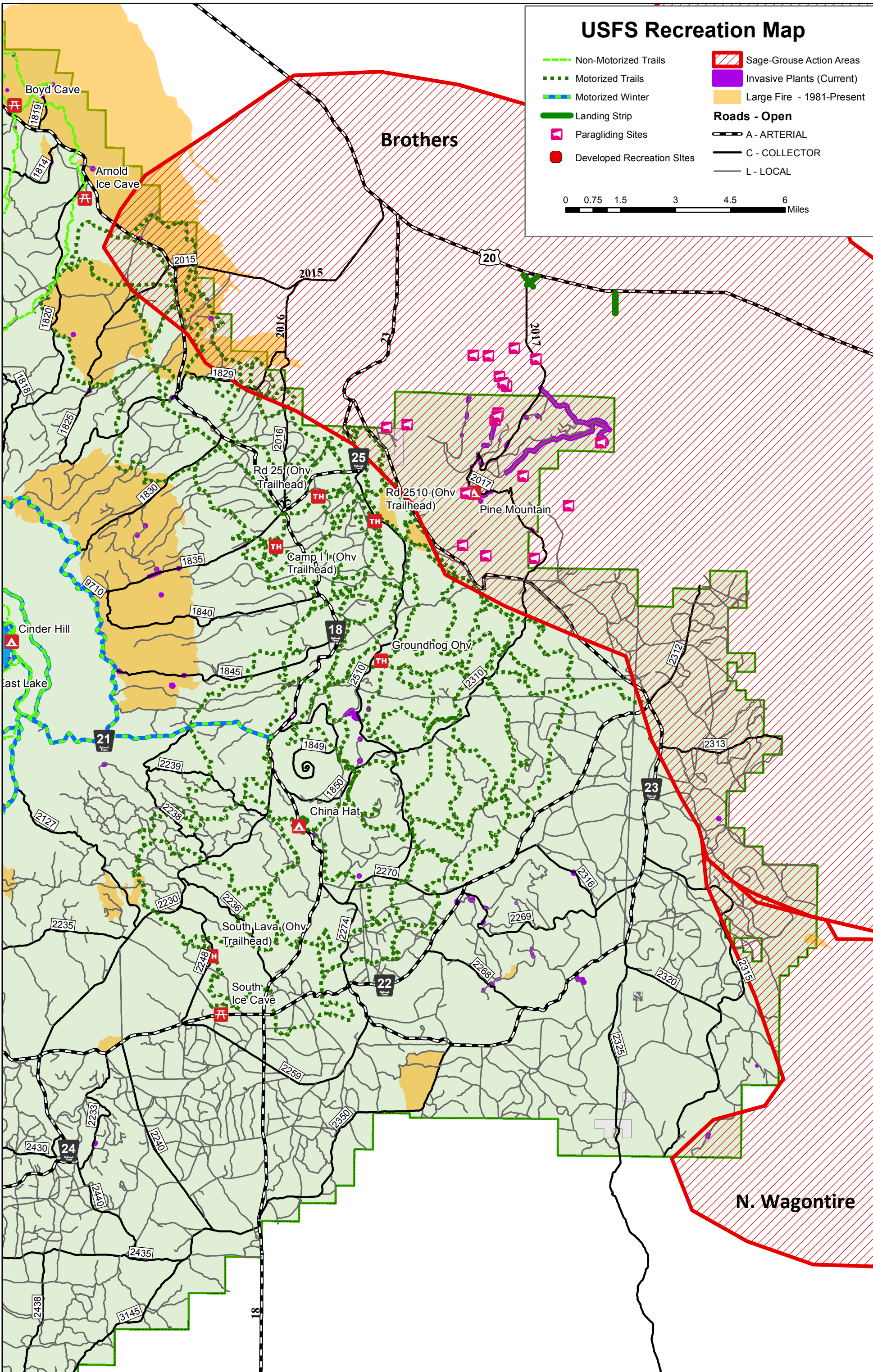
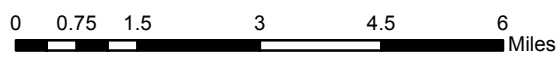
#### Recreation Site Type

- TH Trailhead

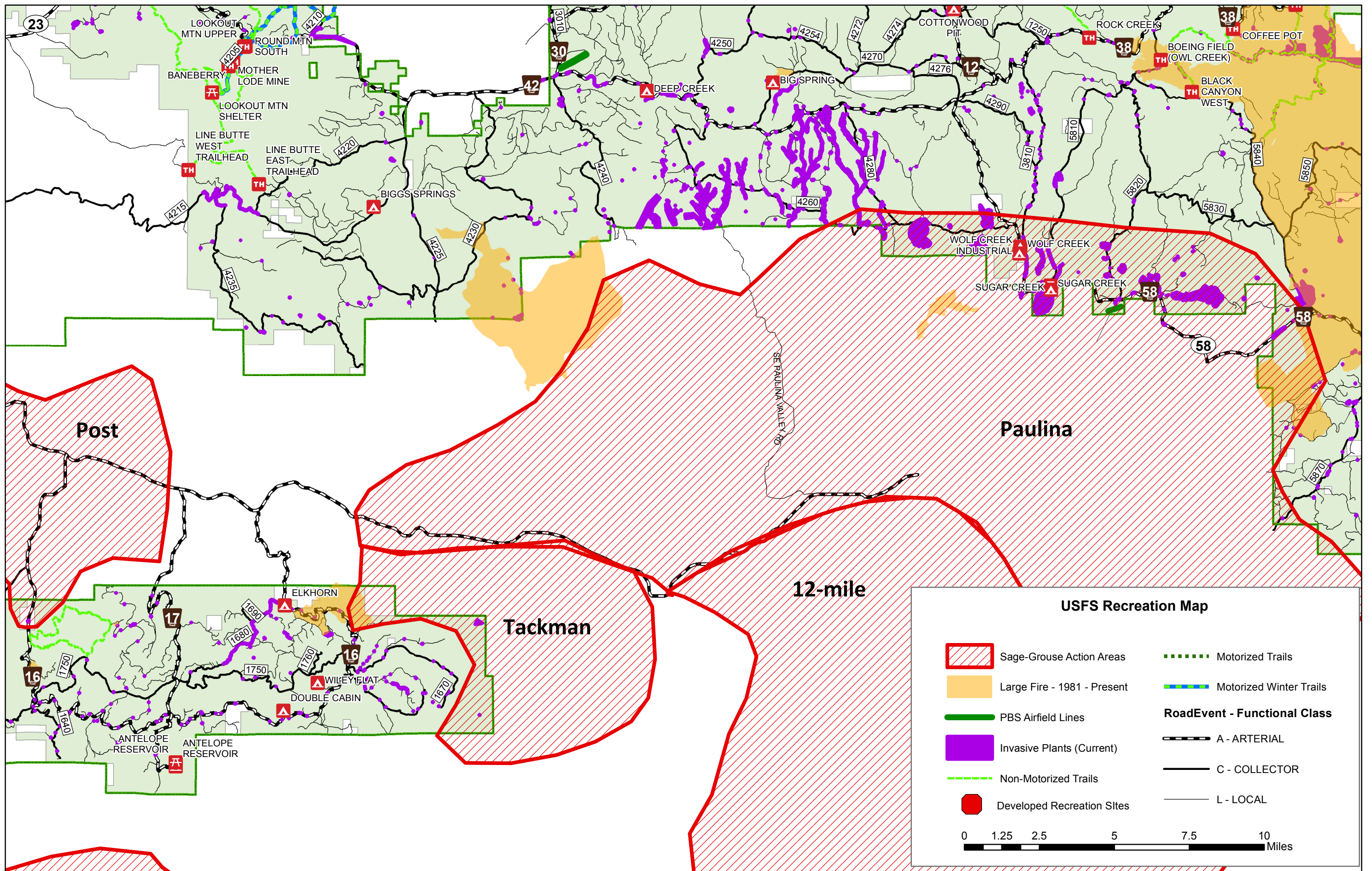
- Bureau of Land Management
- U.S. Forest Service
- National Park Service
- U.S. Fish and Wildlife Service
- Bureau of Indian Affairs
- Other Federal
- State
- Local Government
- Private/Unknown

# USFS Recreation Map

- Non-Motorized Trails
  - - - Motorized Trails
  - Motorized Winter
  - ▬ Landing Strip
  - ◻ Paragliding Sites
  - Developed Recreation Sites
  - Sage-Grouse Action Areas
  - Invasive Plants (Current)
  - Large Fire - 1981-Present
- Roads - Open**
- A - ARTERIAL
  - C - COLLECTOR
  - L - LOCAL







# Development/Land Conversion

- Data available through the NLCD
  - Comparison of 2011 and 2016 datasets
- Development (Open space, low and medium density)
  - 2011: 5,160 ac
  - 2016: 5,029 ac
- Agriculture (Hay/Pasture & Cultivated Crops)
  - 2011: 10,622 ac
  - 2016: 8,931 ac
- Shrub/Scrub
  - 2011: 1,430,359 ac
  - 2016: 1,384,725 ac
- Grassland/Herbaceous
  - 2011: 11,137 ac
  - 2016: 53,208 ac

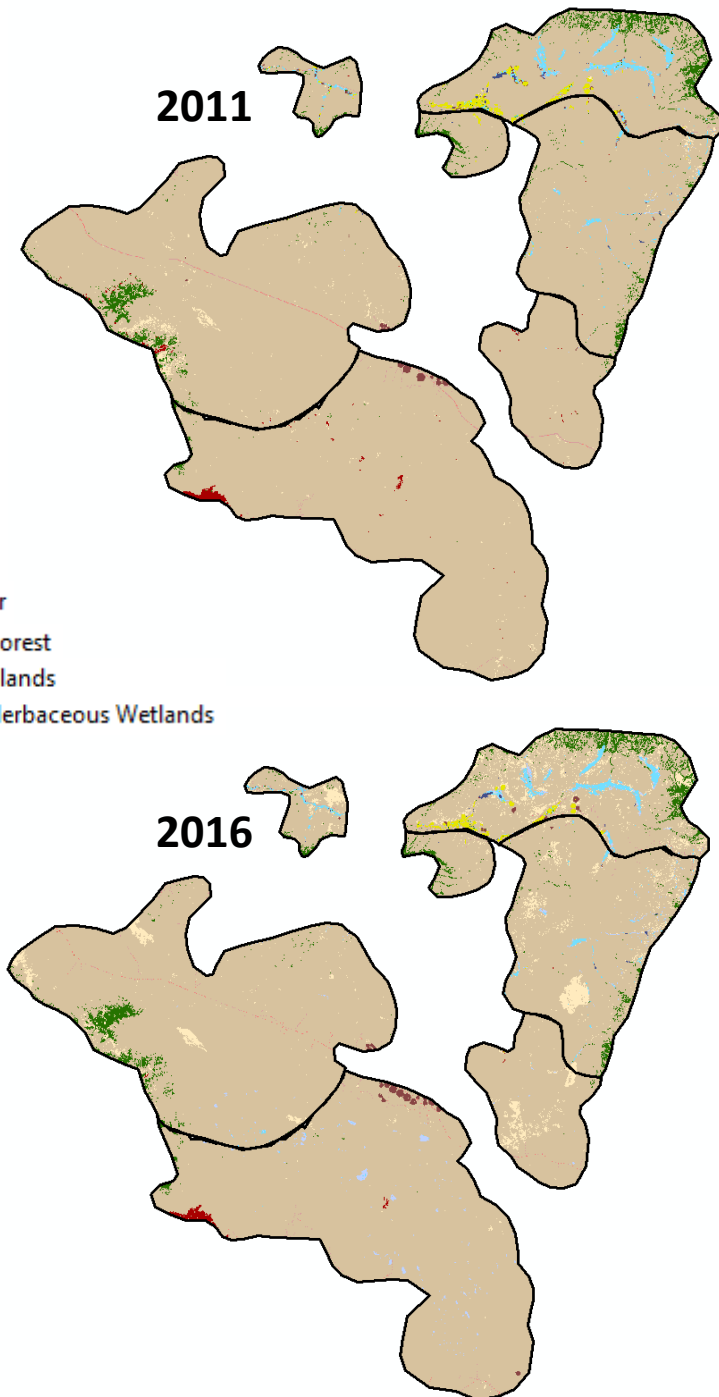
■ Developed, Open Space  
■ Developed, Low Intensity  
■ Developed, Medium Intensity

■ Pasture/Hay  
■ Cultivated Crops

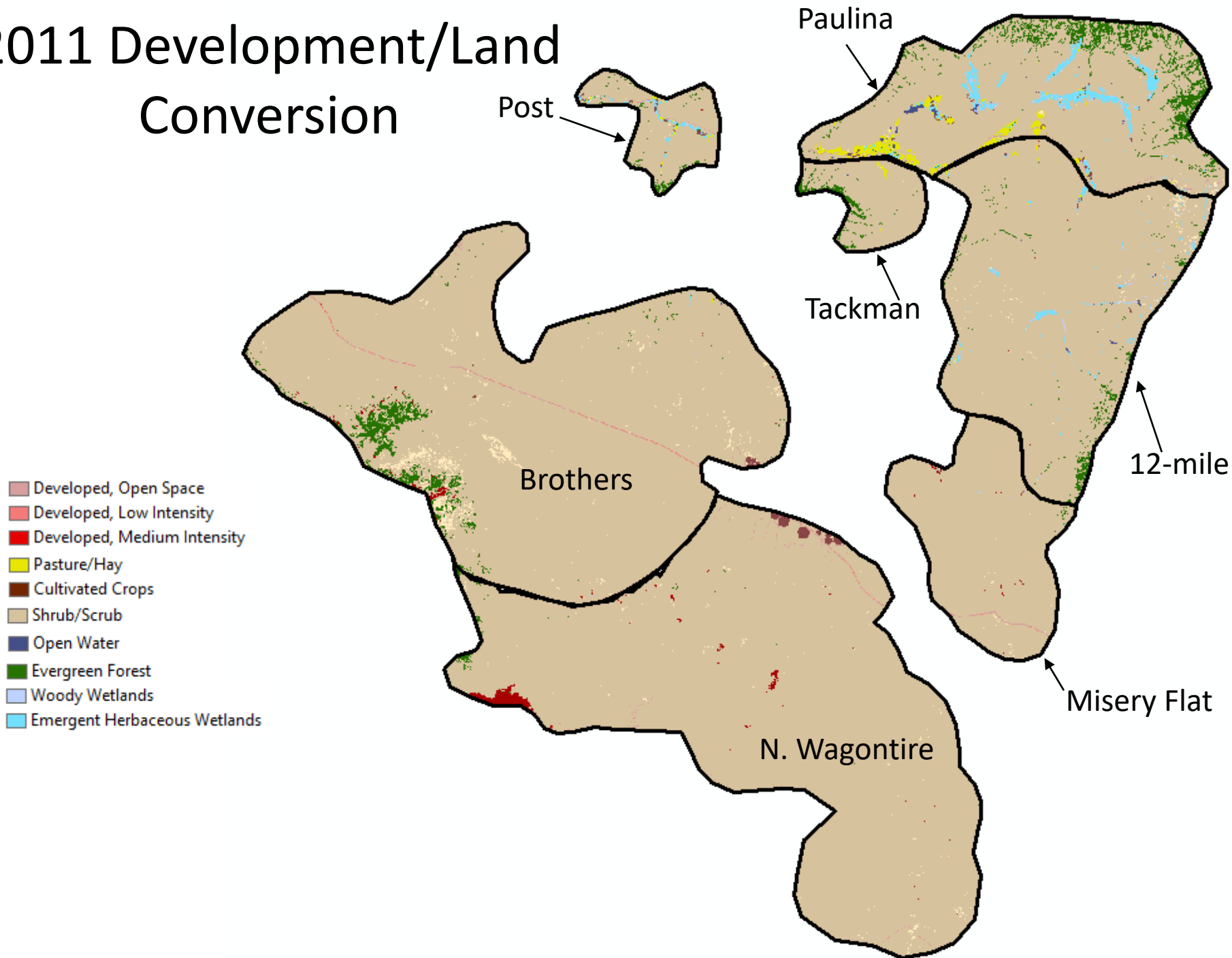
■ Shrub/Scrub

■ Grassland/Herbaceous

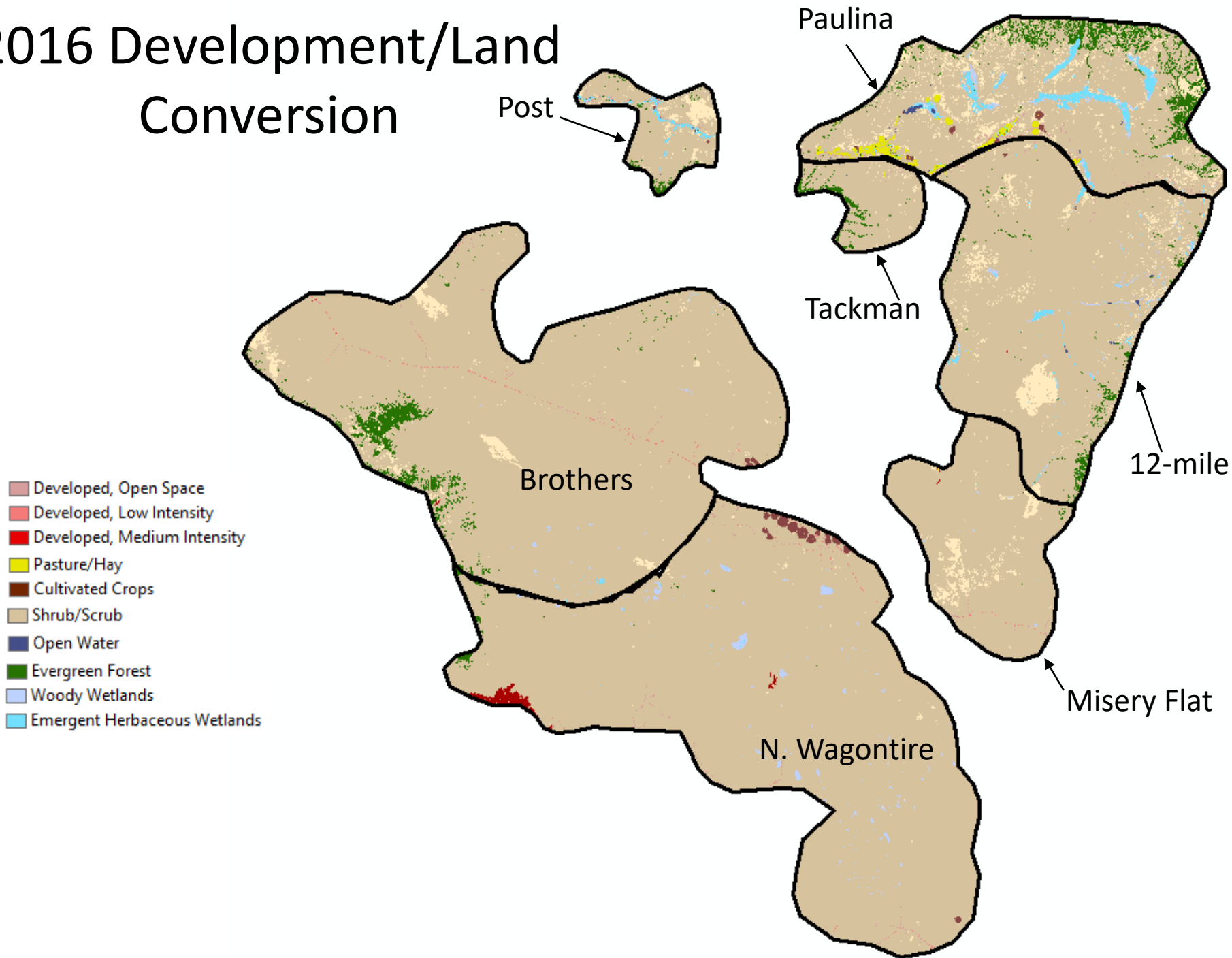
■ Open Water  
■ Evergreen Forest  
■ Woody Wetlands  
■ Emergent Herbaceous Wetlands



# 2011 Development/Land Conversion

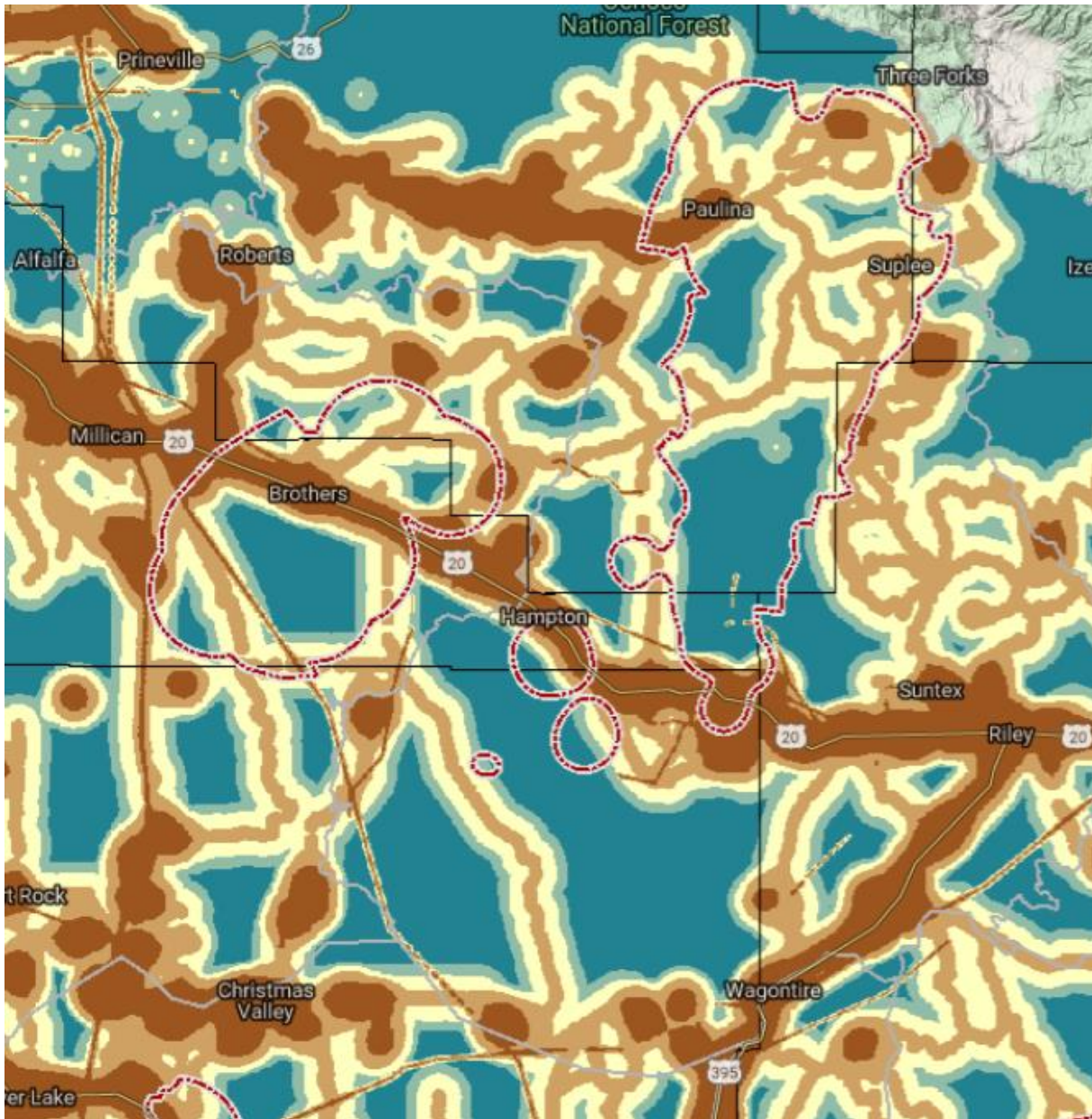


# 2016 Development/Land Conversion





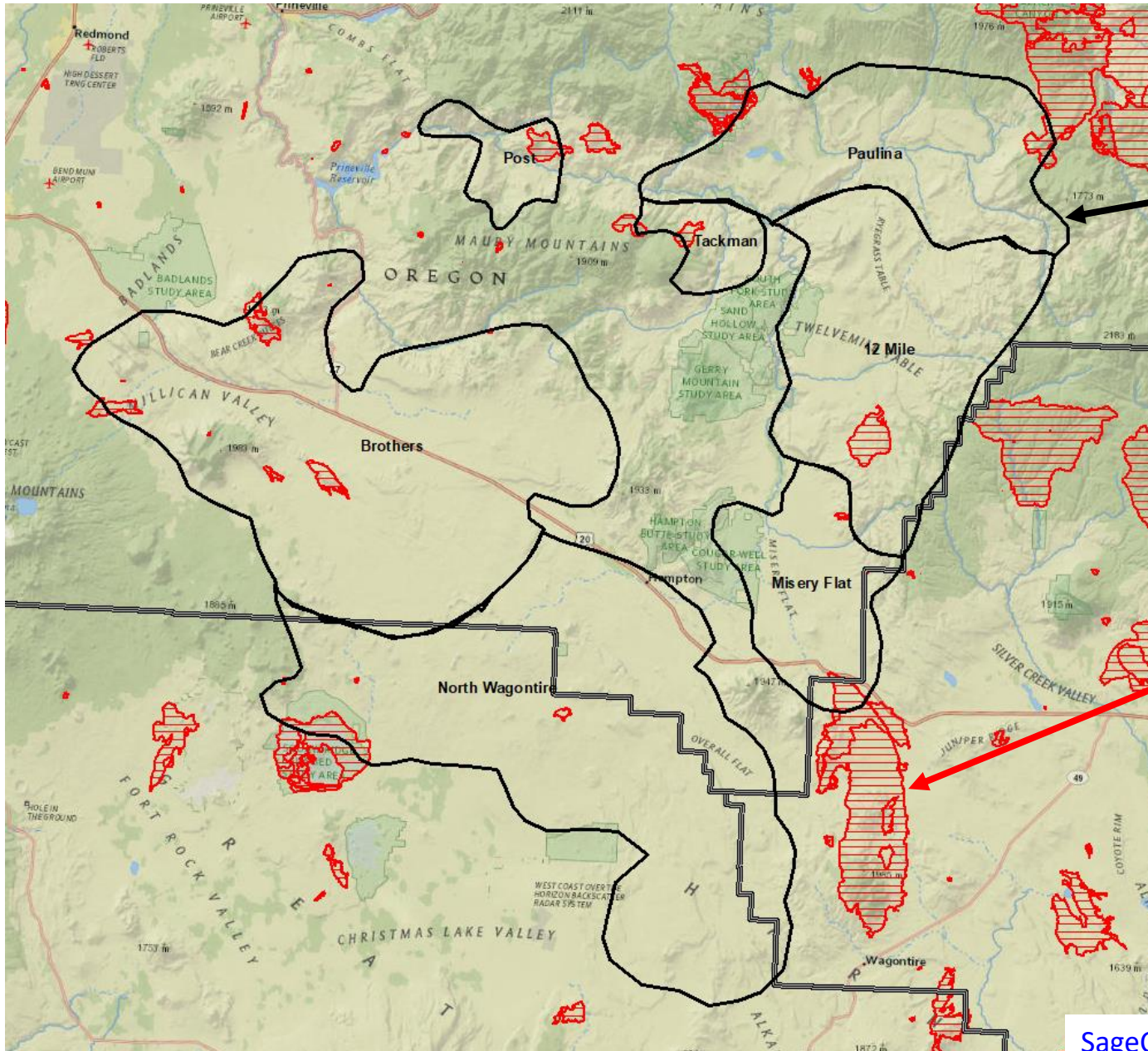
# Human Development



- Very Low Impacts
- Low Impacts
- Moderate Impacts
- High Impacts
- Very High Impacts



# Wildfire

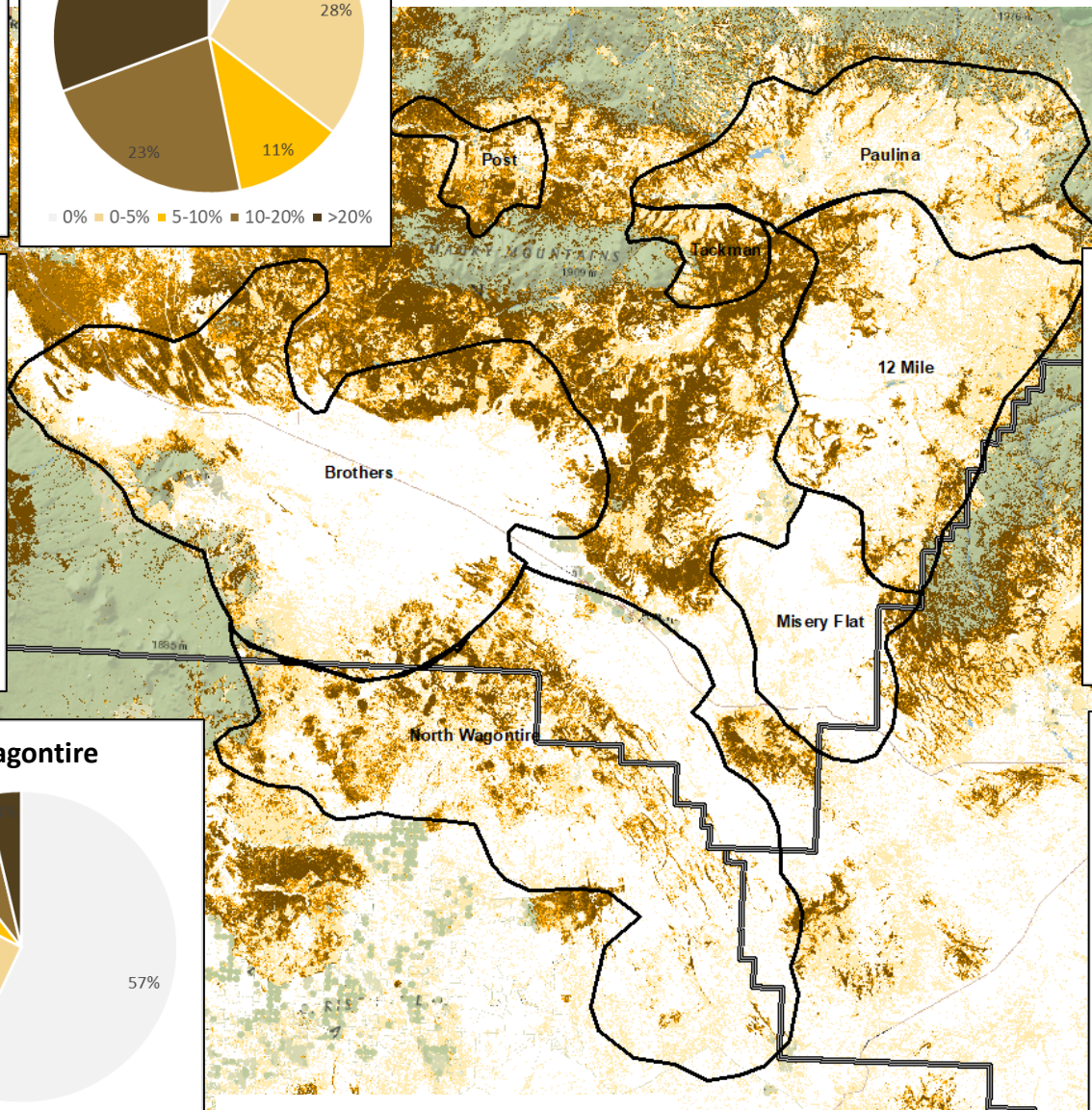
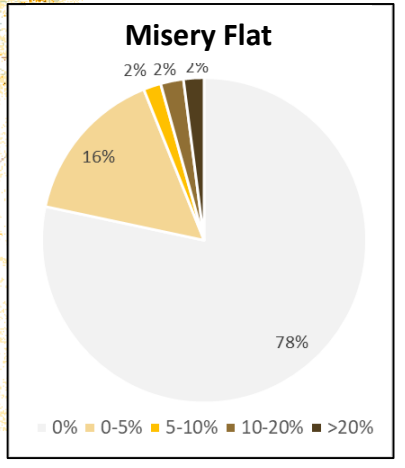
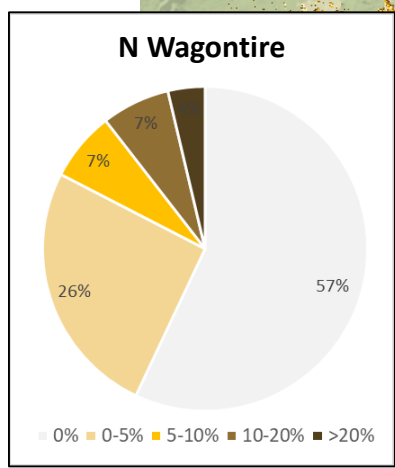
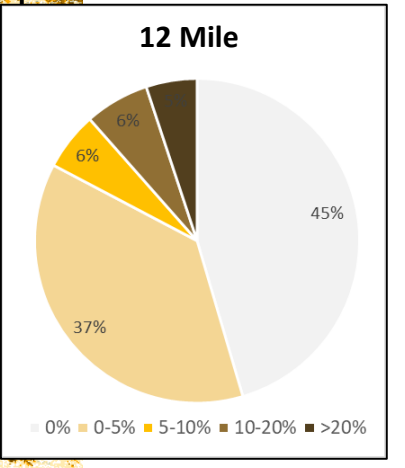
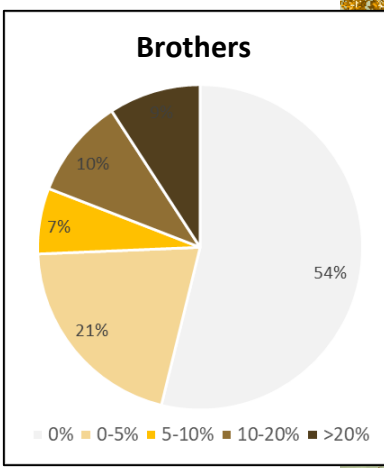
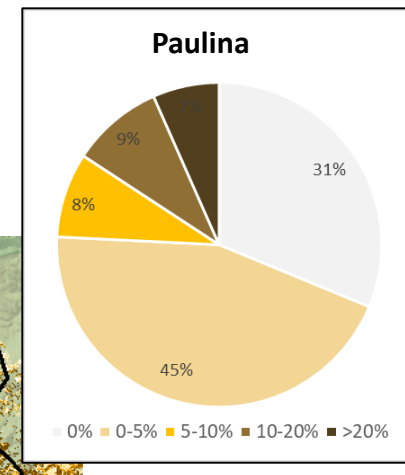
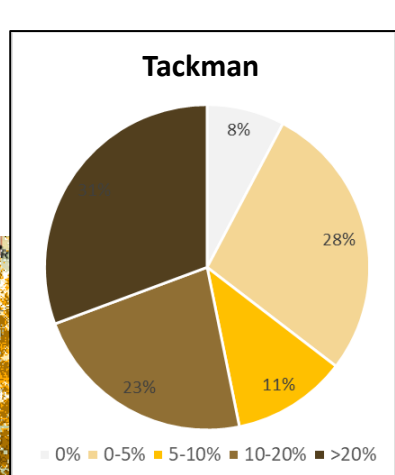
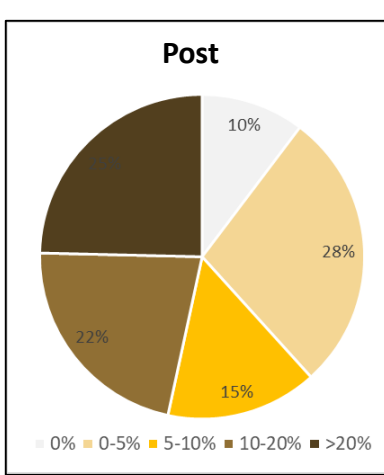


Action area boundaries

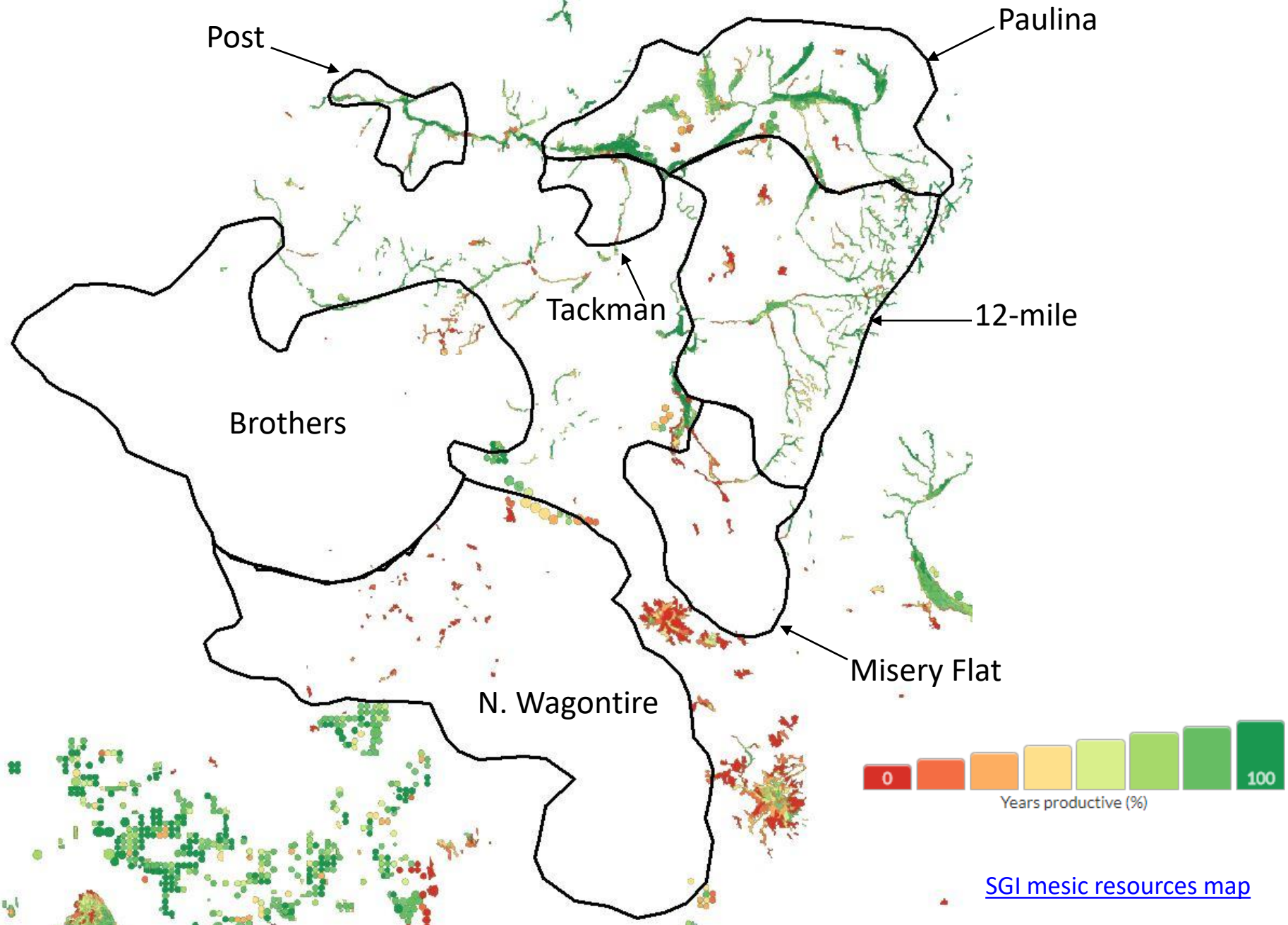
Wildfire boundaries



# Tree cover

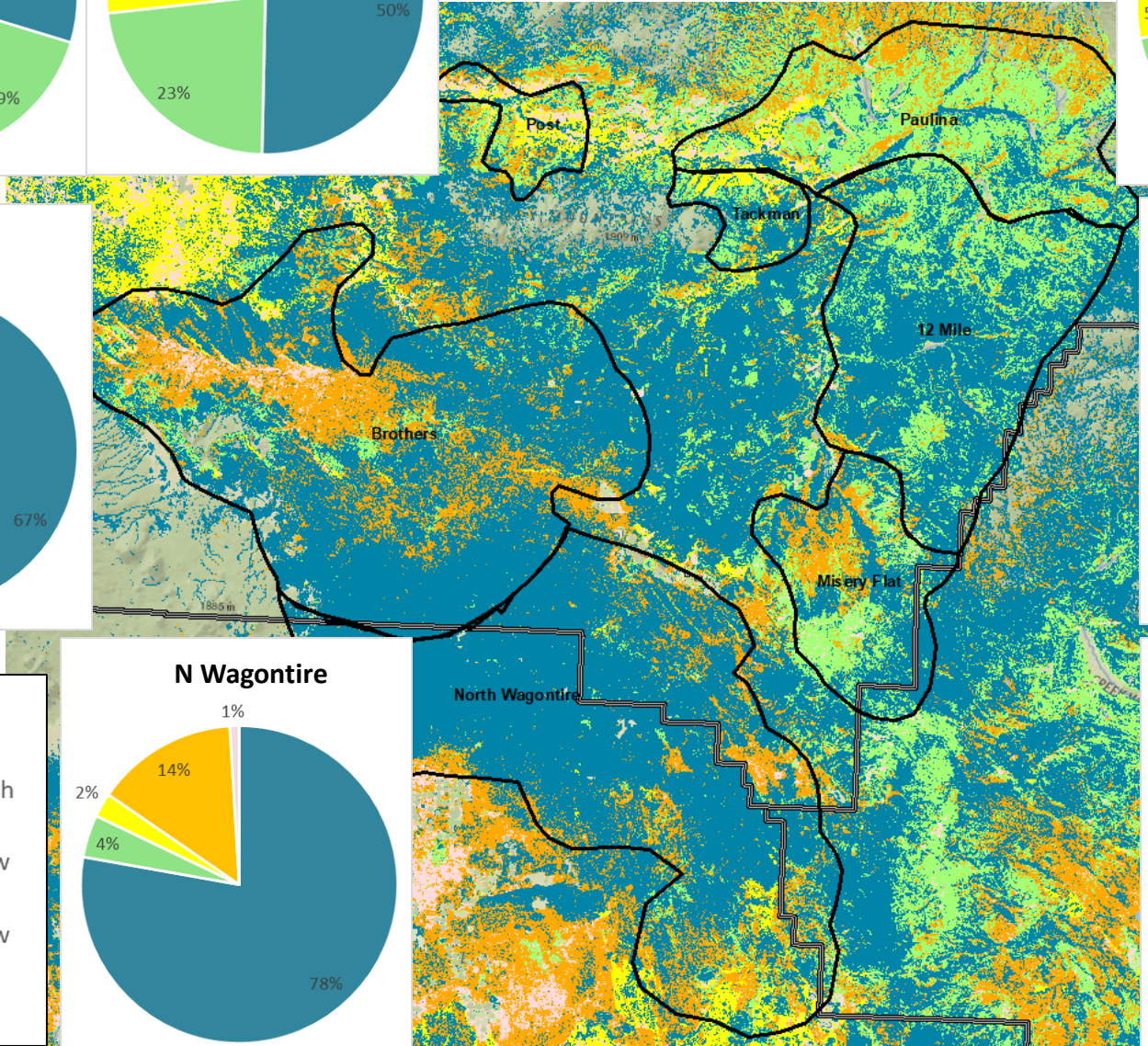
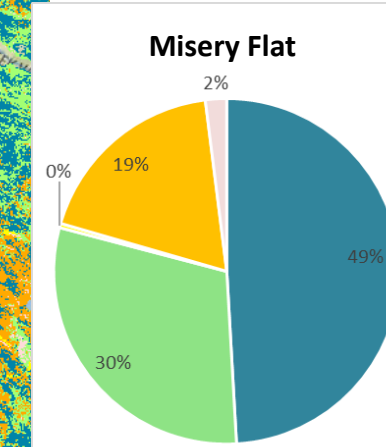
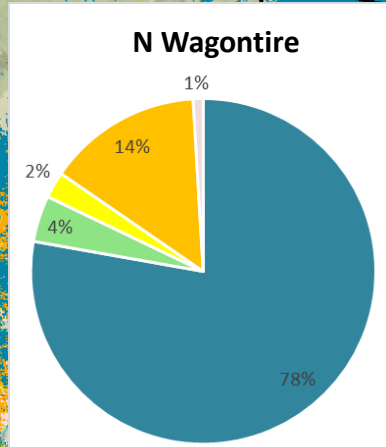
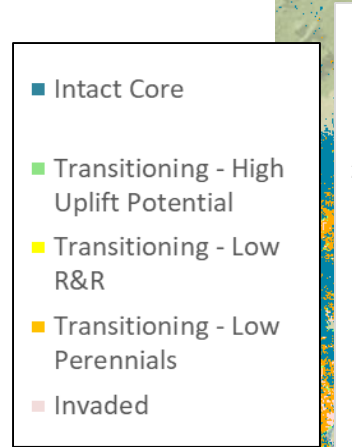
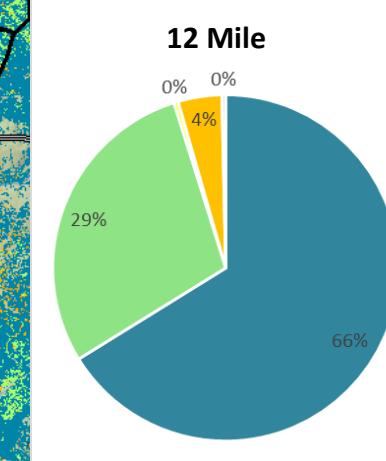
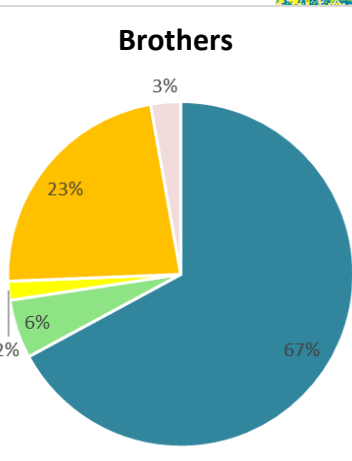
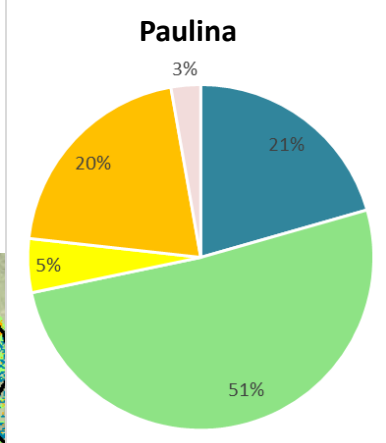
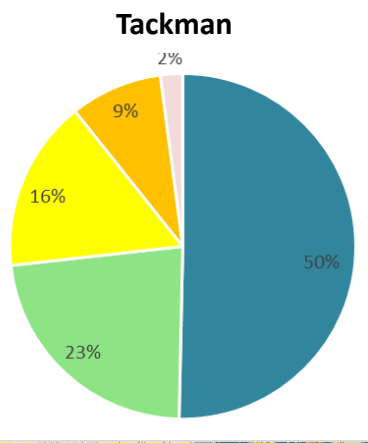
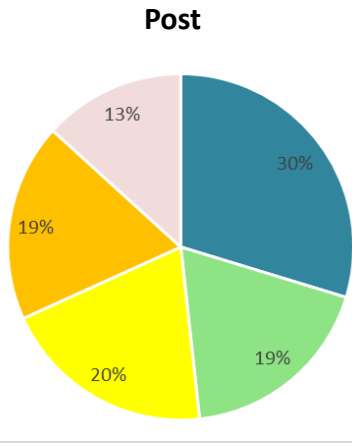


# Mesic Resources

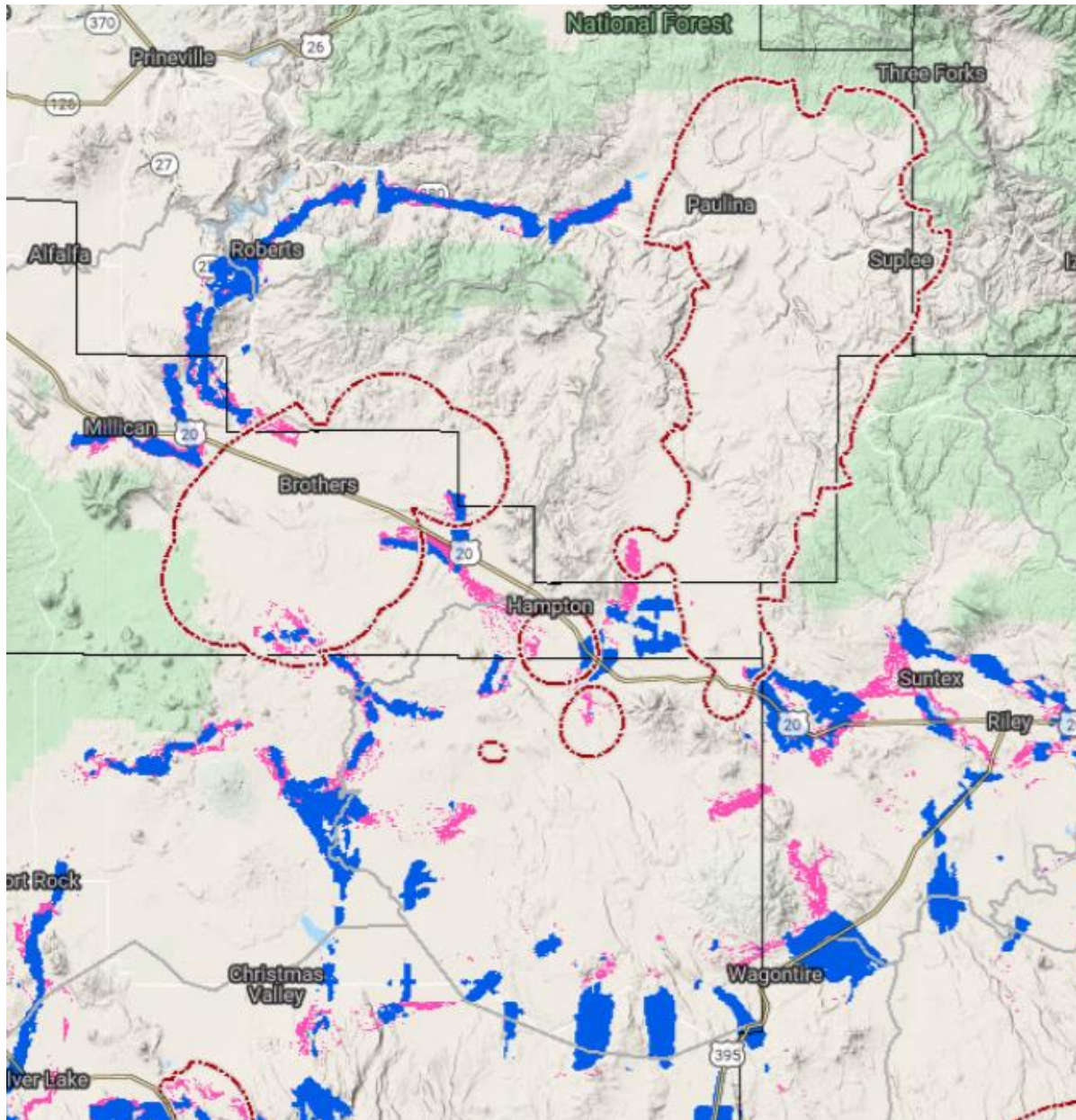




# Invasive annual grass strategy



# Habitat Connectivity



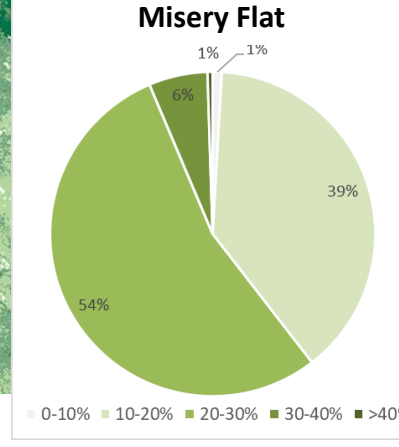
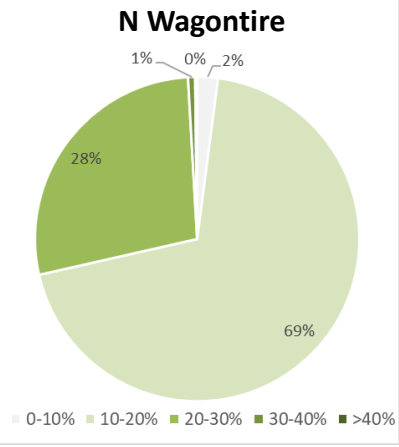
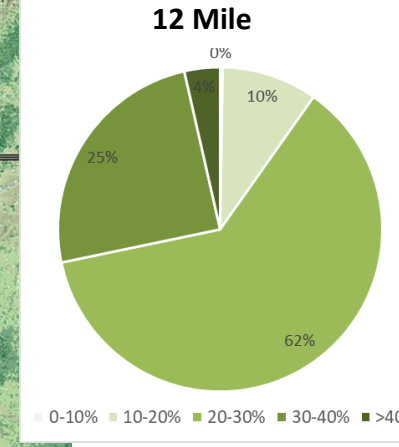
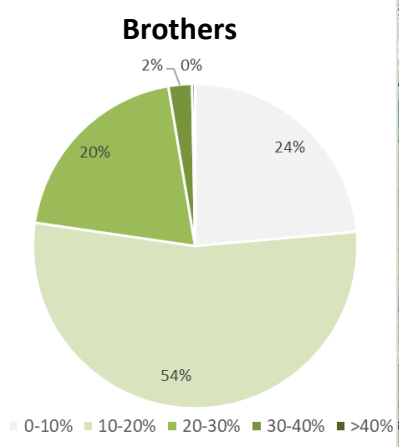
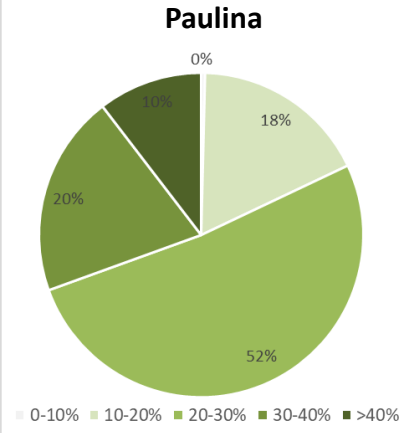
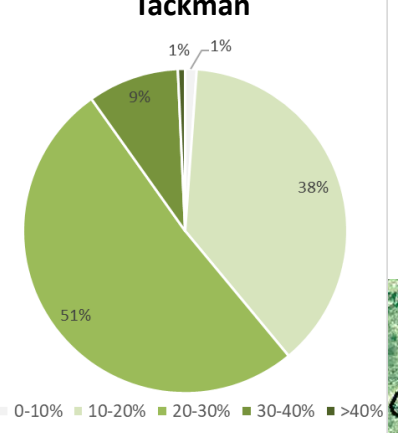
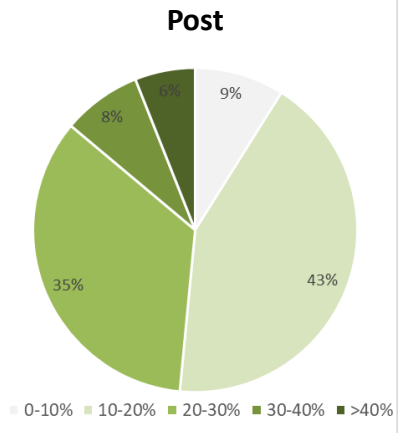
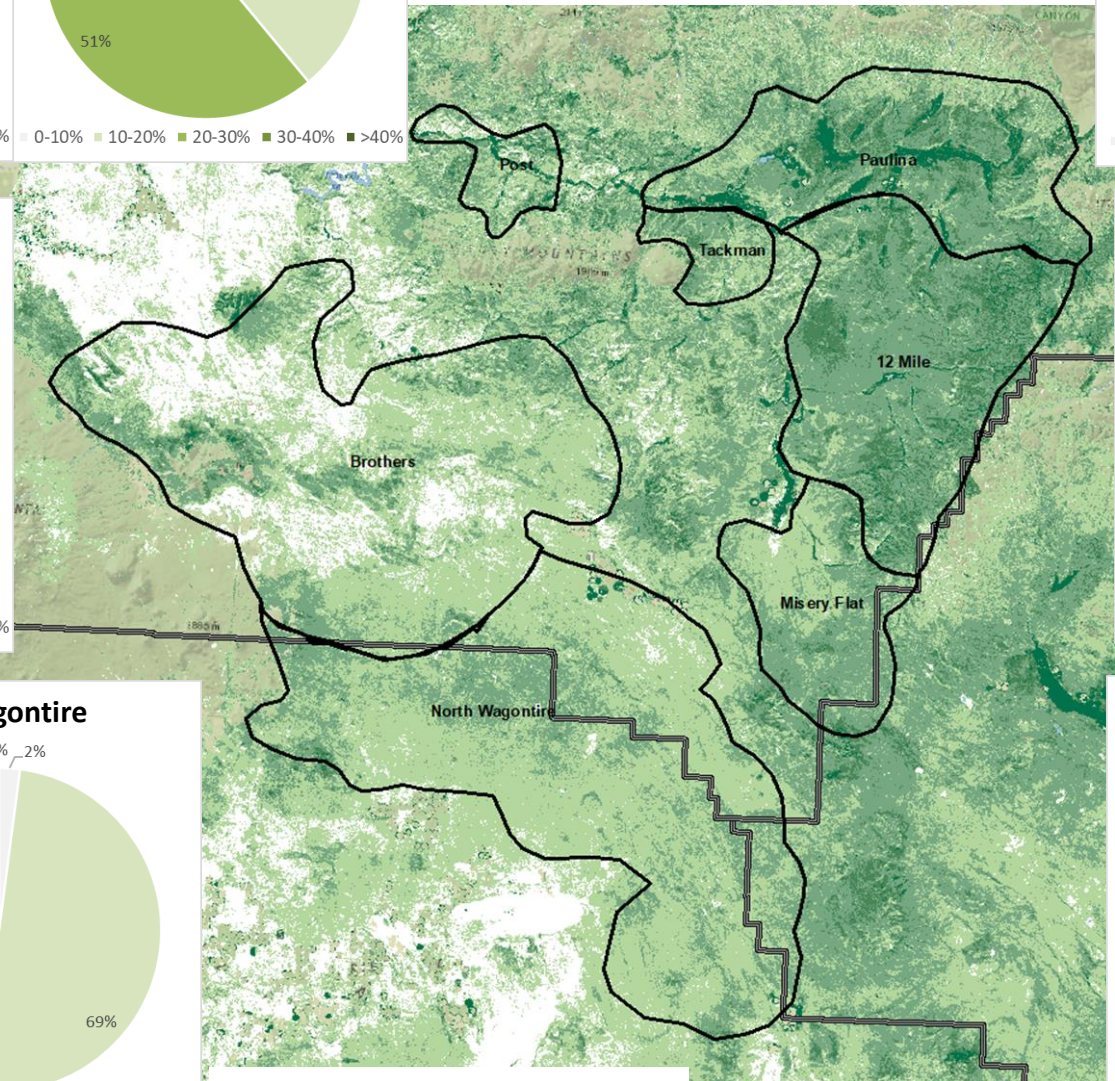
- Connectivity Barriers
- Connectivity Pinchpoints

Connectivity Barriers are locations within connectivity linkage zones that most disrupt connectivity, which can be used to identify habitat restoration opportunities to improve connectivity.

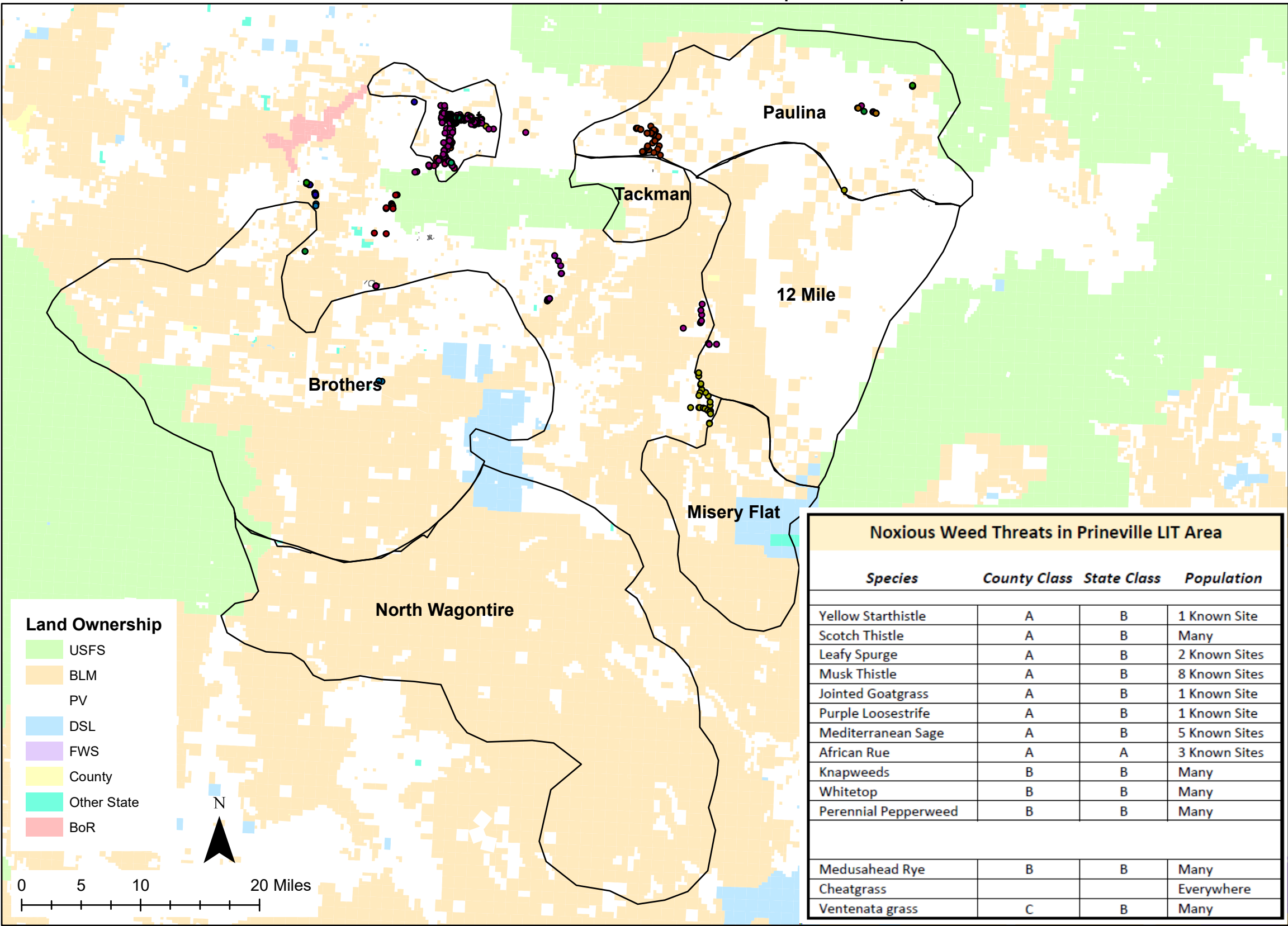
Connectivity Pinchpoints are areas where connectivity could be severed with the loss of a relatively small amount of habitat. Habitat loss or degradation within these areas can result in a disproportionate adverse effect on connectivity, and therefore these areas may be prioritized for habitat protection.



# Perennial grass & forb cover



# Crooked River WMA - Other Weed Species Map



## Land Ownership

- USFS
- BLM
- PV
- DSL
- FWS
- County
- Other State
- BoR

0 5 10 20 Miles



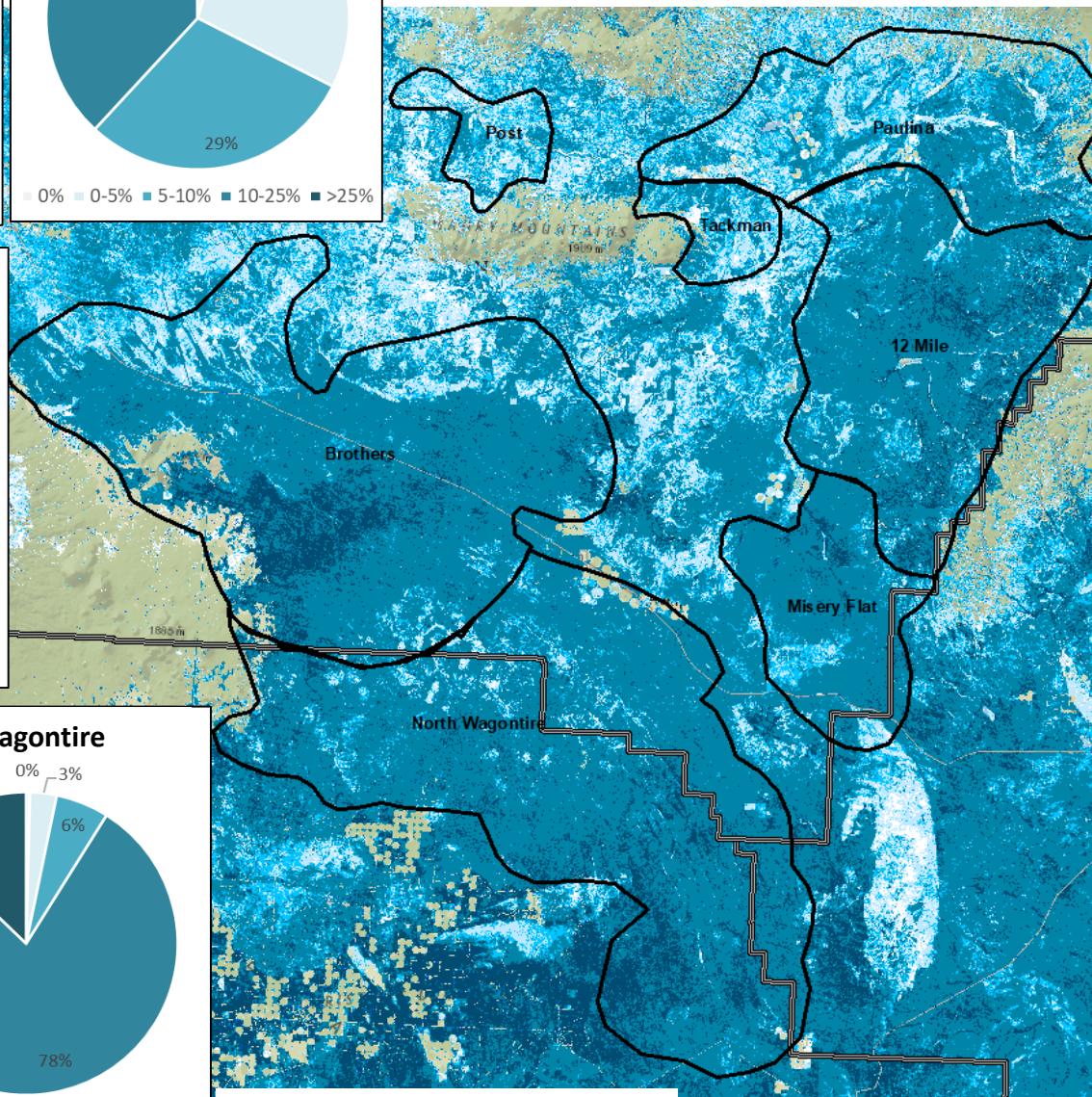
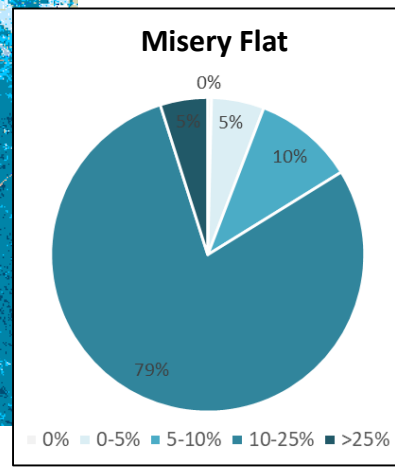
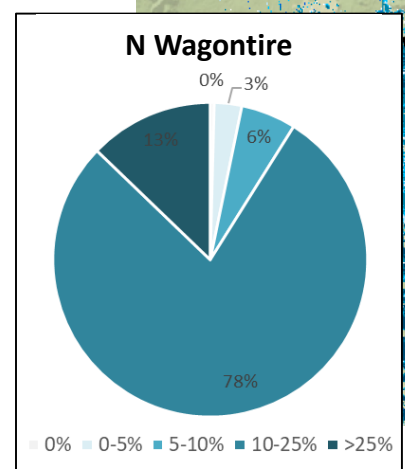
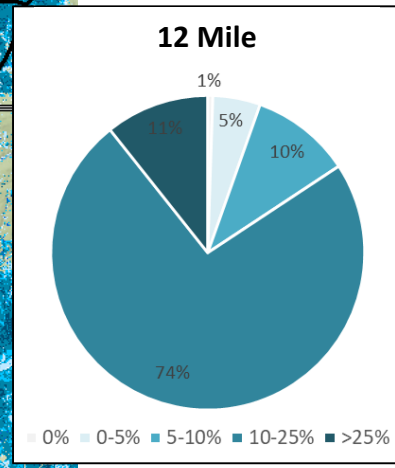
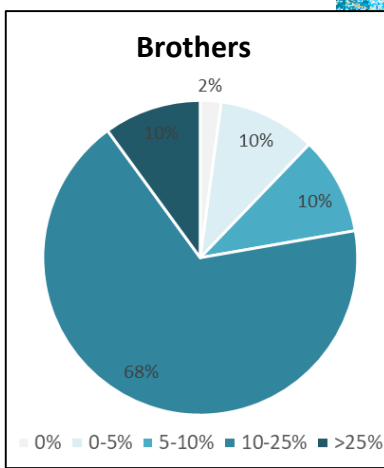
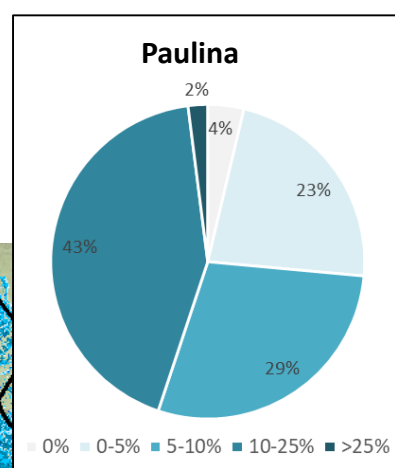
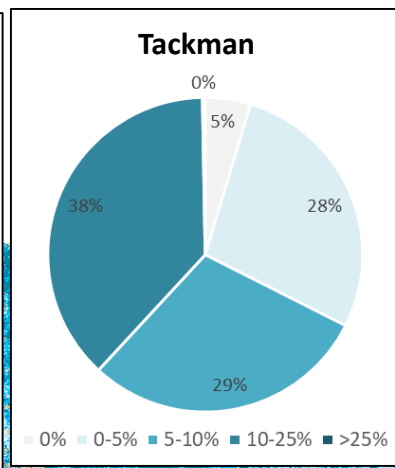
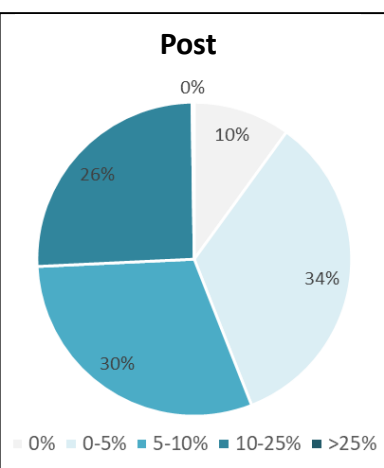
## Noxious Weed Threats in Prineville LIT Area

<i>Species</i>	<i>County Class</i>	<i>State Class</i>	<i>Population</i>
Yellow Starthistle	A	B	1 Known Site
Scotch Thistle	A	B	Many
Leafy Spurge	A	B	2 Known Sites
Musk Thistle	A	B	8 Known Sites
Jointed Goatgrass	A	B	1 Known Site
Purple Loosestrife	A	B	1 Known Site
Mediterranean Sage	A	B	5 Known Sites
African Rue	A	A	3 Known Sites
Knapweeds	B	B	Many
Whitetop	B	B	Many
Perennial Pepperweed	B	B	Many
Medusahead Rye	B	B	Many
Cheatgrass			Everywhere
Ventenata grass	C	B	Many

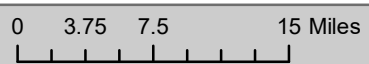
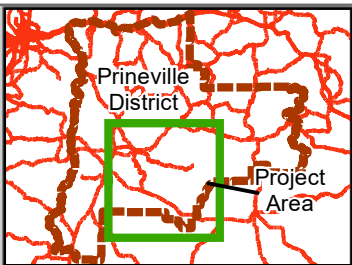
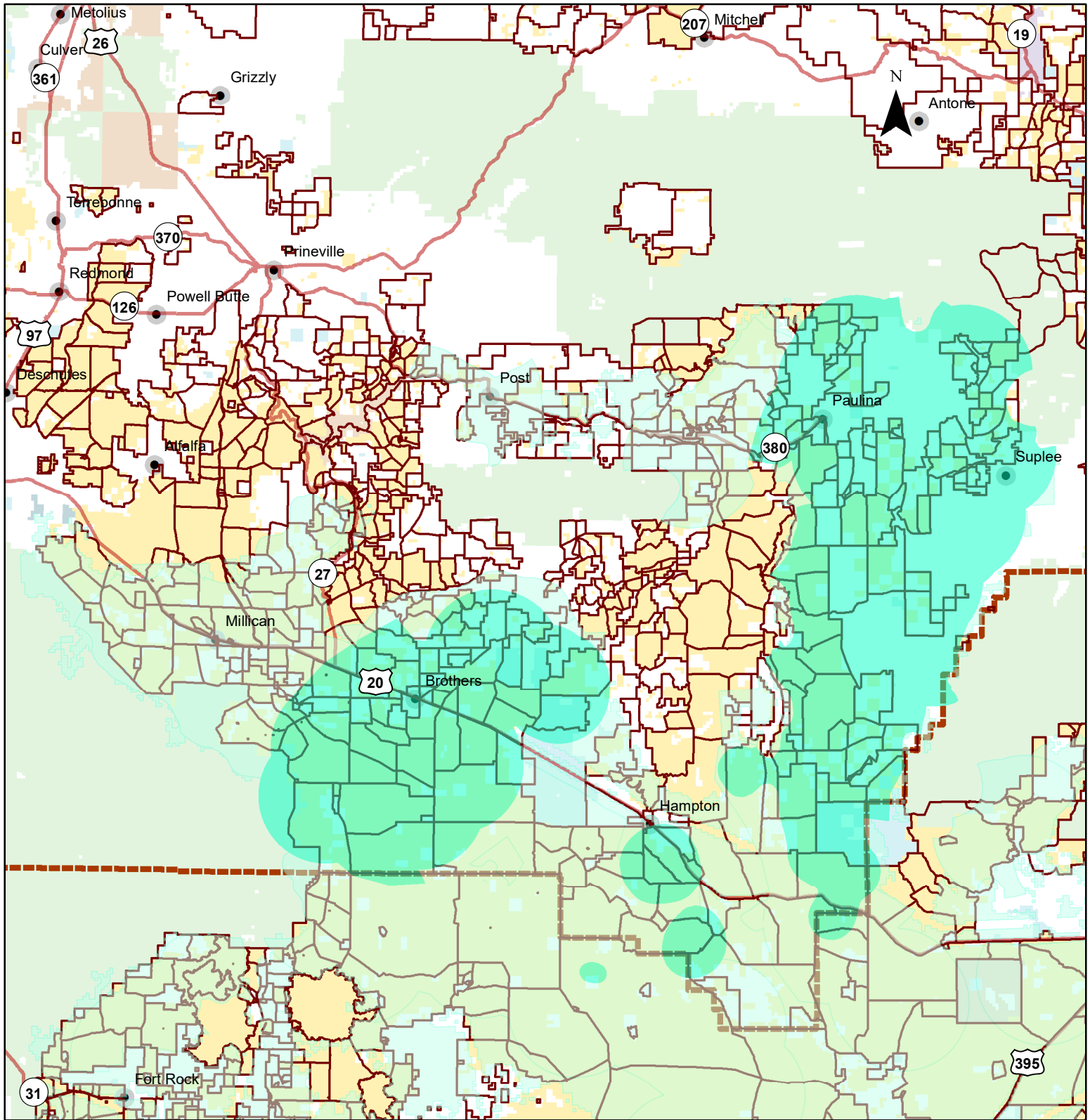


# Shrub Cover

(all shrubs, not just sagebrush)



# Prineville District Grazing Allotments/ Greater Sage-grouse Habitat

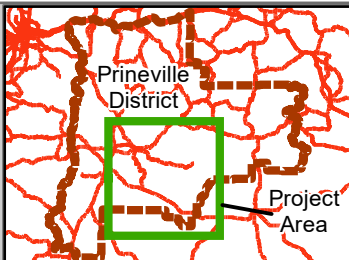
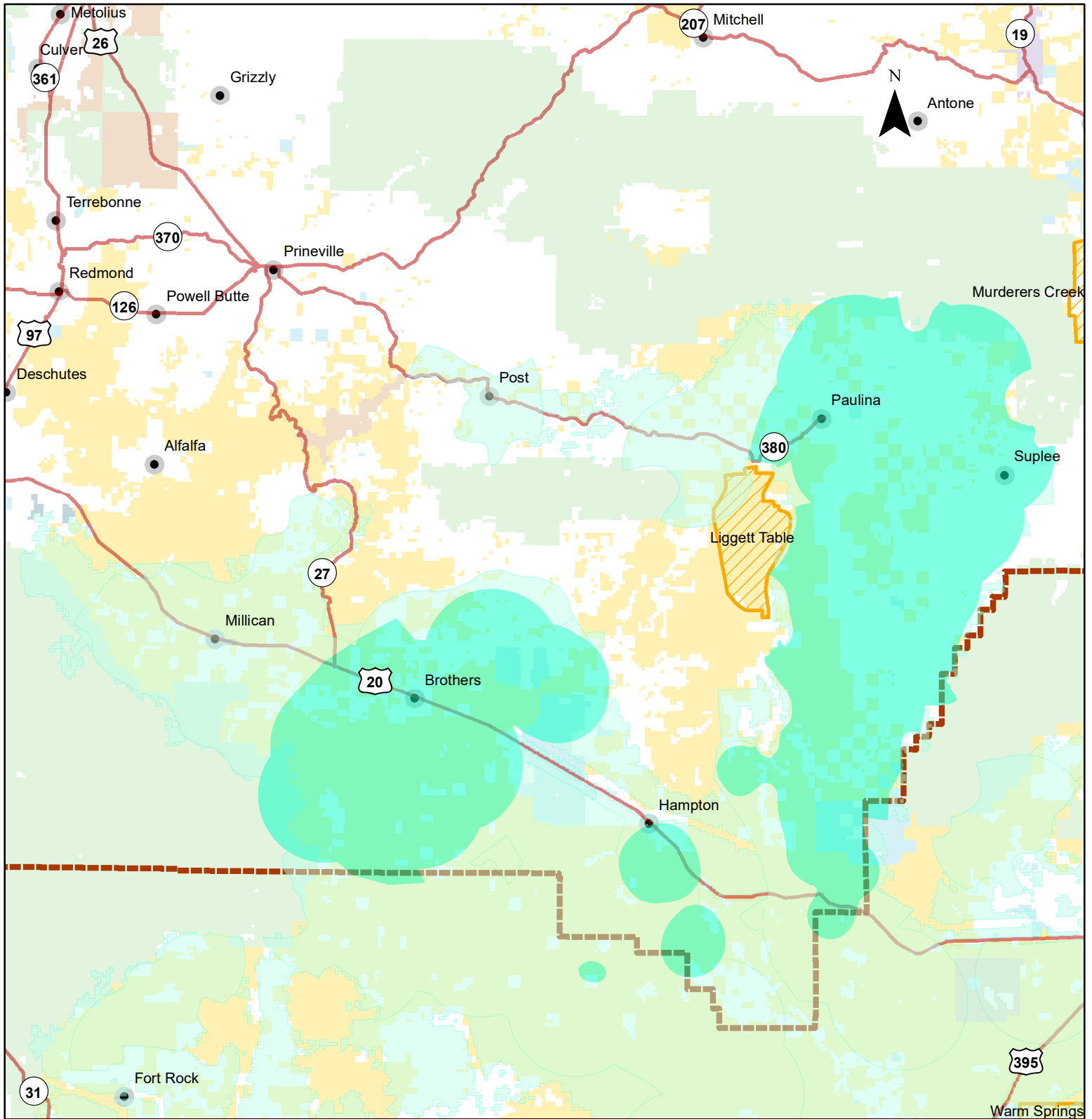


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Prineville District Office

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Legend	
Allotments & Pastures (State Office)	Bureau of Land Management
GRSG Habitat	U.S. Forest Service
Priority Habitat Management Area (PHMA)	National Park Service
General Habitat Management Area (GHMA)	U.S. Fish and Wildlife Service
Major Highways with shields	Bureau of Indian Affairs
	Other Federal
	State
	Local Government
	Private/Unknown

# Prineville District Greater Sage-grouse/ Herd Management Areas (HMAs)



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Bureau of Land Management  
Prineville District Office

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### Legend

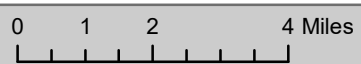
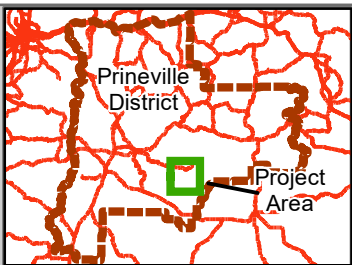
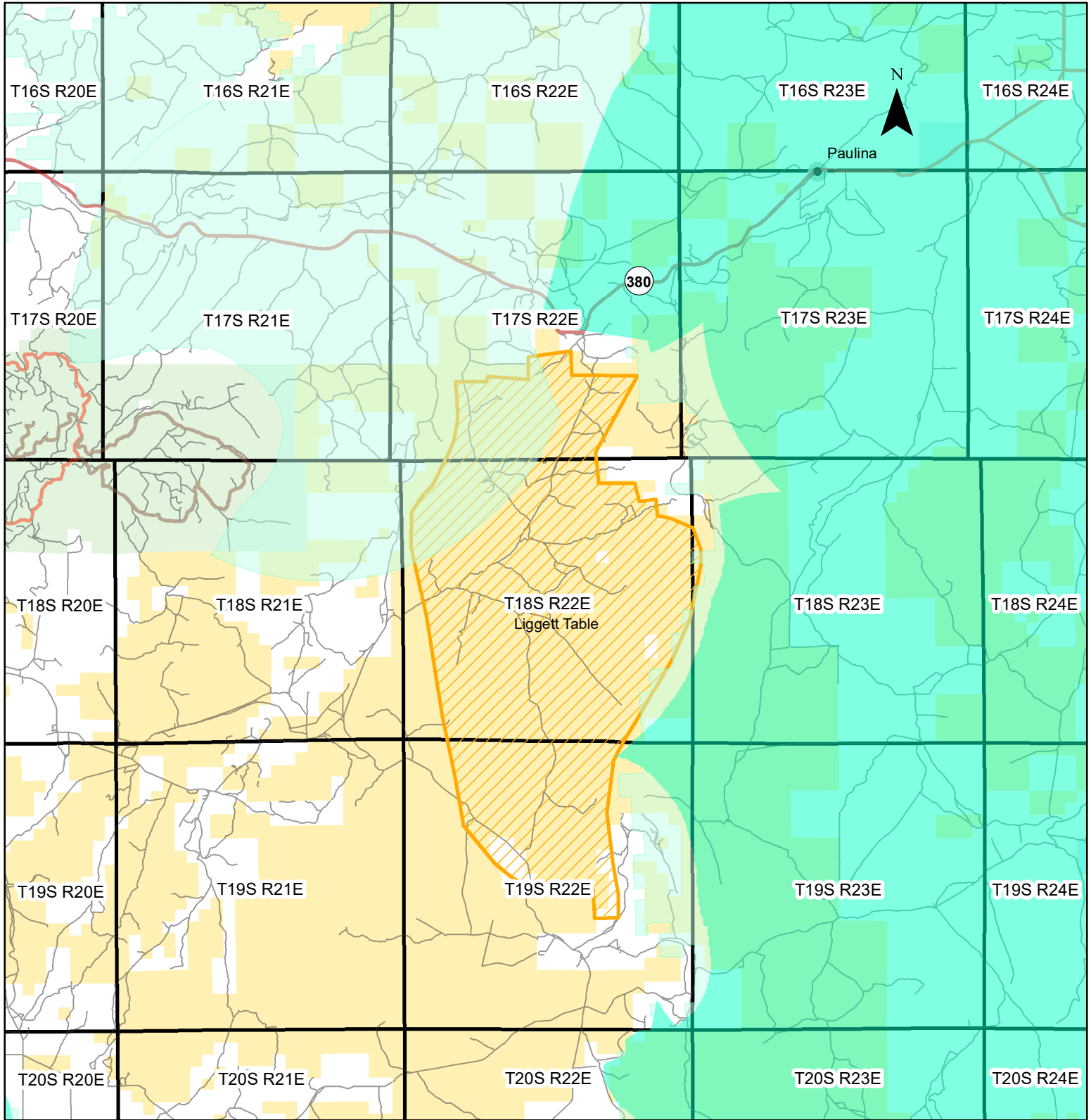
#### GRSG Habitat

- Priority Habitat Management Area (PHMA)
- General Habitat Management Area (GHMA)

- Major Highways with shields
- DISTRICT
- Bureau of Land Management
- U.S. Forest Service
- National Park Service
- U.S. Fish and Wildlife Service
- Bureau of Indian Affairs
- Other Federal
- State
- Local Government
- Private/Unknown



# Paulina/12 Mile/Misery Flat Priority Habitat Management Area (PHMA)/ Herd Management Areas (HMAs)



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Prineville District Office

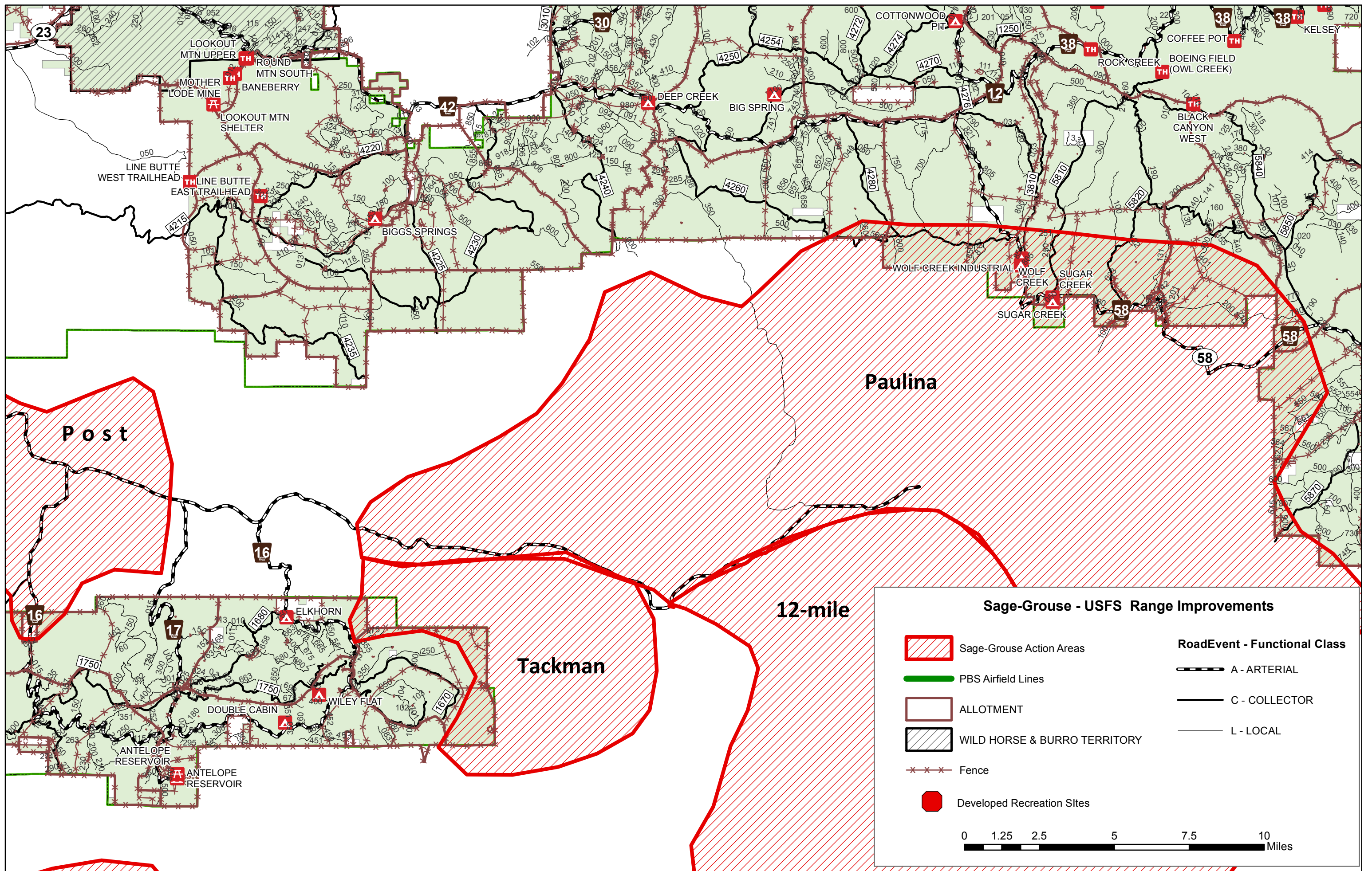
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Legend	
<span style="color: cyan;">■</span> Priority Habitat Management Area (PHMA)	<span style="background-color: yellow;">■</span> Bureau of Land Management
<span style="background-color: lightgreen;">■</span> General Habitat Management Area (GHMA)	<span style="background-color: lightyellow;">■</span> U.S. Forest Service
<span style="color: red;">—</span> Major Highways with shields	<span style="background-color: lightblue;">■</span> National Park Service
<span style="color: orange;">—</span> Arterial Road	<span style="background-color: lightgreen;">■</span> U.S. Fish and Wildlife Service
<span style="color: brown;">—</span> Collector Road	<span style="background-color: lightorange;">■</span> Bureau of Indian Affairs
<span style="color: grey;">—</span> Local or Resource Road	<span style="background-color: lightblue;">■</span> Other Federal
	<span style="background-color: lightblue;">■</span> State
	<span style="background-color: lightblue;">■</span> Local Government
	<span style="background-color: white;">■</span> Private/Unknown




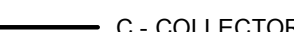

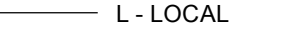











**Sage-Grouse - USFS Range Improvements**

	Sage-Grouse Action Areas		A - ARTERIAL
	PBS Airfield Lines		C - COLLECTOR
	ALLOTMENT		L - LOCAL
	WILD HORSE & BURRO TERRITORY		
	Fence		
	Developed Recreation Sites		

0 1.25 2.5 5 7.5 10 Miles

# Predation

- Generally, research does not support predator (carnivore) removal for improving juvenile or adult sage-grouse survival
    - Conover and Roberts, 2017
  - However, research suggests sage-grouse nest success decreases with increased raven densities
    - GRSG nest success well below average at  $> 0.4$  ravens/km<sup>2</sup> (Coates et al. 2020)
    - $> 0.45$  ravens/ km<sup>2</sup> is the threshold where sage-grouse productivity falls below that required for population persistence (Coates and Delehanty 2010)
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## Prineville LIT Area

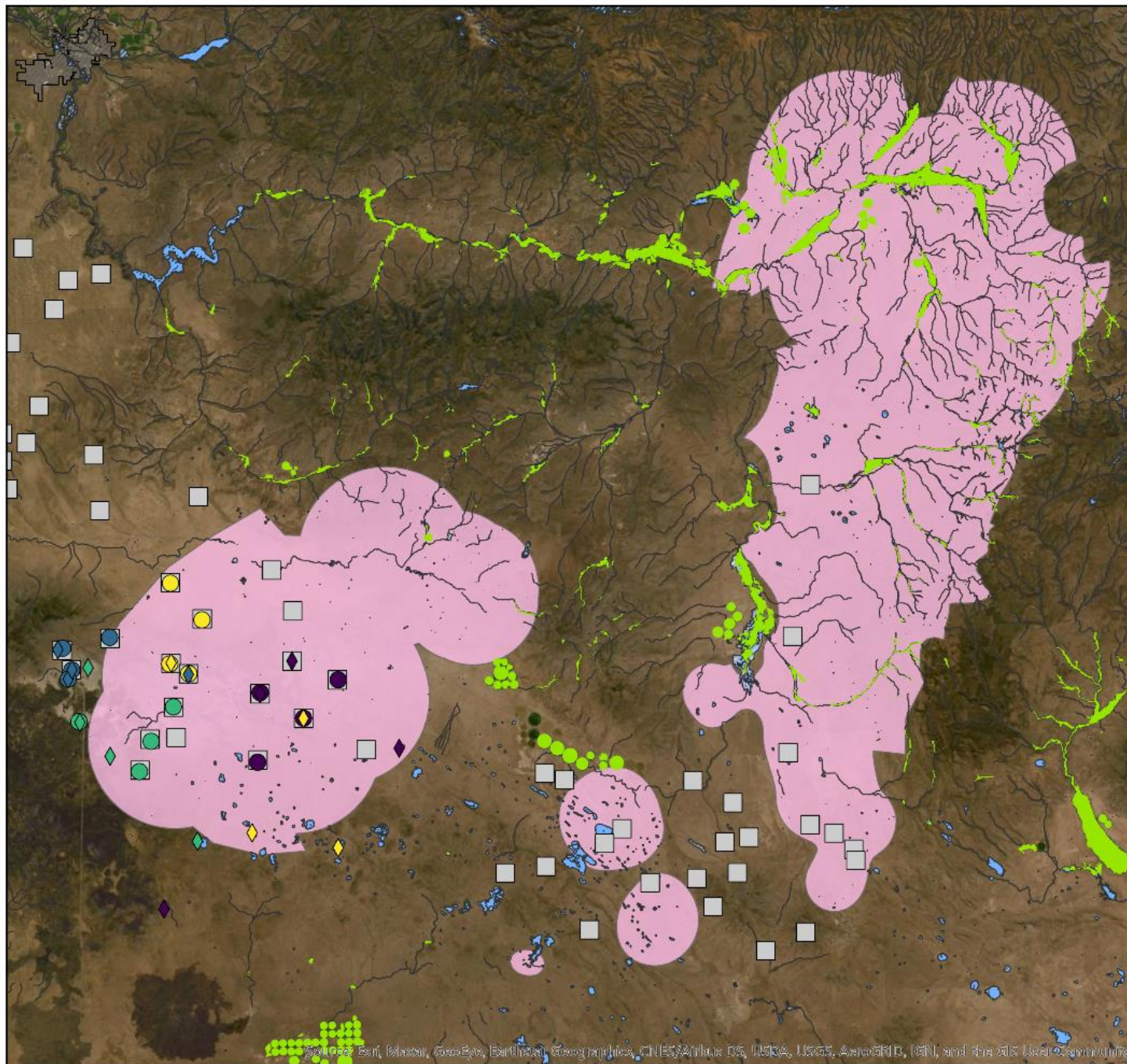
- Raven surveys in the Brother's PAC during 2018 yielded 0.385 ravens/km<sup>2</sup>
    - Plan to conduct raven surveys in future years to continue monitoring raven densities
  - waiting on 2019 results
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Coates, P. S., and D. J. Delehanty. 2010. Nest predation of greater sage-grouse in relation to microhabitat factors and predators. *Journal of Wildlife Management*. 74:240–248.

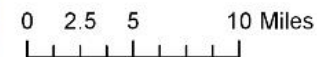
Coates P. S., S. T. O'Neil, B.E. Brussee, M. A. Ricca, P. J. Jackson, J. B. Dinkins, K. B. Howe, A. M. Moser, L. J. Foster, and D. J. Delehanty. 2020. Broad-scale impacts of an invasive native predator on a sensitive native prey species within the shifting avian community of the North American Great Basin. *Biological Conservation* 243:108409.

Conover, M. R., and A. J. Roberts. 2017. Predators, Predator Removal, and Sage-Grouse: A Review. *Journal of Wildlife Management* 81:7–15.





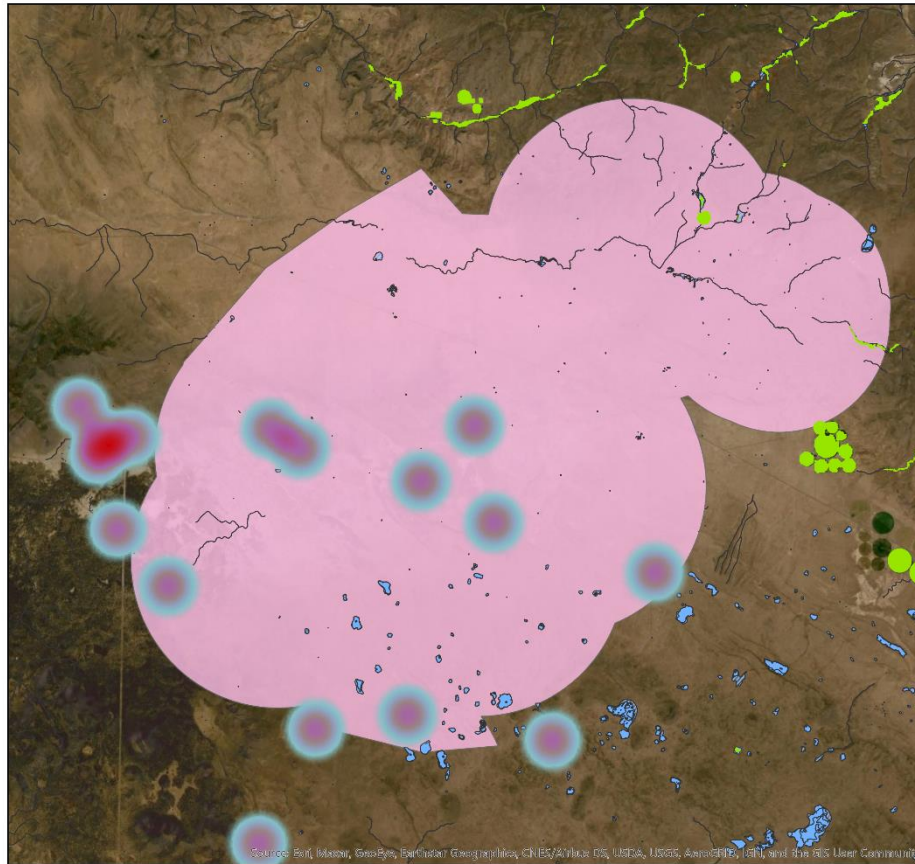
- Priority Area for Conservation
- Summer Habitat - SGI
- Guzzler locations
- 2017 Trap Locations**
- BLM
- ECAS
- USFS
- USFWS
- 2018 Trap Locations**
- BLM
- ECAS
- USFS
- USFWS



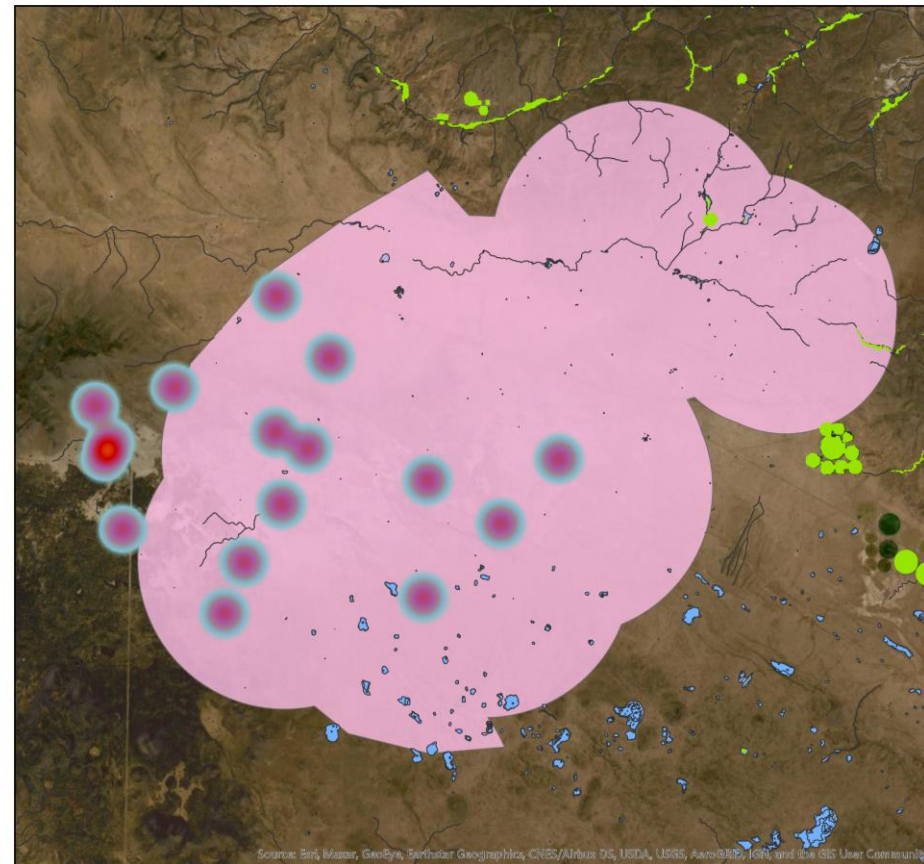
Source: Ben, Blaine, George, Barbara, Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



# 2017



# 2018

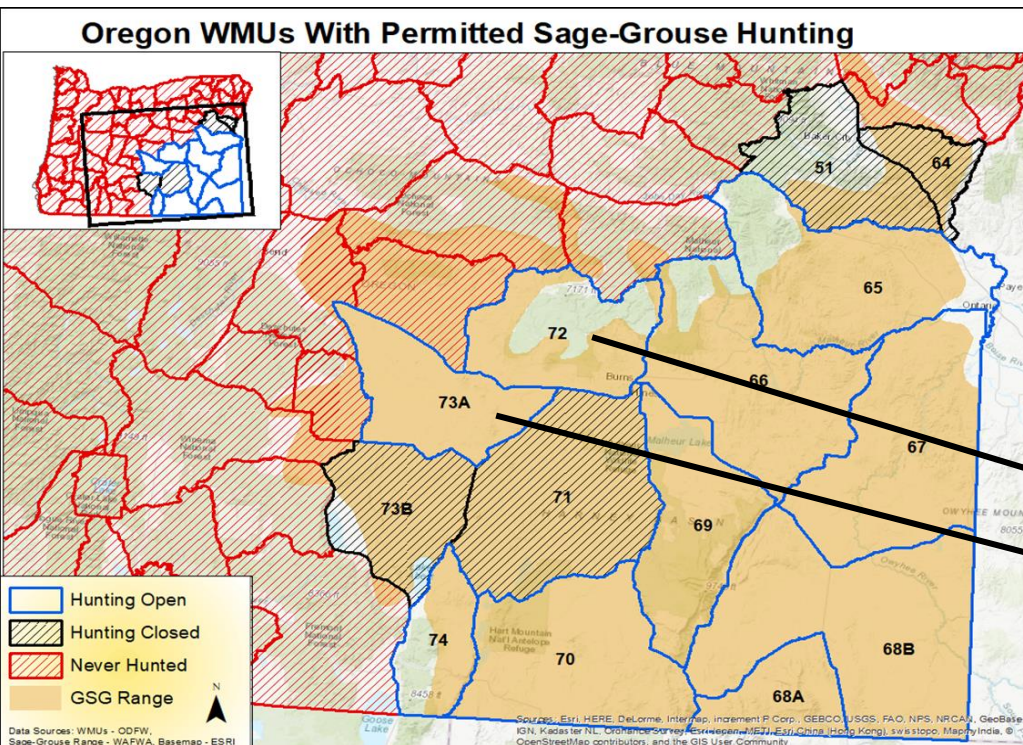
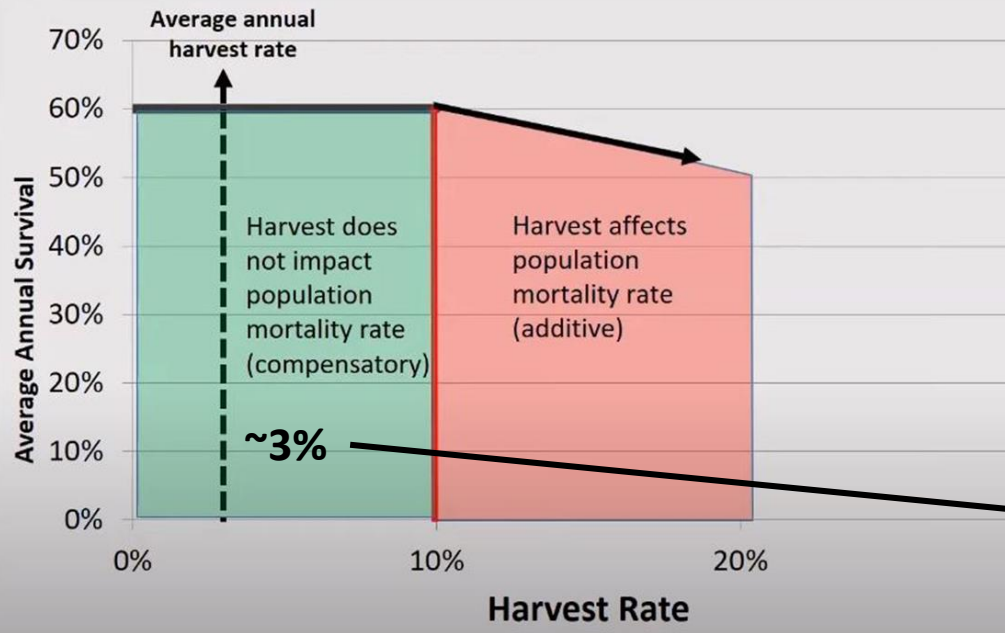


- Capture mosquitoes, test for West Nile virus (WNV), & assess sage-grouse use at guzzlers
- Trapping seasons for 2017, 2018, & 2020
- 16 traps in 2017/2018, 4 traps in 2020
- < 370 mosquitoes in 2017; < 800 mosquitoes in 2018
- All WNV tests negative (2020 results forthcoming)

- Although not classified as summer habitat, sage-grouse still use areas where traps were deployed
- No traps deployed in Paulina/12-Mile PAC
- Takeaways: hard to trap, hard to detect, low probability that WNV is a stressor, but more information could be useful (paired between Brothers & Paulina)

# Hunting

- Harvest theory is based on compensatory vs. additive mortality
- Density Dependence
  - Can't stockpile birds
- Harvest in Oregon well within compensatory mortality range
  - Annual harvest is typically ~3%
  - Additive mortality occurs beyond 10%
- Oregon Sage-Grouse Action Plan
  - Action HNT-1: Maintain ODFW's harvest policy of less than 5% of the fall population
  - Action HNT-2: Do not authorize harvest within WMUs where the estimated spring population is <100 males



## Limited permits in Silvies and N. Wagontire WMUs

- Silvies: 20 permits
- N. Wagontire: 20 permits