

Sagebrush Ecosystem Program

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STATE OF NEVADA Sagebrush Ecosystem Program

Fall 2019 Adaptive Management Trigger Summary

Summary:

Through the summer of 2019 the Sagebrush Ecosystem Technical Team worked with members of a statewide technical team to collect data necessary to assign triggers to Population Management Units (PMU) which had habitat warnings consistent with the Nevada Greater Sage Grouse Conservation Plan adaptive management process. The statewide technical team assigned triggers on August 8th, 2019. This document is intended to inform stakeholders about the process which led to assigned triggers.

Members of the statewide technical team are listed in Table 1.

Trigger Description:

The State of Nevada's sage grouse conservation plan includes an adaptive management process which includes both warnings and triggers associated with sage grouse habitat and populations. In the state adaptive management plan, habitat warnings occur with new wildfires greater than 1,000 acres, or new permitted anthropogenic disturbances. These warnings result in professional judgement of whether a trigger is warranted. The statewide technical team (table 1) is responsible for determining those triggers. Population triggers are identified and supplied by statewide U.S. Geological Survey modeling efforts. After the identification of triggers, a stakeholder driven process results which involves a causal factor analysis and the development of management recommendations to the appropriate land management agency. See attached adaptive management plan for more detailed information.

The statewide technical team assembled data relating to total male lek attendance, fire occurrence (10 years previous), habitat suitability (HSI), Resistance and Resilience, and range-wide genetic connectivity to determine a relative score for each population management unit associated with each habitat warning. This relative score was not prescriptive. Professional knowledge of impacts, recovery, and current conditions along with the score was used to come to a consensus on PMUs that warrant a trigger and potential conservation actions or management responses. These data are attached at the end of this document. Population triggers are analyzed by the U.S. Geological Survey and are updated periodically. See attached adaptive management plan for more information on the trigger analysis.

Trigger Summary:

Table 2 lists the PMUs which have either a population trigger, a habitat trigger, or both. Maps are also attached for each general area illustrating the wildfire and anthropogenic impacts.

Adaptive Management Response Team:

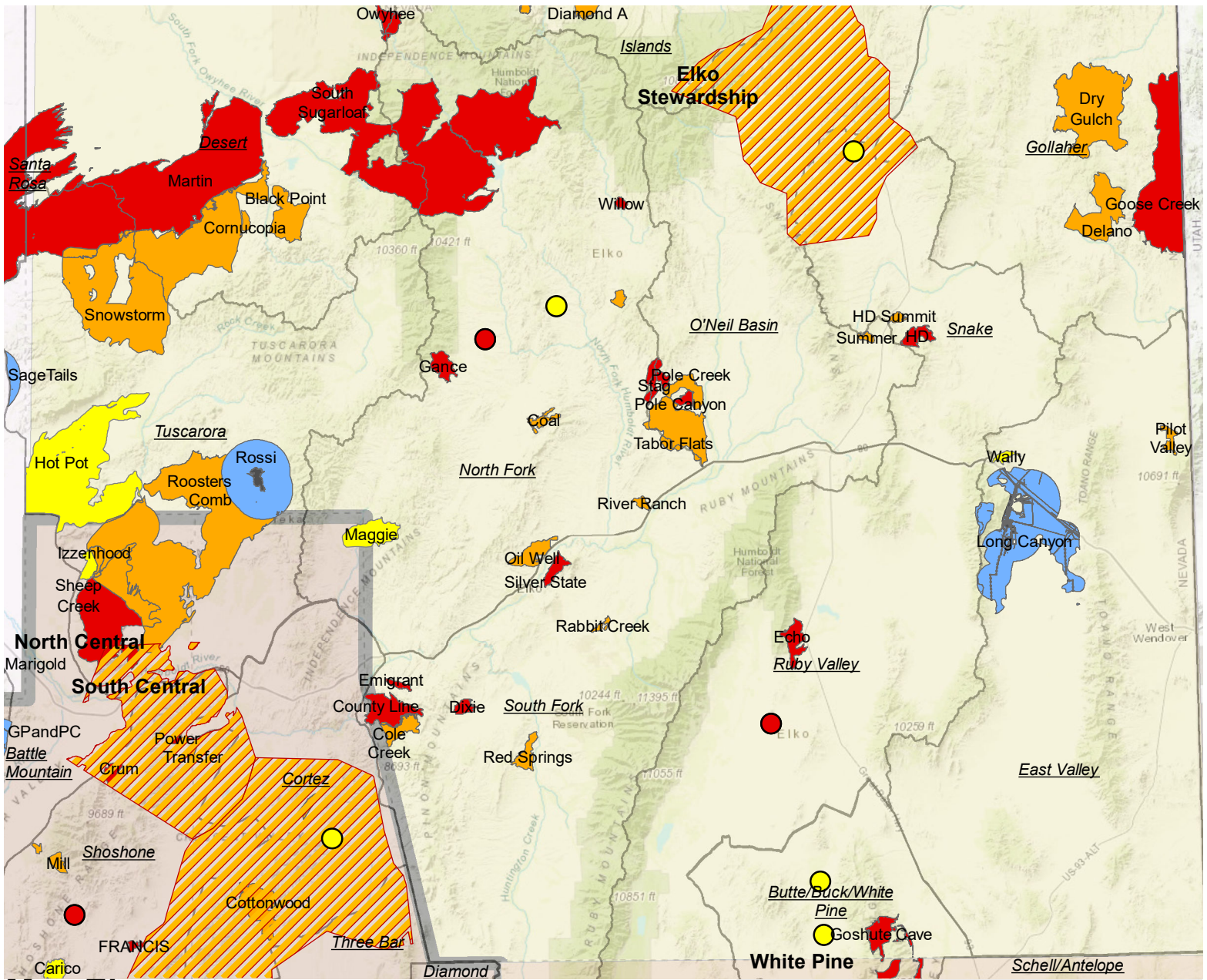
The adaptive management section contained in the Nevada Greater Sage Grouse Conservation Plan directs the Sagebrush Ecosystem Team to initiate the Adaptive Management Response Team to determine causal factors of the triggers and develop appropriate recommendations to the relevant land management agencies. This team consists of willing participants from all stakeholder groups in a defined area such as local conservation groups, grazing permittees, affected land users, and federal/state agencies (see page 9 of the attached Adaptive Management Plan). This process is intended to determine (to the best ability) the potential reasons for population and habitat declines. In the case of habitat triggers where the trigger is self-evident (fire or anthropogenic impact), determining any appropriate management response will be the main effort. These triggers may be used in the prioritizing of funding for restoration efforts and management actions (see steps 2-5 of the attached adaptive management plan).

Table 1. Members of the Statewide Technical Team.

Organization	Position
BLM-Nevada	Wildlife Biologist/ Sage Grouse Implementation Coordinator
BLM-California	Sage Grouse Implementation Coordinator
U.S. Forest Service	Wildlife Biologist/ Sage Grouse Coordinator
U.S. Fish and Wildlife Service	Biologist
SETT	Program Manager
Nevada Department of Wildlife	Upland Game Staff Specialist
Nevada Association of Counties	Natural Resources Specialist
University of Nevada-Reno	Sage Grouse Biologist
U.S. Geological Survey	Sage Grouse Biologist
Nevada Division of Forestry	Deputy Administrator of Operations
University of Nevada-Reno	Range Ecologist
BLM-Nevada	Fuels Specialist

Table 2. Summary of Triggers in each affected PMU.

	<i>PMU</i>	<i>Trigger</i>	<i>Conservation Planning Area</i>
1	Butte/Buck/White Pine	Population Trigger	White Pine
2	Ruby Valley	Population Trigger	Elko Stewardship
3	Three Bar	Population Trigger	South Central
4	Toiyabe	Population Trigger	South Central
5	O'Neil Basin	Population Trigger	Elko Stewardship
6	Islands	Population Trigger	Elko Stewardship
7	Cortez	Population Trigger	South Central
8	Shoshone	Population Trigger	South Central
9	Snake	Population Trigger	Elko Stewardship
10	Diamond	Population Trigger	South Central
11	Lincoln	Population Trigger	Lincoln
12	Sheldon	Population Trigger	Washoe/Modoc
13	Gollaher	Population and Habitat Trigger	Elko Stewardship
14	Steptoe/Cave	Population Trigger	White Pine
15	Tuscarora	Population & Habitat Trigger	Elko Stewardship
16	Massacre	Population Trigger	Washoe/Modoc
17	North Fork	Population and Habitat Trigger	Elko Stewardship
18	Schell/Antelope	Population Trigger	White Pine
19	Lone Willow	Habitat Trigger	North Central
20	Virginia/Pahrah	Habitat Trigger	Washoe/Modoc
21	Desert	Habitat Trigger	Elko Stewardship
22	Santa Rosa	Habitat Trigger	North Central



Map Elements

- Lek Hard Trigger 2016
- Lek Soft Trigger 2016
- Lek Cluster Soft Trigger 2016

CCS Analyzed Anthropogenic Disturbance

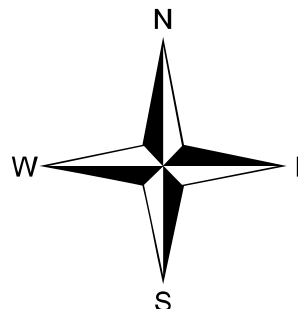
- Direct
- Indirect

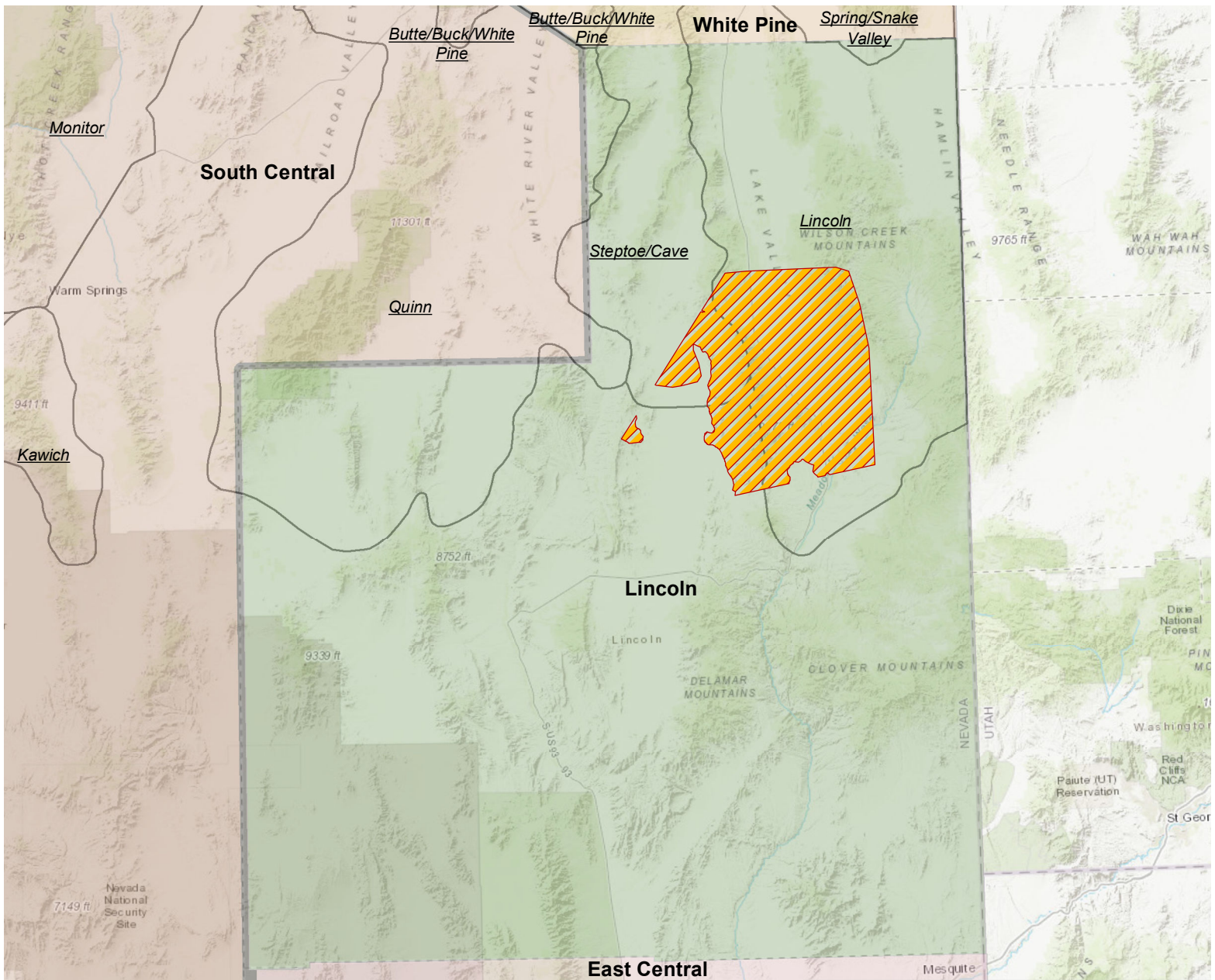
Recent Fires >1000 Acres

- 2016
- 2017
- 2018

Elko Stewardship Group Area	
PMU	Trigger
Ruby Valley	Population Trigger
O'Neil Basin	Population Trigger
Islands	Population Trigger
Gollaher	Population and Habitat Trigger
Tuscarora	Population & Habitat Trigger
North Fork	Population and Habitat Trigger
Desert	Habitat Trigger
Snake	Population Trigger

Elko Stewardship





Map Elements

- Lek Hard Trigger 2016
- Lek Soft Trigger 2016
- Lek Cluster Soft Trigger 2016

Lincoln Group Area	
PMU	Trigger
Lincoln	Population Trigger

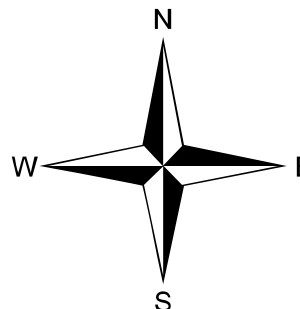
CCS Analyzed Anthropogenic Disturbance

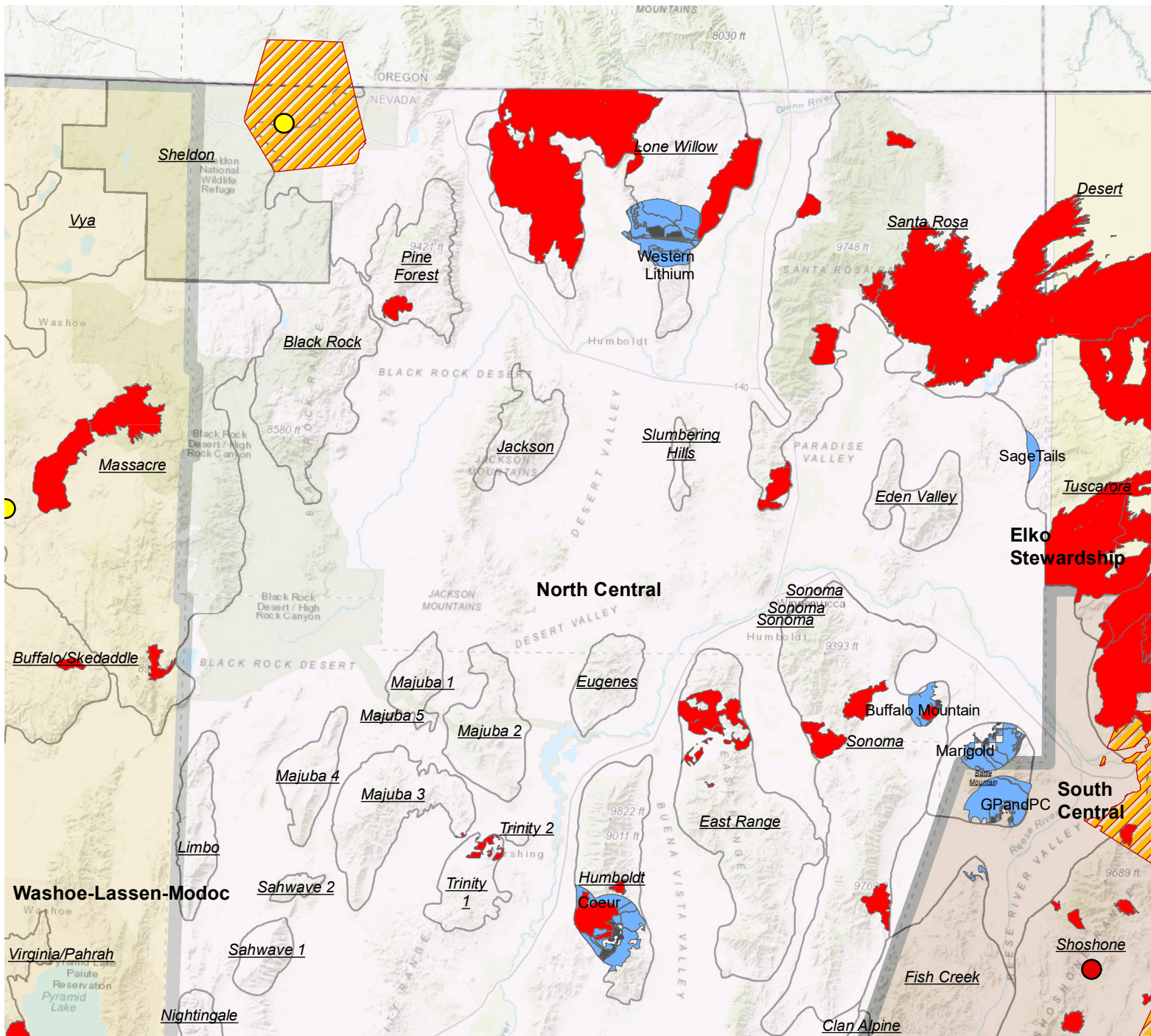
- Direct
- Indirect

Recent Fires >1000 Acres

- 2016
- 2017
- 2018

Lincoln





Map Elements

- Lek Hard Trigger 2016
- Lek Soft Trigger 2016
- 10 Year Fire Footprint
- Lek Cluster Soft Trigger 2016

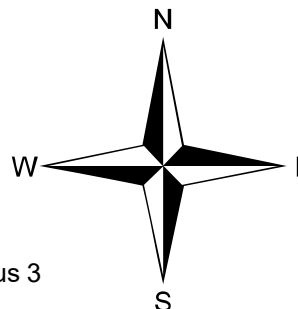
CCS Analyzed Anthropogenic Disturbance

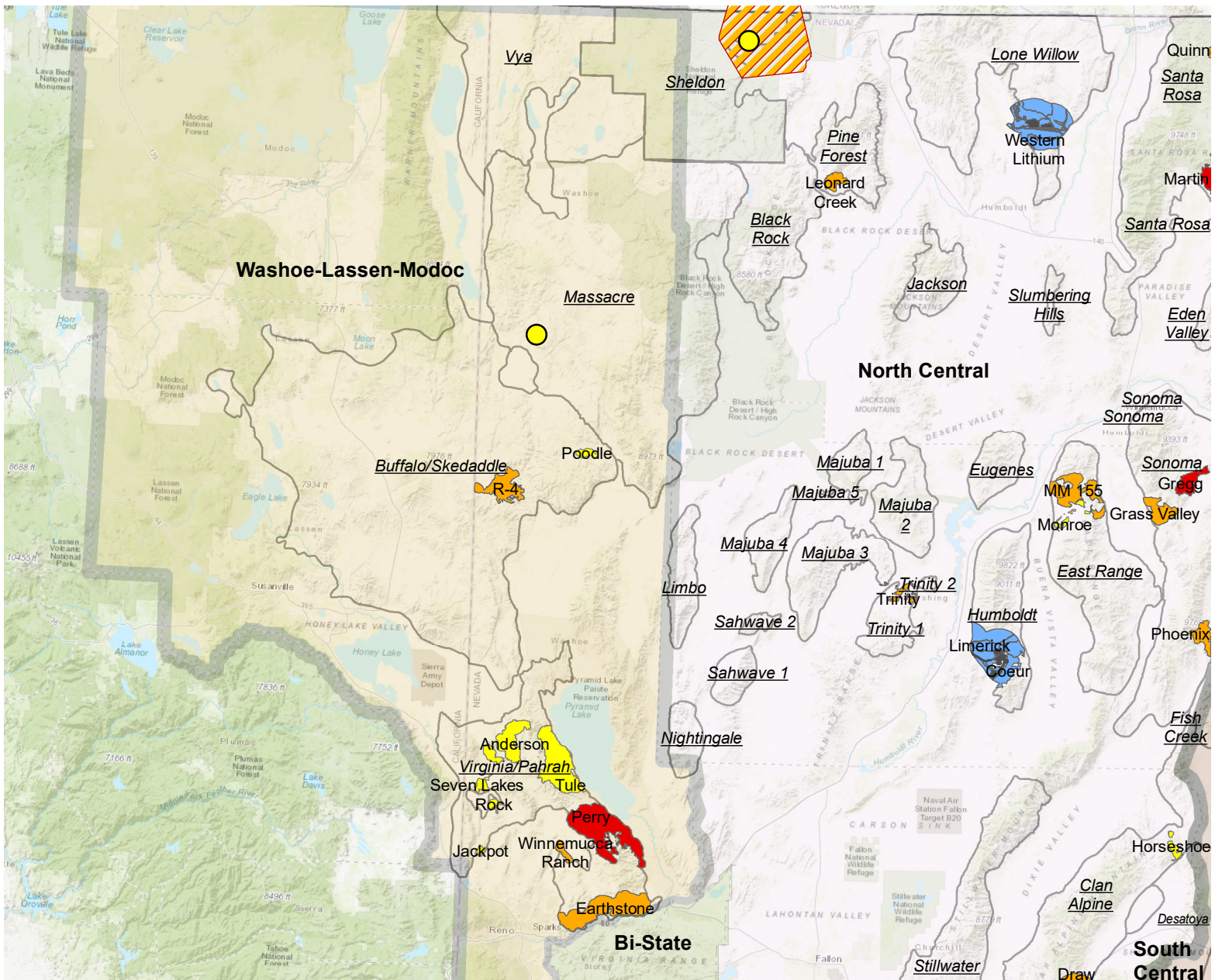
- Direct
- Indirect

North Central Group Area	
PMU	Trigger
Lone Willow	Habitat Trigger
Santa Rosa	Habitat Trigger

South Central

Previous 10 Year Fire History Shown instead of previous 3





Map Elements

- Lek Hard Trigger 2016
- Lek Soft Trigger 2016
- Lek Cluster Soft Trigger 2016

CCS Analyzed Anthropogenic Disturbance

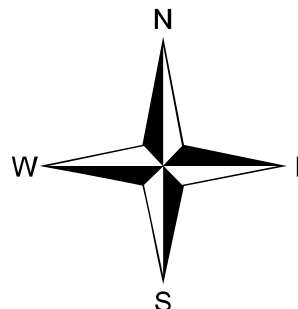
- Direct
- Indirect

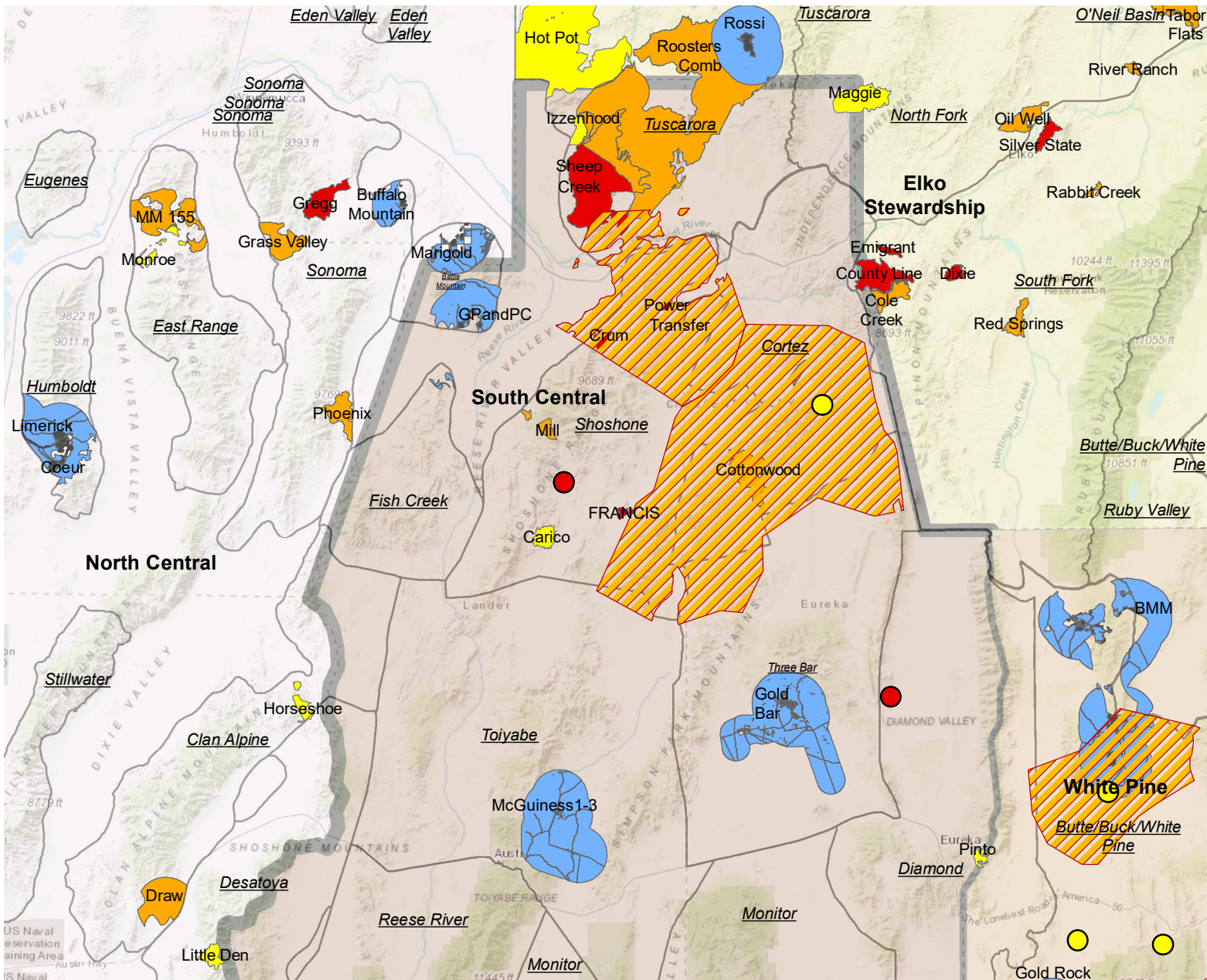
Recent Fires >1000 Acres

- 2016
- 2017
- 2018

Washoe/Modoc Group Area	
PMU	Trigger
Sheldon	Population Trigger
Massacre	Population Trigger
Virginia/Pahrah	Habitat Trigger

Washoe/Modoc





Map Elements

● Lek Hard Trigger 2016

● Lek Soft Trigger 2016

▨ Lek Cluster Soft Trigger 2016

CCS Analyzed Anthropogenic Disturbance

■ Direct

■ Indirect

Recent Fires >1000 Acres

■ 2016

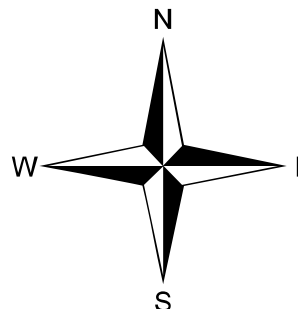
■ 2017

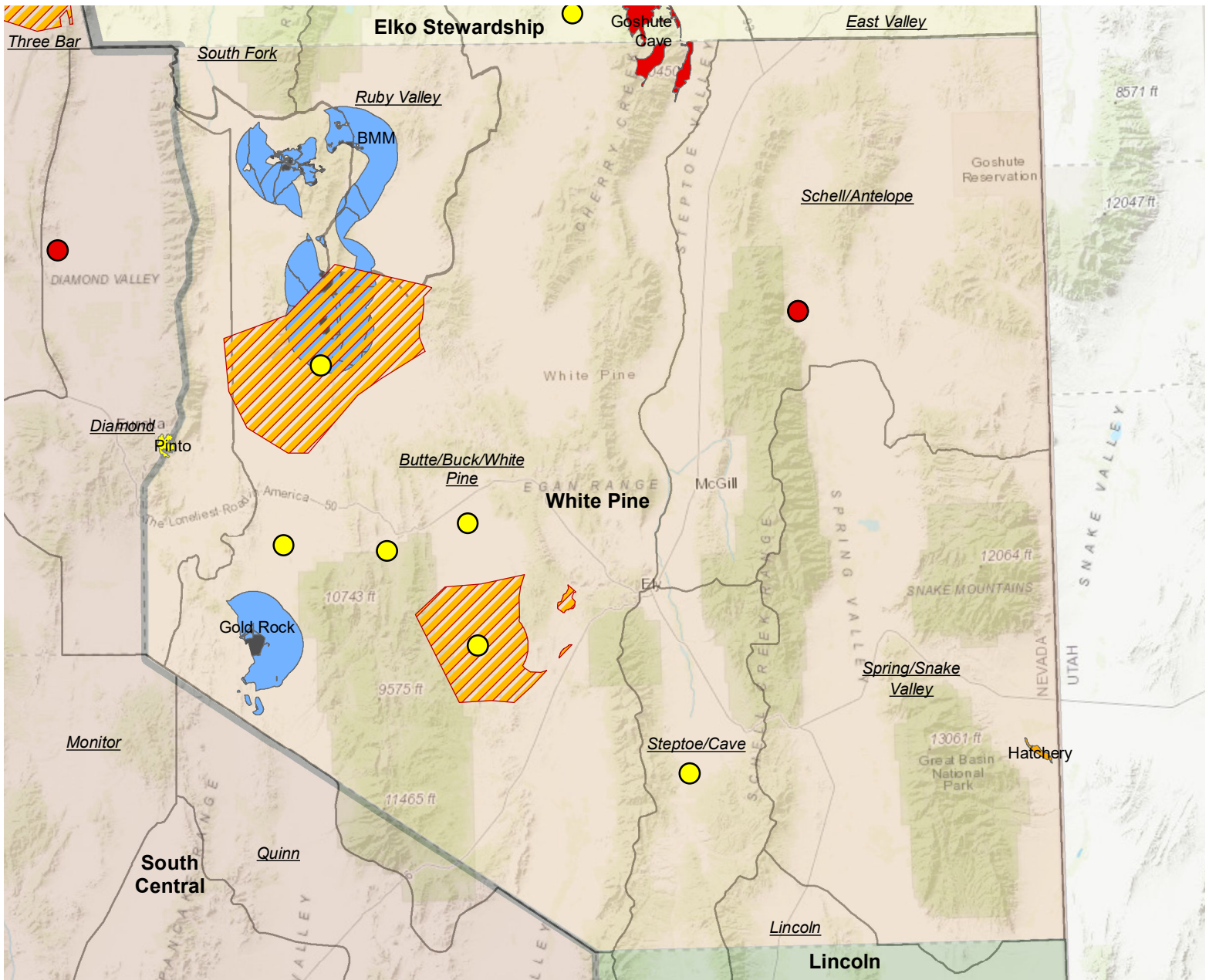
■ 2018

South Central Group Area

PMU	Trigger
Three Bar	Population Trigger
Toiyabe	Population Trigger
Cortez	Population Trigger
Shoshone	Population Trigger
Diamond	Population Trigger

South Central





Map Elements

- Lek Hard Trigger 2016
- Lek Soft Trigger 2016
- Lek Cluster Soft Trigger 2016

White Pine Group Area	
PMU	Trigger
Butte/Buck/White Pine	Population Trigger
Steptoe/Cave	Population Trigger
Schell/Antelope	Population Trigger

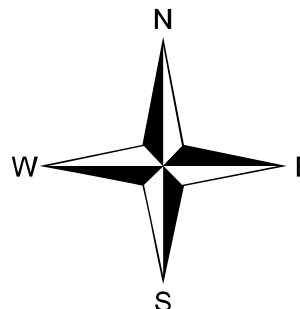
CCS Analyzed Anthropogenic Disturbance

- Direct
- Indirect

Recent Fires >1000 Acres

- 2016
- 2017
- 2018

White Pine



2019 Adaptive Management Habitat Warnings and Triggers (Low, No priority = No Trigger)

PMU	MCAT	Habitat Affected by Anthro (% of total PMU acres)	3 year fire occurrence (% of total PMU acres)	10 year fire occurrence (% of total PMU acres)	Population Trigger?	Habitat Trigger?	Beginning Score	Average Habitat Suitability Index	Resistance and Resilience	% Affected by fire (10yr)	Genetic Connectivity Score	Final Score
PMUs with Anthropogenic Disturbance												
Tuscarora	OHMA	0.23%	10.11%	10.77%	Yes	Yes	11.11363636	0.201808402	2.30861305	0.727759	0.324049804	4.534491
	GHMA	1.77%	9.58%	16.65%								
	PHMA	1.97%	35.57%	45.36%								
Humboldt	OHMA	18.51%	3.87%	4.56%		No	2	0.127954906	2.386059362	0.166842	-0.872660697	-0.714919
	GHMA	11.73%	0.00%	0.00%								
	PHMA	0.00%	10.31%	12.13%								
Sonoma	OHMA	2.15%	4.10%	4.55%		No	14.08333333	0.148449598	2.531717589	0.11797	-0.718012254	0.035645
	GHMA	0.33%	0.42%	0.42%								
	PHMA	0.00%	6.36%	6.83%								
Butte/Buck/White Pine	OHMA	0.87%	0.18%	0.35%	Yes		12.02739726	0.08969147	2.627221356	0.014538	-0.003755423	0.068767
	GHMA	3.18%	0.11%	0.11%								
	PHMA	2.74%	0.78%	1.00%								
Ruby Valley	OHMA	0.29%	0.00%	0.00%	Yes		12.95833333	0.098611966	2.429904352	0.010387	-0.019368351	0.041487
	GHMA	2.13%	0.34%	0.34%								
	PHMA	1.94%	0.70%	0.70%								
East Valley	OHMA	5.00%	0.11%	0.11%		No	11.875	0.071007637	2.884624432	0.009682	-0.272936094	-0.230247
	GHMA	6.05%	0.16%	0.16%								
	PHMA	2.09%	0.69%	0.69%								
Battle Mountain	OHMA	7.58%	—	—		No	8	0.151207197	2.54896836	1	-0.603291044	3.009801
	GHMA	7.04%	—	—								
	PHMA	49.10%	—	—								
Fish Creek	OHMA	0.64%	—	—		No	9	0.096151271	2.683985633	1	-0.691836225	2.983802
	GHMA	0.00%	—	—								
	PHMA	0.00%	—	—								
Lone Willow	OHMA	0.00%	—	13.21%		Yes	13.6440678	0.172808953	2.659396597	0.926901	-0.079725933	5.497542
	GHMA	0.00%	—	31.16%								
	PHMA	0.00%	—	48.32%								
Three Bar	OHMA	0.00%	—	—	Yes		14.18181818	0.147270477	1.936904224	0.024595	0.130065837	0.336669
	GHMA	3.00%	—	—								
	PHMA	8.72%	—	—								
Toiyabe	OHMA	0.00%	—	0.19%	Yes		13.84615385	0.114729563	2.424366482	0.003861	0.135164015	0.159748
	GHMA	2.47%	—	0.00%								
	PHMA	6.35%	—	0.19%								
PMUs with Wildfire Disturbance Only												
Virginia/Pahrah	OHMA	—	8.15%	8.49%		Yes	19.375	0.226076363	2.815590279	0.525292	-0.429059586	4.002849
	GHMA	—	6.95%	7.38%								
	PHMA	—	33.89%	36.66%								
Desert	OHMA	—	4.78%	4.78%		Yes	17.76923077	0.204304738	2.330363054	0.569737	0.403081371	5.634942
	GHMA	—	17.59%	19.42%								
	PHMA	—	30.29%	32.77%								
Santa Rosa	OHMA	—	1.67%	2.09%		Yes	13.43548387	0.178494275	2.465460268	0.557795	0.578322967	4.160587
	GHMA	—	23.43%	24.32%								
	PHMA	—	25.84%	29.37%								

2019 Adaptive Management Habitat Warnings and Triggers (Low, No priority = No Trigger)

PMU	MCAT	Habitat Affected by Anthro (% of total PMU acres)	3 year fire occurrence (% of total PMU acres)	10 year fire occurrence (% of total PMU acres)	Population Trigger?	Habitat Trigger?	Beginning Score	Average Habitat Suitability Index	Resistance and Resilience	% Affected by fire (10yr)	Genetic Connectivity Score	Final Score
Clan Alpine	OHMA	—	2.46%	5.74%			20	0.054950678	2.772315382	0.25817	-0.595456289	1.369375
	GHMA	—	0.00%	0.00%								
	PHMA	—	16.79%	20.07%								
Gollaher	OHMA	—	2.23%	2.83%	Yes	Yes	12.675	0.156253376	2.330928066	0.306606	1.126499636	3.054258
	GHMA	—	9.53%	9.93%								
	PHMA	—	16.56%	17.90%								
East Range	OHMA	—	10.12%	10.12%			#N/A	0.120078002	2.485041702	0.212184	-0.807879666	#N/A
	GHMA	—	0.00%	0.00%								
	PHMA	—	11.10%	11.10%								
North Fork	OHMA	—	0.34%	0.47%	Yes	Yes	17.90350877	0.246465432	2.086887357	0.299802	0.812099656	4.018034
	GHMA	—	8.78%	13.29%								
	PHMA	—	10.51%	16.22%								
Trinity 1	OHMA	—	6.88%	6.88%			#N/A	0.089474389	3	0.137537	-0.935620337	#N/A
	GHMA	—	0.00%	0.00%								
	PHMA	—	6.88%	6.88%								
Pine Forest	OHMA	—	0.00%	0.00%			9.8	0.230582589	2.278156902	0.096321	-0.64710863	-0.137223
	GHMA	—	4.82%	4.82%								
	PHMA	—	4.82%	4.82%								
Buffalo/Skedaddle	OHMA	—	0.17%	0.17%			20.9047619	0.214981756	2.50569144	0.088224	-0.38099011	0.513295
	GHMA	—	4.10%	4.10%								
	PHMA	—	4.56%	4.56%								
O'Neil Basin	OHMA	—	0.02%	0.02%	Yes	No	15.11428571	0.25108662	2.102576902	0.071312	1.104904814	1.74624
	GHMA	—	1.83%	2.54%								
	PHMA	—	3.73%	4.57%								
Islands	OHMA	—	0.00%	2.40%	Yes	No	16.85714286	0.17392843	1.492840002	0.190162	0.450666232	2.971456
	GHMA	—	2.70%	5.97%								
	PHMA	—	3.51%	10.64%								
South Fork	OHMA	—	0.08%	0.08%			12.24390244	0.192790209	2.227196034	0.063893	0.296931933	0.715896
	GHMA	—	1.97%	2.68%								
	PHMA	—	2.78%	3.63%								
Cortez	OHMA	—	0.18%	0.73%	Yes		10.47058824	0.199301702	2.260577851	0.133375	-0.070294642	0.670596
	GHMA	—	2.40%	3.55%								
	PHMA	—	2.76%	9.06%								
Shoshone	OHMA	—	0.72%	0.83%	Yes		9.9	0.143759015	2.395004099	0.053174	-0.290357743	-0.038958
	GHMA	—	0.68%	1.16%								
	PHMA	—	2.57%	3.33%								
Desatoya	OHMA	—	0.05%	5.83%			12.83333333	0.065537426	2.64154746	0.160367	-0.144482825	0.685682
	GHMA	—	0.51%	0.71%								
	PHMA	—	1.33%	9.50%								
Snake	OHMA	—	0.00%	0.00%	Yes		15.85	0.169247653	2.569481746	0.016759	0.956925203	1.077804
	GHMA	—	0.37%	0.37%								
	PHMA	—	1.29%	1.30%								
Diamond	OHMA	—	0.00%	0.04%	Yes		9.142857143	0.124521299	1.875934286	0.023481	-0.175377693	-0.046684
	GHMA	—	0.29%	0.61%								
	PHMA	—	0.29%	1.70%								

2019 Adaptive Management Habitat Warnings and Triggers (Low, No priority = No Trigger)

PMU	MCAT	Habitat Affected by Anthro (% of total PMU acres)	3 year fire occurrence (% of total PMU acres)	10 year fire occurrence (% of total PMU acres)	Population Trigger?	Habitat Trigger?	Beginning Score	Average Habitat Suitability Index	Resistance and Resilience	% Affected by fire (10yr)	Genetic Connectivity Score	Final Score
Spring/Snake Valley	OHMA	—	0.09%	0.09%	Yes		10	0.073201758	2.452563358	0.004188	-0.295366748	-0.277039
	GHMA	—	0.12%	0.12%								
	PHMA	—	0.21%	0.21%								