The Fire and Invasive Annual Grass Assessment Tool (FIAT)

Doug Havlina, BLM Fire Ecologist

Topics to Cover

- Background and Development of FIAT
- FIAT Step 1: The regional context
- FIAT Step 2: Strategies within priority landscapes
- Outcomes of FIAT

Why another assessment?

- Regulatory certainty related to mgmt actions needed by USFWS
- FIAT assessments provide "quantified descriptions of future conservation actions to inform the sage-grouse listing decision" (Bureau of Land Mgmt. WO IM-2014-134)

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- FIAT assessments provide "quantified descriptions of future conservation actions to inform the sage-grouse listing decision" (Bureau of Land Mgmt. WO IM-2014-134)

Development of FIAT process

Development Team

Mike Pellant* (lead)
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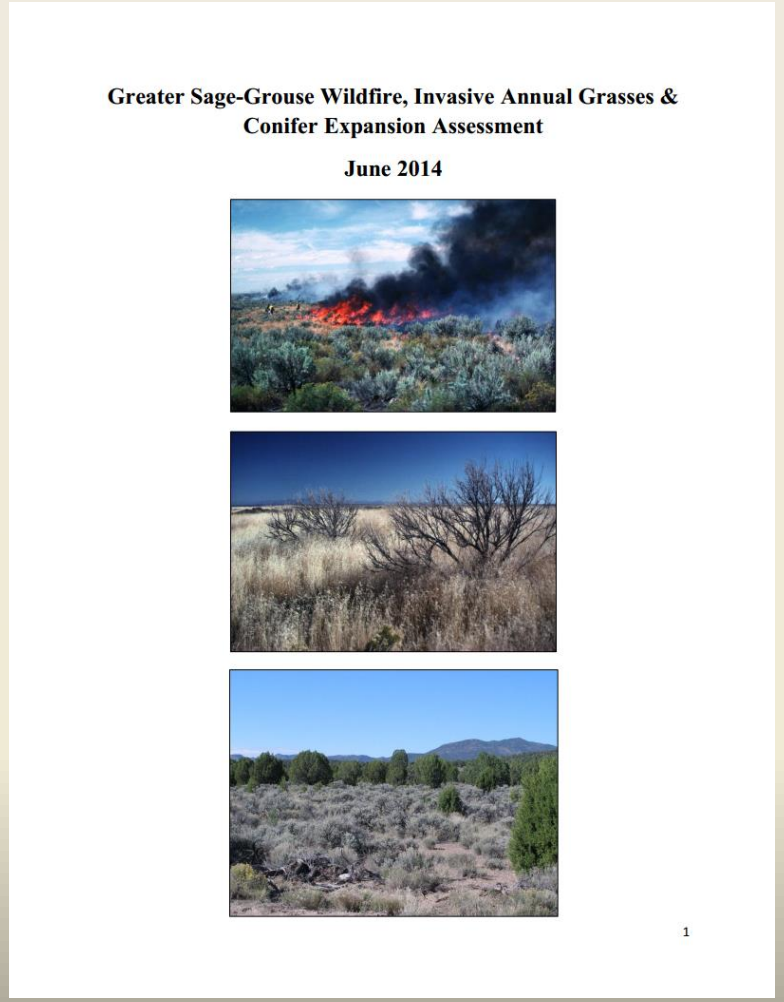
FIAT Step 1

Establishing the regional context for habitats, populations, and threat factors

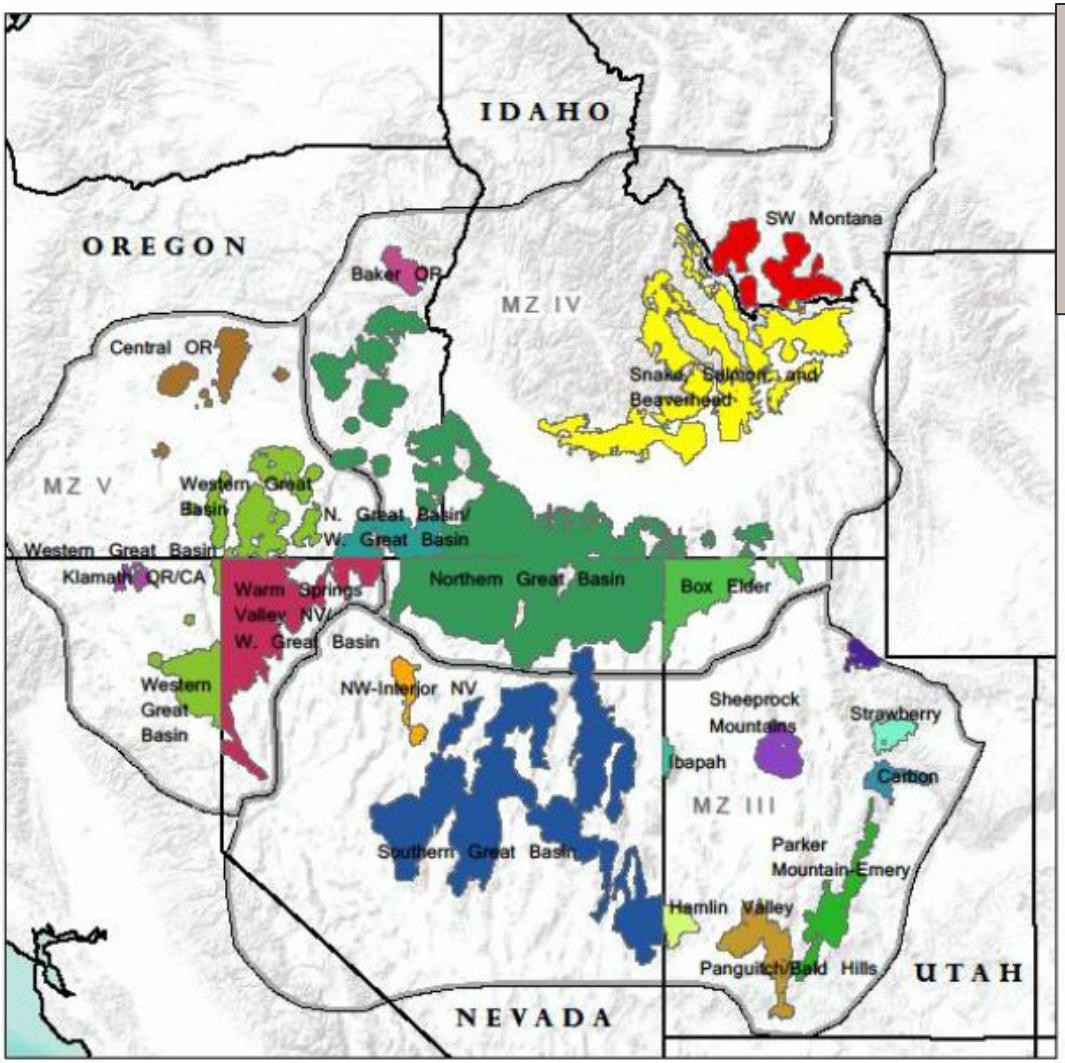
(March 2013 - August 2014)



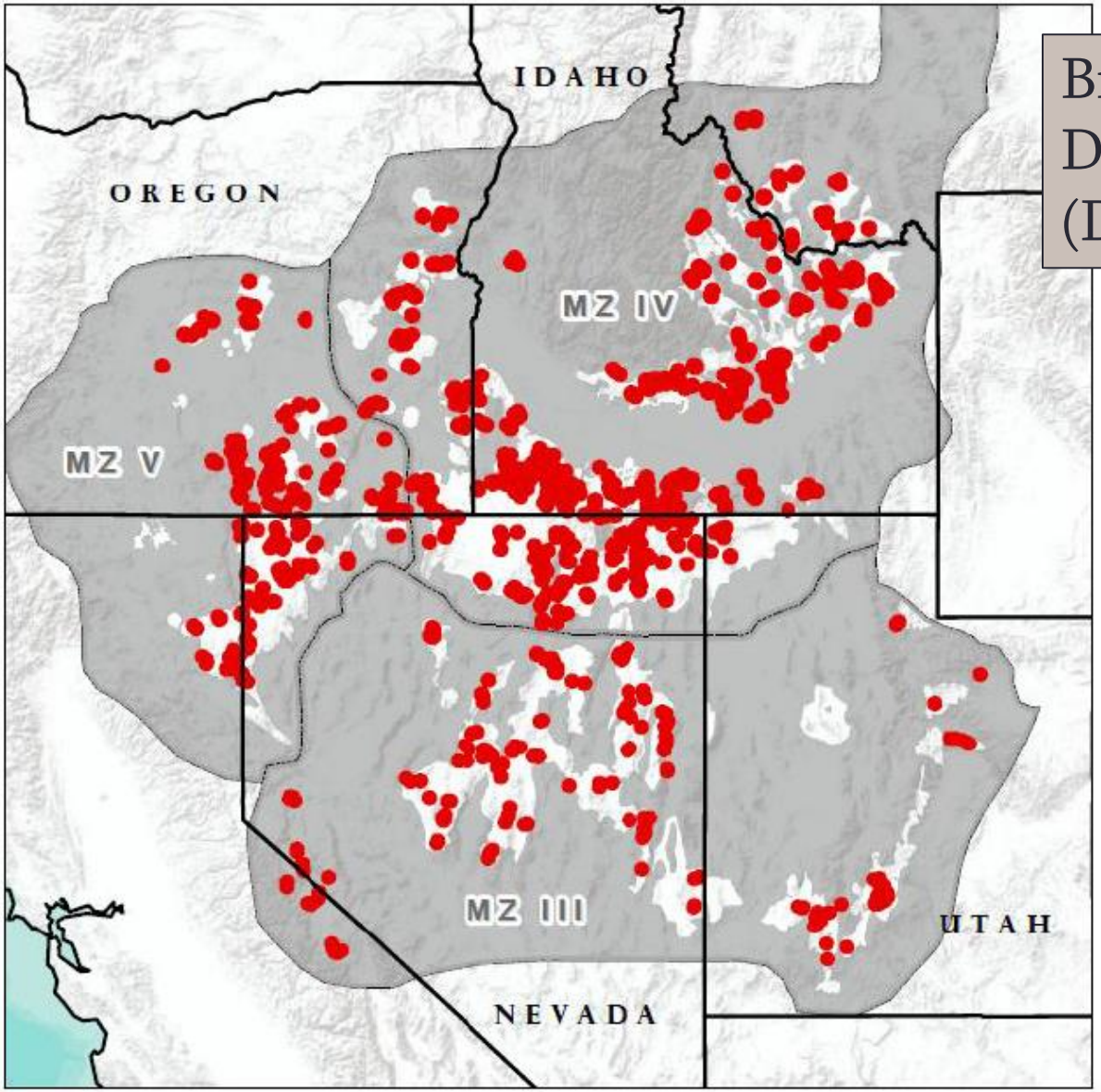
Greater Sage-Grouse Wildfire, Invasive Annual Grasses & Conifer Expansion Assessment

June 2014

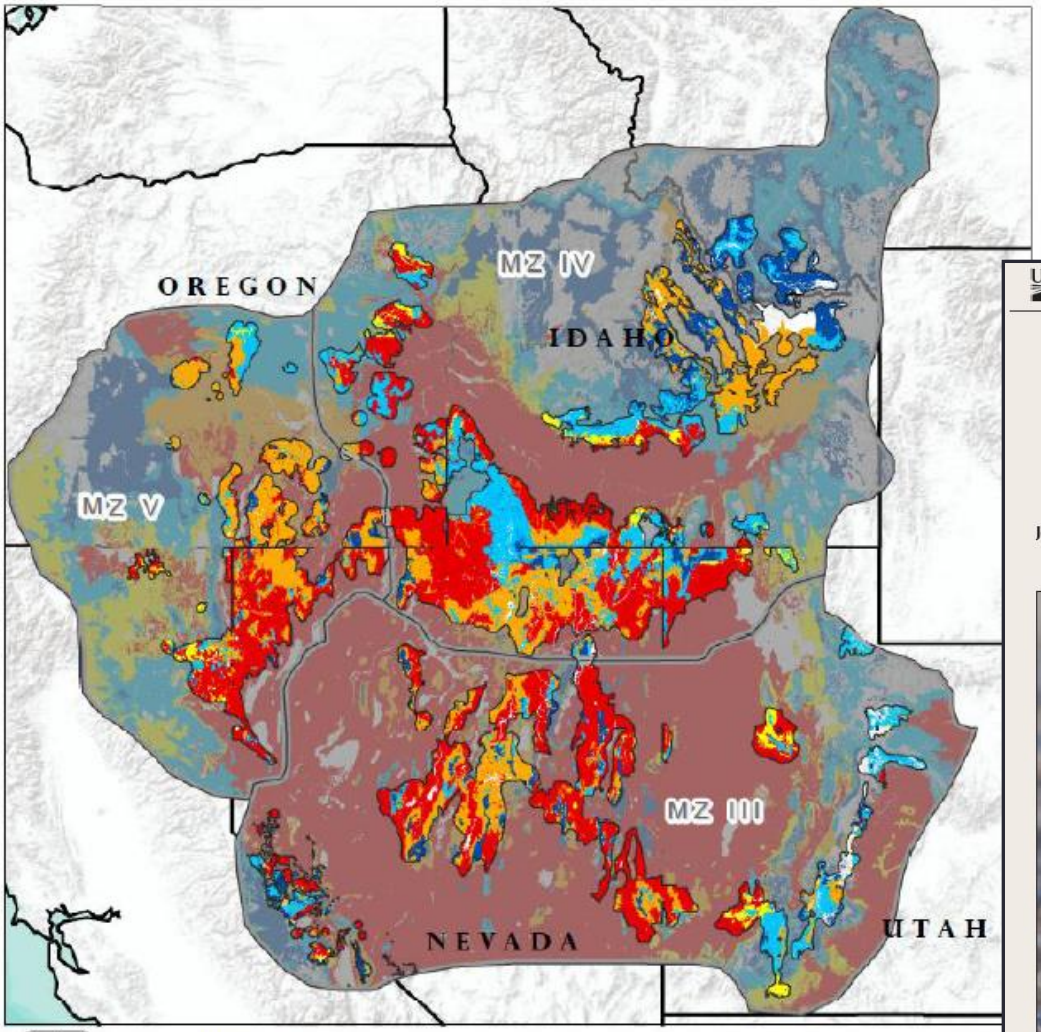
Priority Areas for Conservation (PACs) from 2013 Conservation Objectives Team (COT) report



Breeding Bird Density (Doherty 2010)



Soil moisture/ temperature regimes



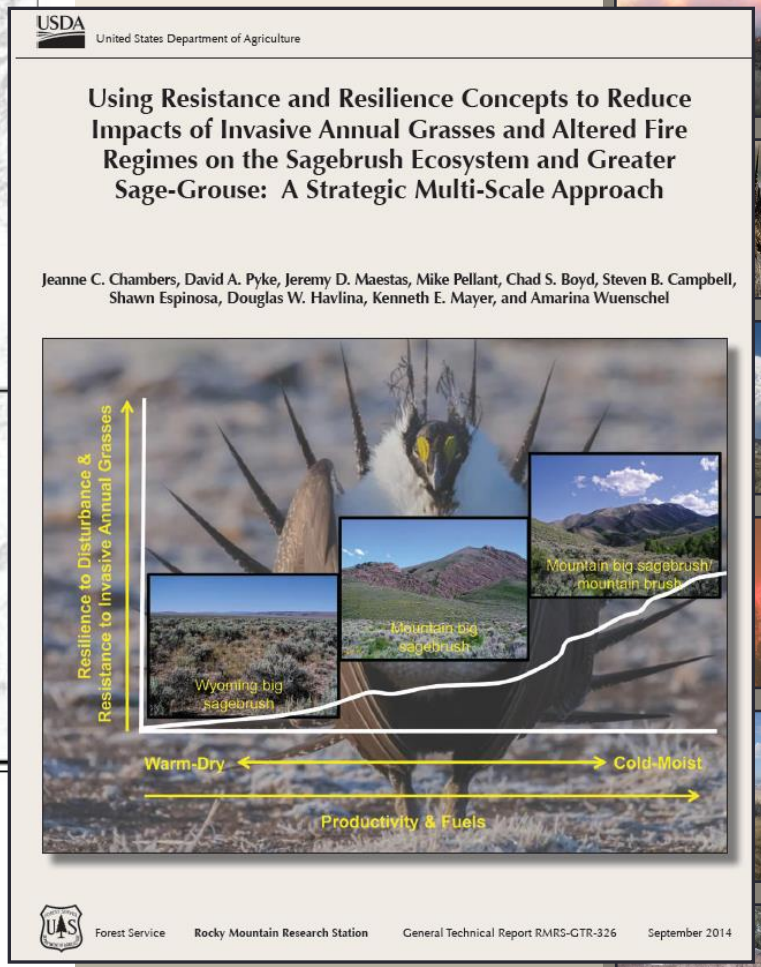
Sage-grouse Management Zone

Non Priority Area for Conservation

0 100 200 400 Kilometers

Soil Moisture & Temperature Regime

- Cold and Moist (Cryic)
- Cool and Moist (Frigid/ Xeric)
- Warm and Moist (Mesic/Xeric)
- Cool and Dry (Frigid/ Aridic)
- Warm and Dry (Mesic/ Aridic)
- Omitted or No Data

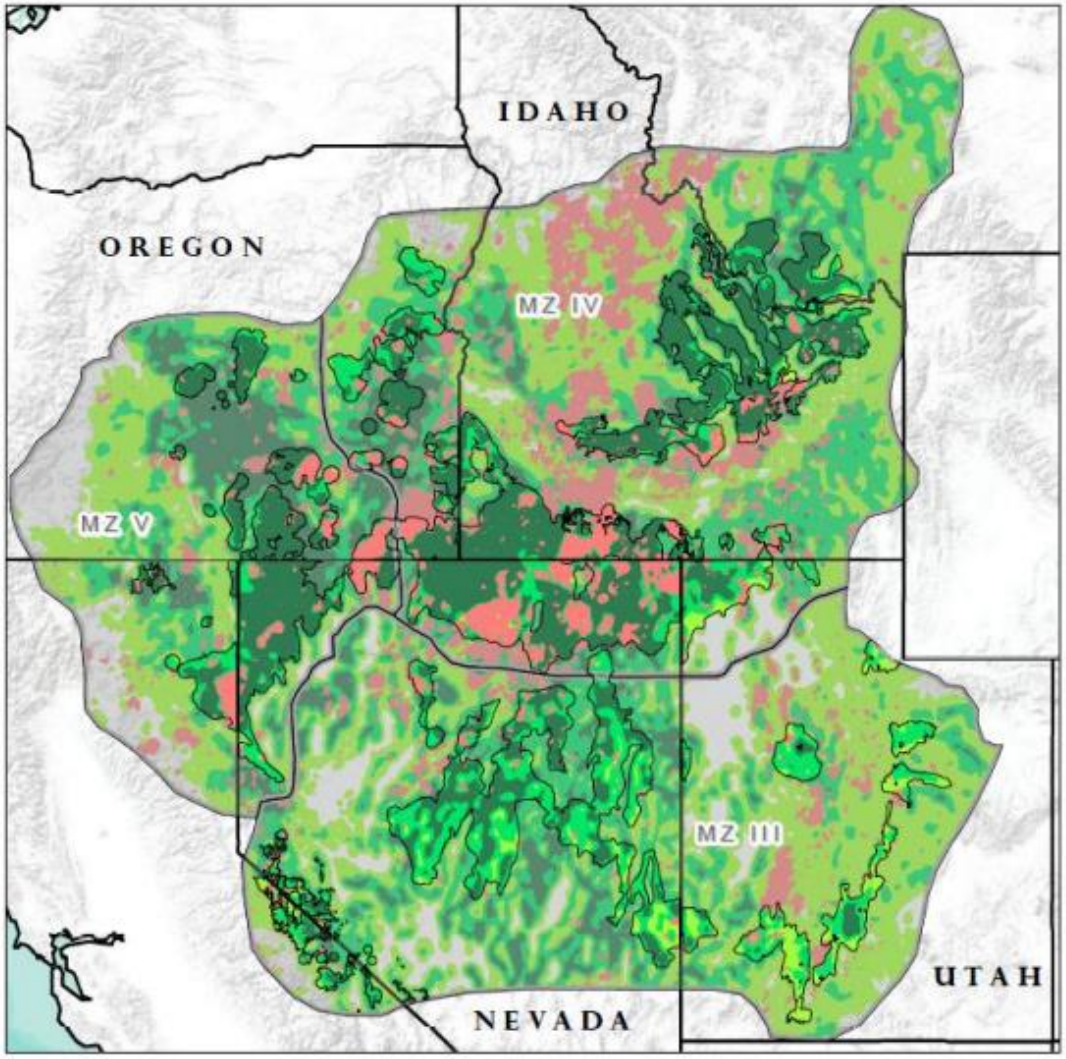


USDA United States Department of Agriculture

Using Resistance and Resilience Concepts to Reduce Impacts of Invasive Annual Grasses and Altered Fire Regimes on the Sagebrush Ecosystem and Greater Sage-Grouse: A Strategic Multi-Scale Approach

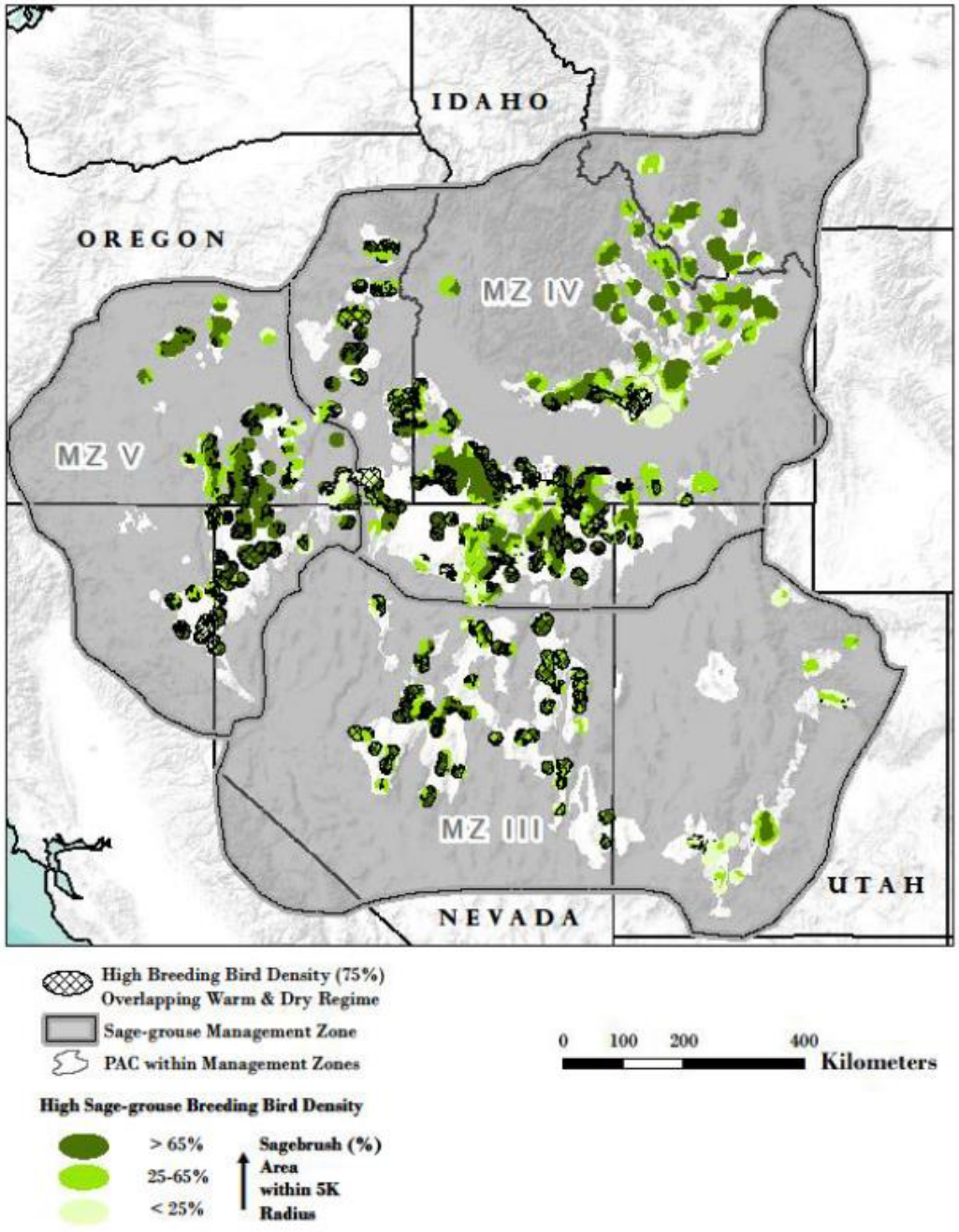
Jeanne C. Chambers, David A. Pyke, Jeremy D. Maestas, Mike Pellant, Chad S. Boyd, Steven B. Campbell, Shawn Espinosa, Douglas W. Havlina, Kenneth E. Mayer, and Amarina Wuenschel

Forest Service Rocky Mountain Research Station General Technical Report RMRS-GTR-326 September 2014



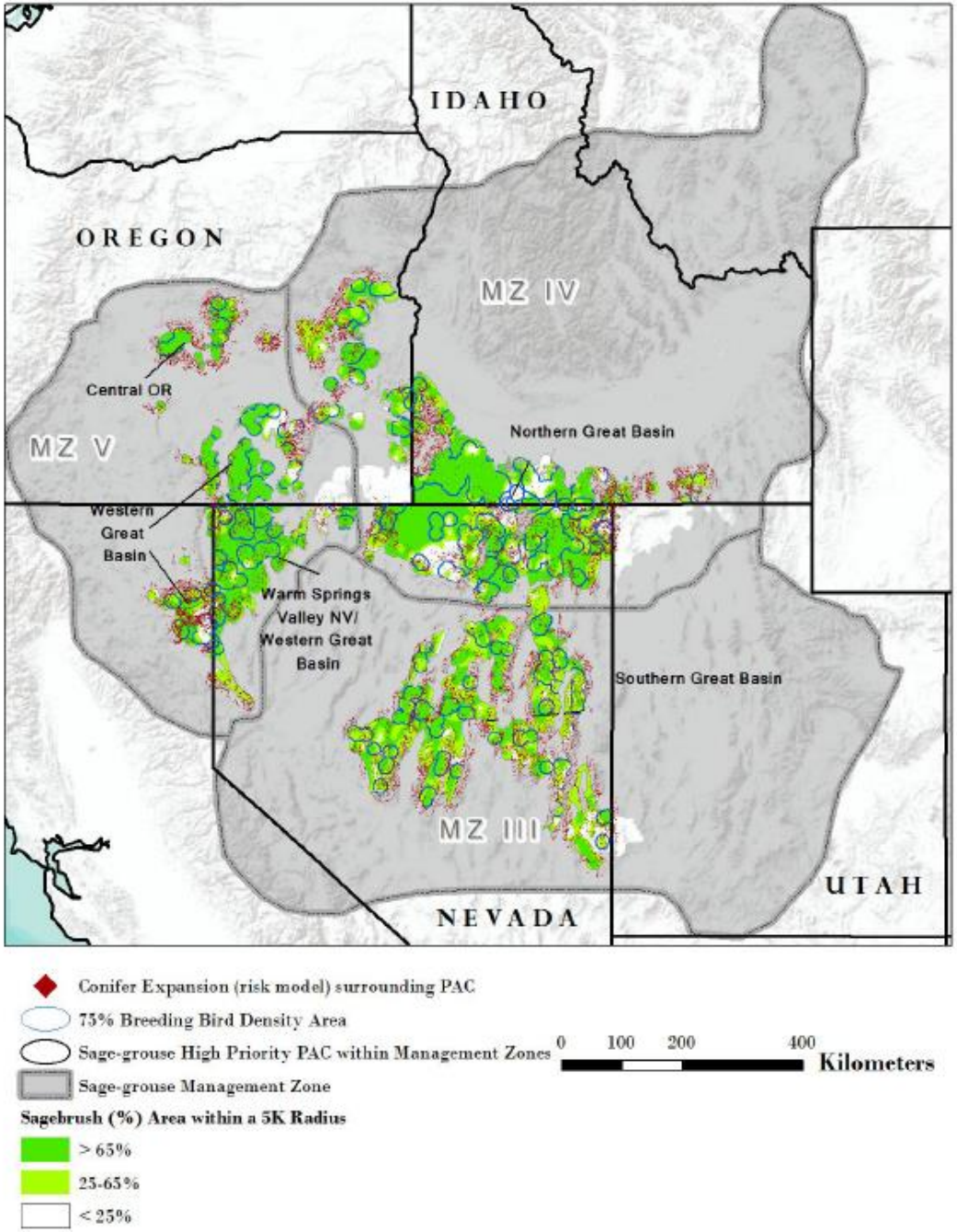
Sagebrush landscape cover

(habitat indicator, correlation to persistence)



Wildfire and Invasive Annual Grass Threat

- **Focal habitats:** 75% BBD areas in priority PACS with sagebrush
- **Emphasis Areas:** subsets of focal habitats in warm/dry moisture regimes with sagebrush landscape cover greater than 25%



Conifer Expansion Threat

- **Focal habitats:**
  Areas within or near conifer expansion in areas with > 25% sagebrush landscape cover

- **Emphasis Areas:**
  subsets of focal habitats in the 75% BBD areas

Wildfire and Invasive Annual Grass PACs

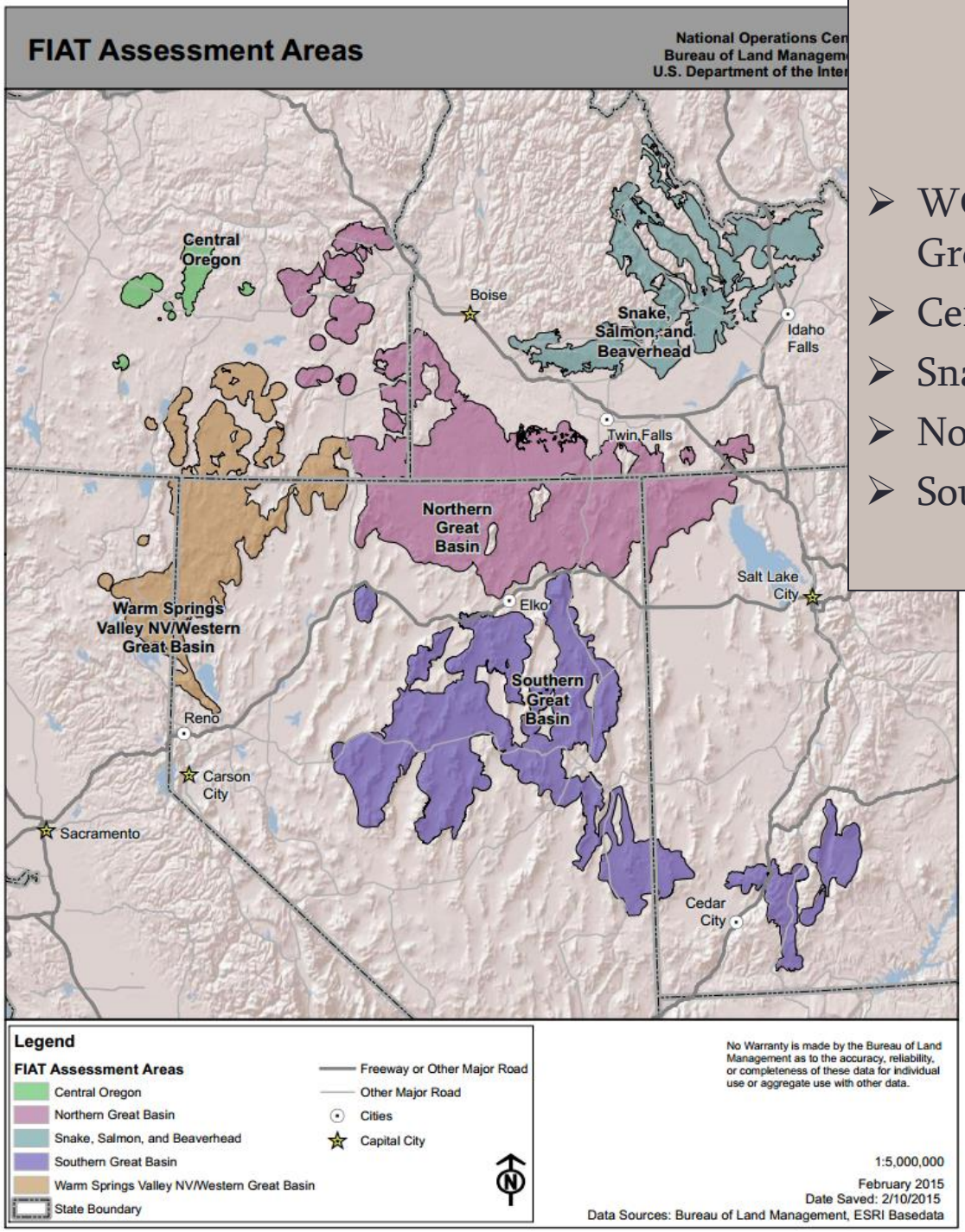
Sage-grouse Management Zone	Sage-grouse Priority Area for Conservation (PAC) Name	Total PAC Acres	Breeding Bird Density (75%) Acres	Percent of Breeding Bird Density (75%) Area within PAC	Warm and Dry Soil Moisture & Temperature Regime within Breeding Bird Density (75%) Acres*		
					0-25% Sagebrush Landscape Cover	25%-65% Sagebrush Landscape Cover	65%+ Sagebrush Landscape Cover
4	Northern Great Basin	13045515	7383442	57%	179551 (2%)	674554 (9%)	1745163 (24%)
3	Southern Great Basin	9461355	3146056	33%	42596 (1%)	792780 (25%)	1062091 (34%)
4	Snake, Salmon, and Beaverhead	5477014	2823205	52%	68107 (2%)	89146 (3%)	95970 (3%)
5	Western Great Basin	3177253	2084626	66%	149399 (7%)	140141 (7%)	202767 (10%)
5	Warm Springs Valley NV/Western Great Basin	3520937	1558166	44%	31458 (2%)	207365 (13%)	741353 (48%)
4	SW Montana	1369076	659475	48%	0 (0%)	0 (0%)	0 (0%)
4	Northern Great Basin/Western Great Basin	1065124	624581	59%	114222 (18%)	85258 (14%)	116513 (19%)
5	Central OR	813699	451755	56%	0 (0%)	6211 (1%)	16463 (4%)
3	Panguitch/Bald Hills	1135785	352258	31%	6883 (2%)	5821 (2%)	0 (0%)
3	Parker Mountain-Emery	1122491	308845	28%	0 (0%)	127 (0%)	0 (0%)
4	Box Elder	1519454	292658	19%	22 (0%)	43325 (15%)	23913 (8%)
4	Baker OR	336540	184813	55%	0 (0%)	46459 (25%)	36214 (20%)
3	NW-Interior NV	371557	108256	29%	576 (1%)	17117 (16%)	25173 (23%)
3	Carbon	355723	97734	27%	255 (0%)	180 (0%)	0 (0%)
3	Strawberry	323219	52635	16%	0 (0%)	0 (0%)	0 (0%)
3	Rich-Morgan-Summit	217033	37005	17%	0 (0%)	0 (0%)	0 (0%)
3	Hamlin Valley	341270	3244	1%	0 (0%)	139 (4%)	3105 (96%)
3	Ibapah	98574	0	0%	0 (NA)	0 (NA)	0 (NA)
3	Sheeprock Mountains	611374	0	0%	0 (NA)	0 (NA)	0 (NA)
5	Klamath OR/CA	162667	0	0%	0 (NA)	0 (NA)	0 (NA)

* Numbers in parenthesis indicate the percent of acres relative to total acres of breeding bird density (75%)

Conifer Expansion PACs

Sage-grouse Management Zone	Sage-grouse Priority Area for Conservation (PAC) Name	Total PAC Acres	Breeding Bird Density (75%) Acres	Percent Breeding Bird Density (75%) Acres	Conifer Expansion (Modeled) Acres within Breeding Bird Density (75%) Areas*		
					0-25% Sagebrush Landscape Cover	25%-65% Sagebrush Landscape Cover	65%+ Sagebrush Landscape Cover
4	Northern Great Basin	13045515	7383442	57%	95714 (1%)	247250 (3%)	272079 (4%)
3	Southern Great Basin	9461355	3146056	33%	23982 (1%)	229389 (7%)	92756 (3%)
4	~~Snake, Salmon, and Beaverhead~~	5477014	2823205	52%	970 (0%)	18367 (1%)	92251 (3%)
5	Western Great Basin	3177253	2084626	66%	57918 (3%)	106130 (5%)	67858 (3%)
5	Warm Springs Valley NV/Western Great Basin	3520937	1558166	44%	9984 (1%)	46846 (3%)	104168 (7%)
4	SW Montana	1369076	659475	48%	90 (0%)	8182 (1%)	21224 (3%)
4	Northern Great Basin/Western Great Basin	1065124	624581	59%	9436 (2%)	1869 (0%)	3587 (1%)
5	Central OR	813699	451755	56%	339 (0%)	27260 (6%)	31765 (7%)
3	Panguitch/Bald Hills	1135785	352258	31%	28515 (8%)	22118 (6%)	0 (0%)
3	Parker Mountain-Emery	1122491	308845	28%	6967 (2%)	15052 (5%)	5980 (2%)
4	Box Elder	1519454	292658	19%	2415 (1%)	22184 (8%)	20316 (7%)
4	Baker OR	336540	184813	55%	1 (0%)	7484 (4%)	195 (0%)
3	NW-Interior NV	371557	108256	29%	4320 (4%)	5718 (5%)	653 (1%)
3	Carbon	355723	97734	27%	3364 (3%)	15832 (16%)	0 (0%)
3	Strawberry	323219	52635	16%	236 (0%)	1007 (2%)	0 (0%)
3	Rich-Morgan-Summit	217033	37005	17%	3913 (11%)	2628 (7%)	0 (0%)
3	Hamlin Valley	341270	3244	1%	0 (0%)	16 (0%)	520 (16%)
3	Ibapah	98574	0	0%	0 (NA)	0 (NA)	0 (NA)
5	Klamath OR/CA	162667	0	0%	0 (NA)	0 (NA)	0 (NA)
3	Sheeprock Mountains	611374	0	0%	0 (NA)	0 (NA)	0 (NA)

* Numbers in parenthesis indicate the percent of acres relative to total acres of breeding bird density (75%)



FIAT Assessment Areas:

- WGB/Warm Springs Valley, Western Great Basin (7.3 M acres)
- Central Oregon (814,000 acres)
- Snake/Salmon/Beaverhead (5.5 M acres)
- Northern Great Basin (16 M acres)
- Southern Great Basin (13.5 M acres)

FIAT Step 2

(Sept. 2014 – March 2015)

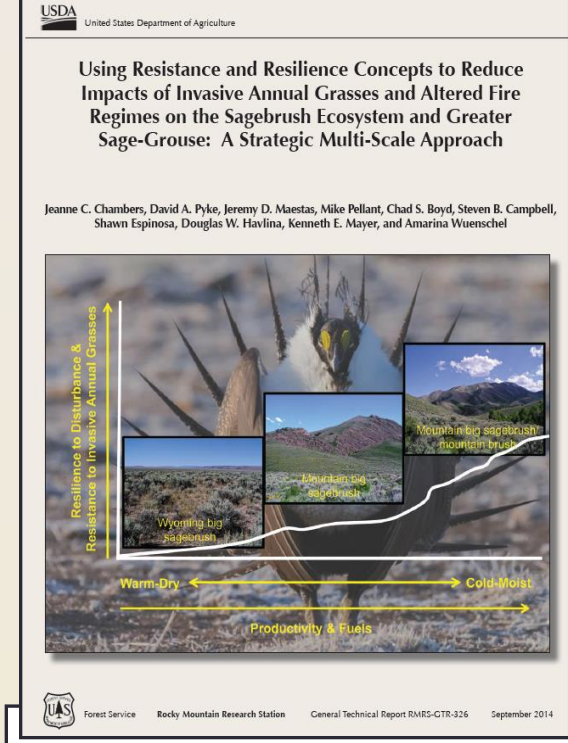
- Completing the 5 individual assessments
- Incorporate local data with step 1 findings
- Design mgmt. strategies, establish spatial priorities, and identify potential treatments for:
  - Fuels Management
  - Habitat Recovery/Restoration
  - Fire Operations
  - Post-fire Rehabilitation

FIAT Team Leads

- Craig Goodell: Central Oregon
  (OR/WA Fire Ecologist)
- Joe Adamski: (1) N. Great Basin
  (ID Forestry Lead) (2) Snake/Salmon/Beaverhead
- Sandy Gregory: S. Great Basin
  (NV Fuels Lead)
- Ken Collum: W. Great Basin/Warm Springs Valley
  (Eagle Lake Field Office Manager)

Sideboards of FIAT Step 2

- Ameliorate threats to SG and habitats from wildfire, invasive annual grasses, and conifer expansion
- Spatially identify management strategies, potential treatments, and priority areas (fuels mgmt., habitat restoration, fire operations, post-fire rehabilitation)
- Use focal habitats and emphasis areas to define where management should be applied
- Apply guidance from SG habitat matrix, the R/R General Technical Report, and FIAT Report



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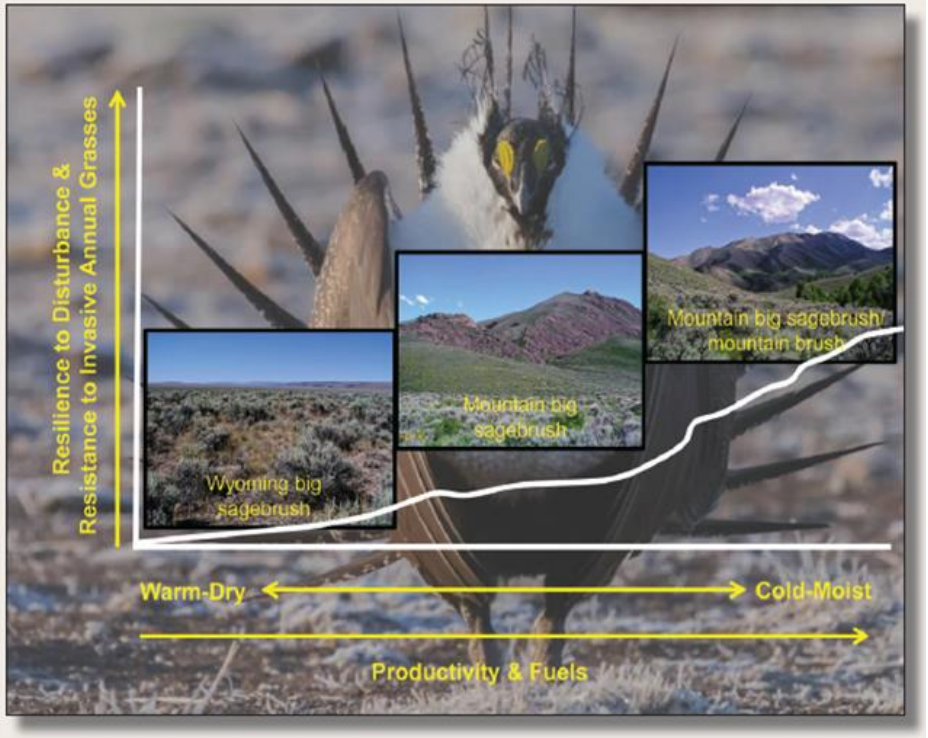

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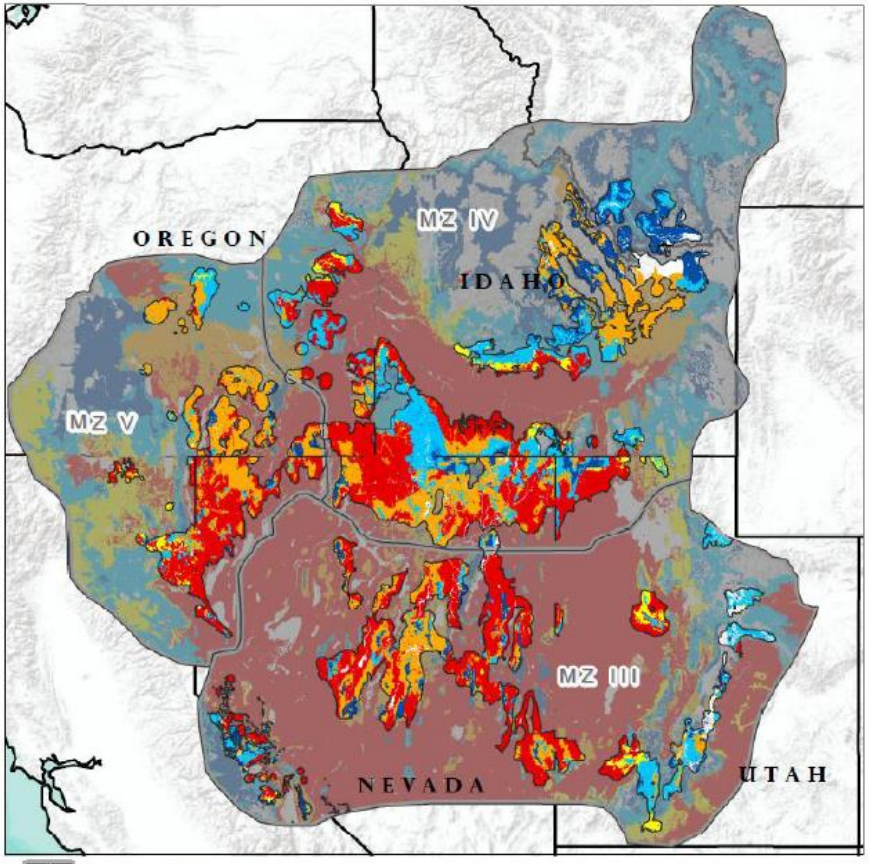
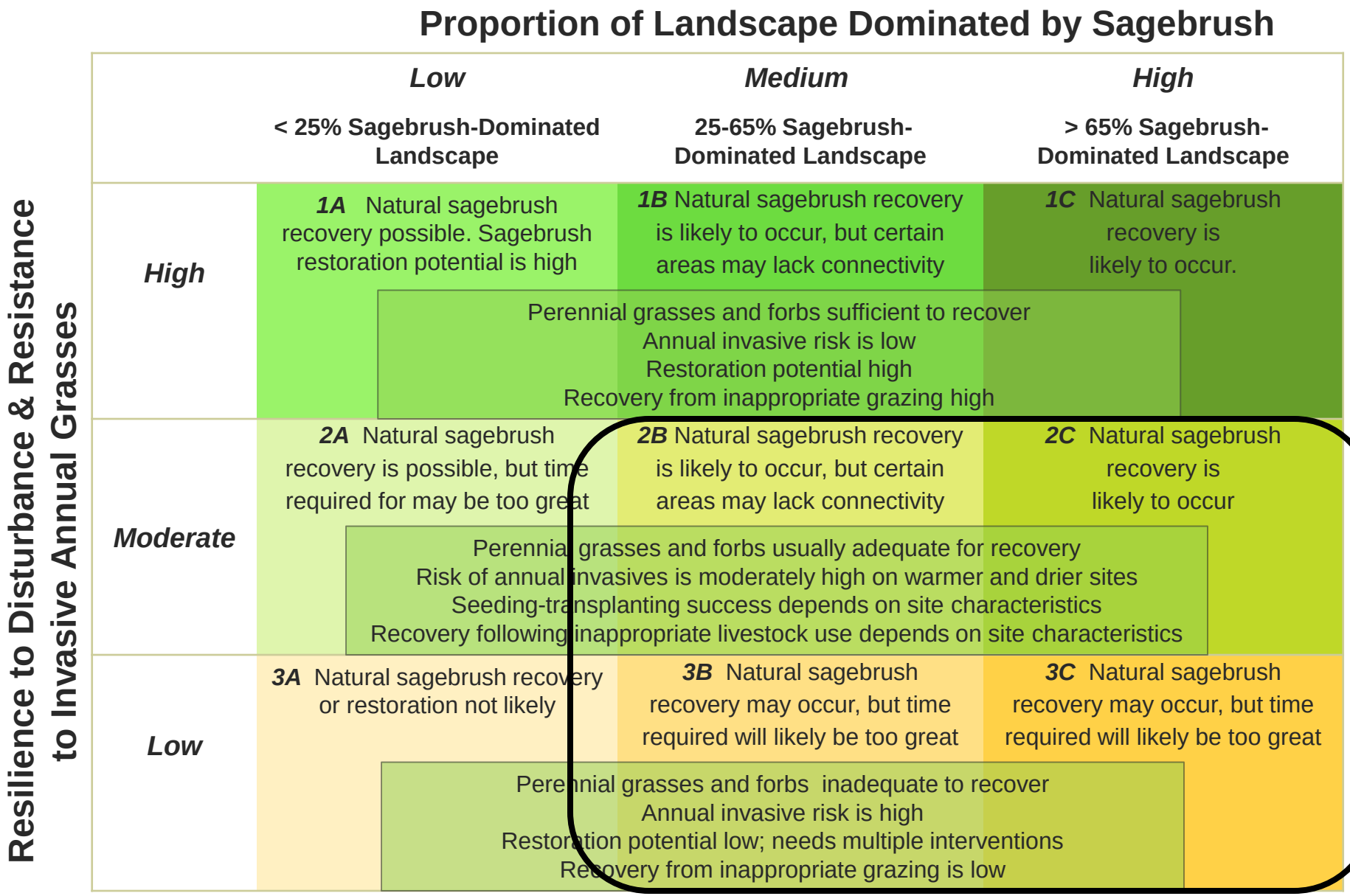


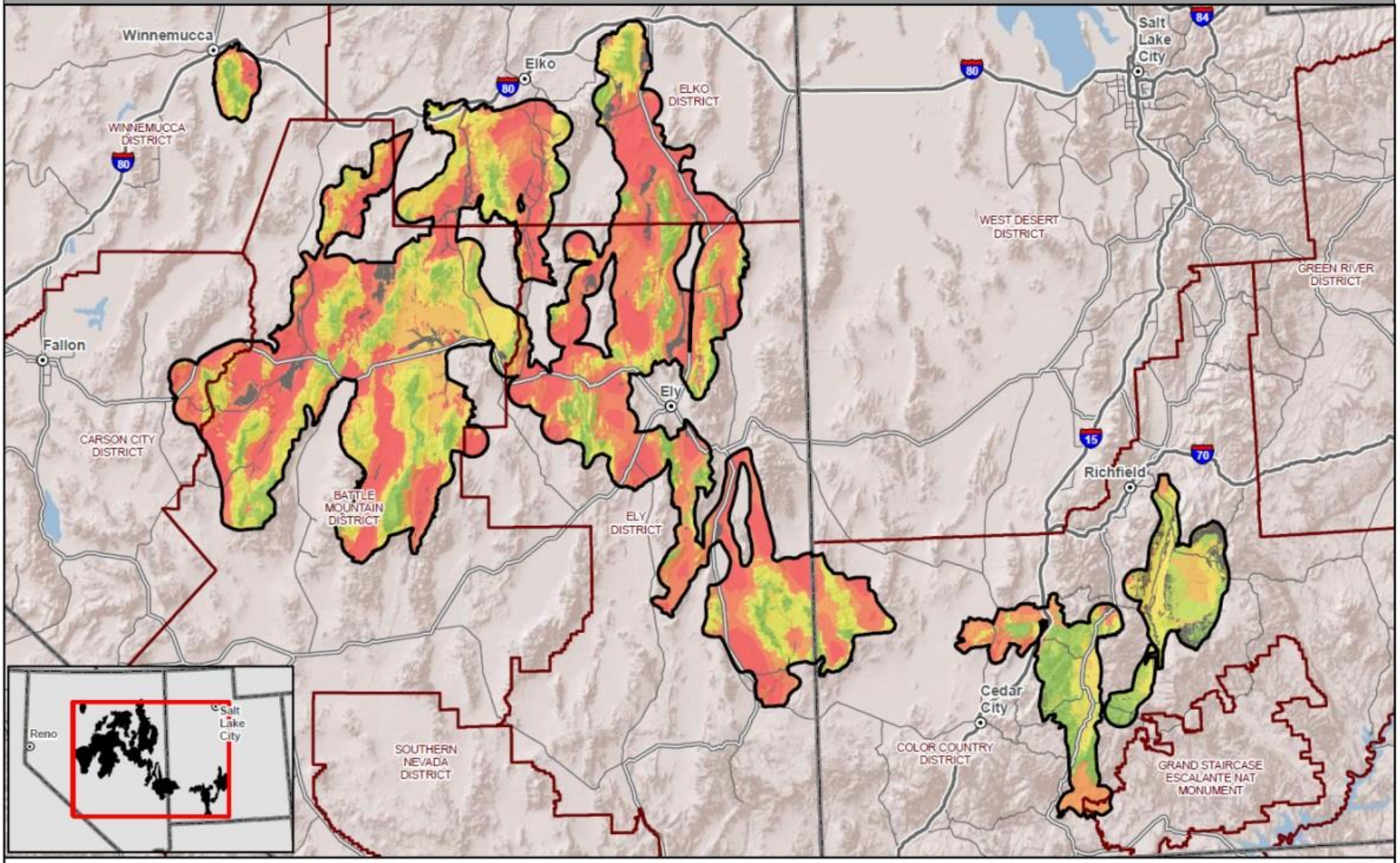
Sage-Grouse Habitat Matrix



Soil Mositure / Temperature Regimes - NEW

Greater Sage-Grouse, Wildfire, Invasive Annual Grasses, and Conifer Expansion Assessments

Southern Great Basin
Bureau of Land Management
U.S. Department of the Interior



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

N

00 1A 1B 1C 2A 2B 2C 3A 3B 3C

Assessment Area
State Boundary
BLM District Boundary

Interstate Hwy
US Route
State Route

January 2015
Date Saved: 2/11/2015
Data Sources: Bureau of Land Management, ESRI Basedata
1:2,782,791

Fuels Management

(proactive strategies)

Habitat Recovery/Restoration

(proactive strategies)

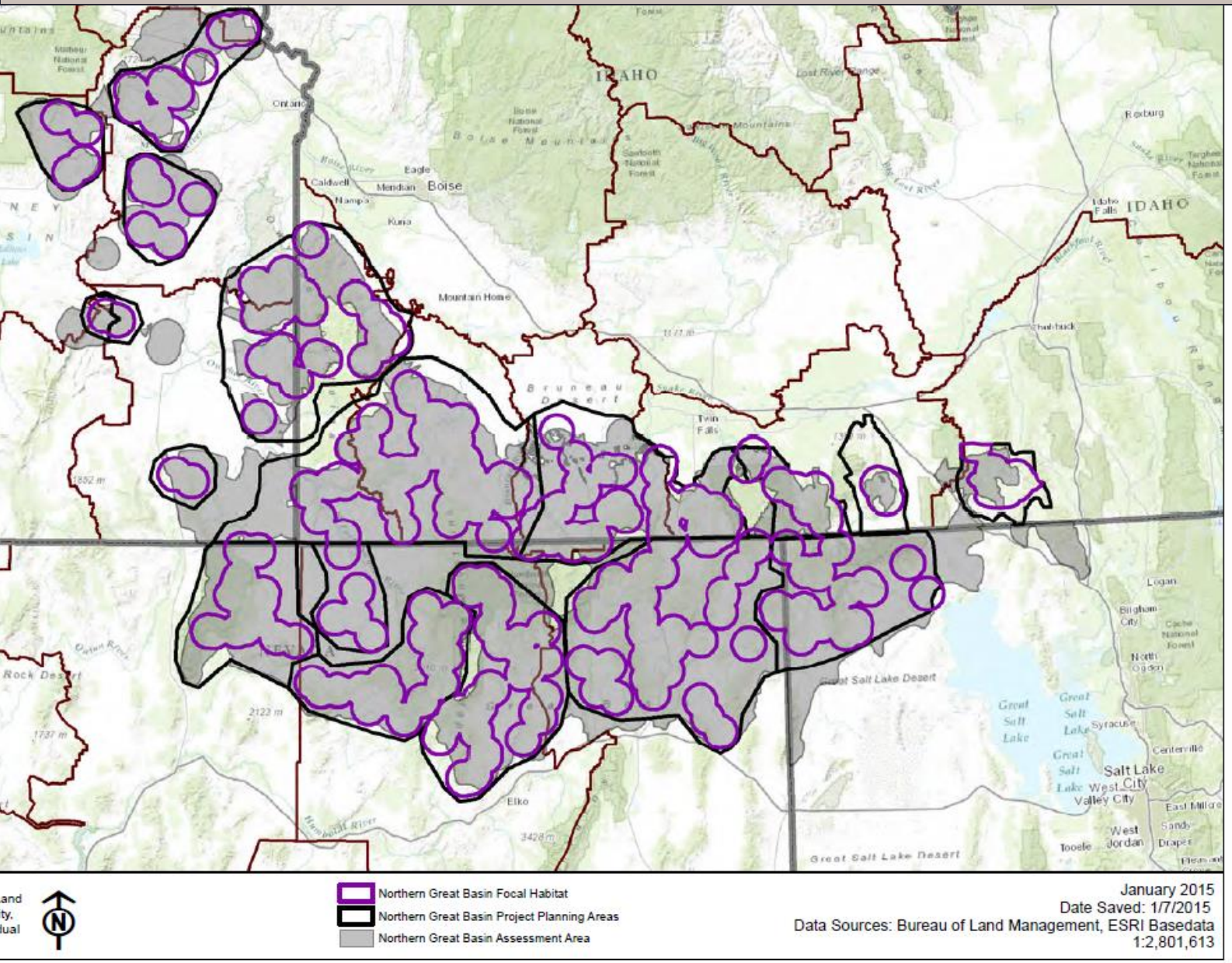
Fire Operations

(both proactive and reactive strategies)

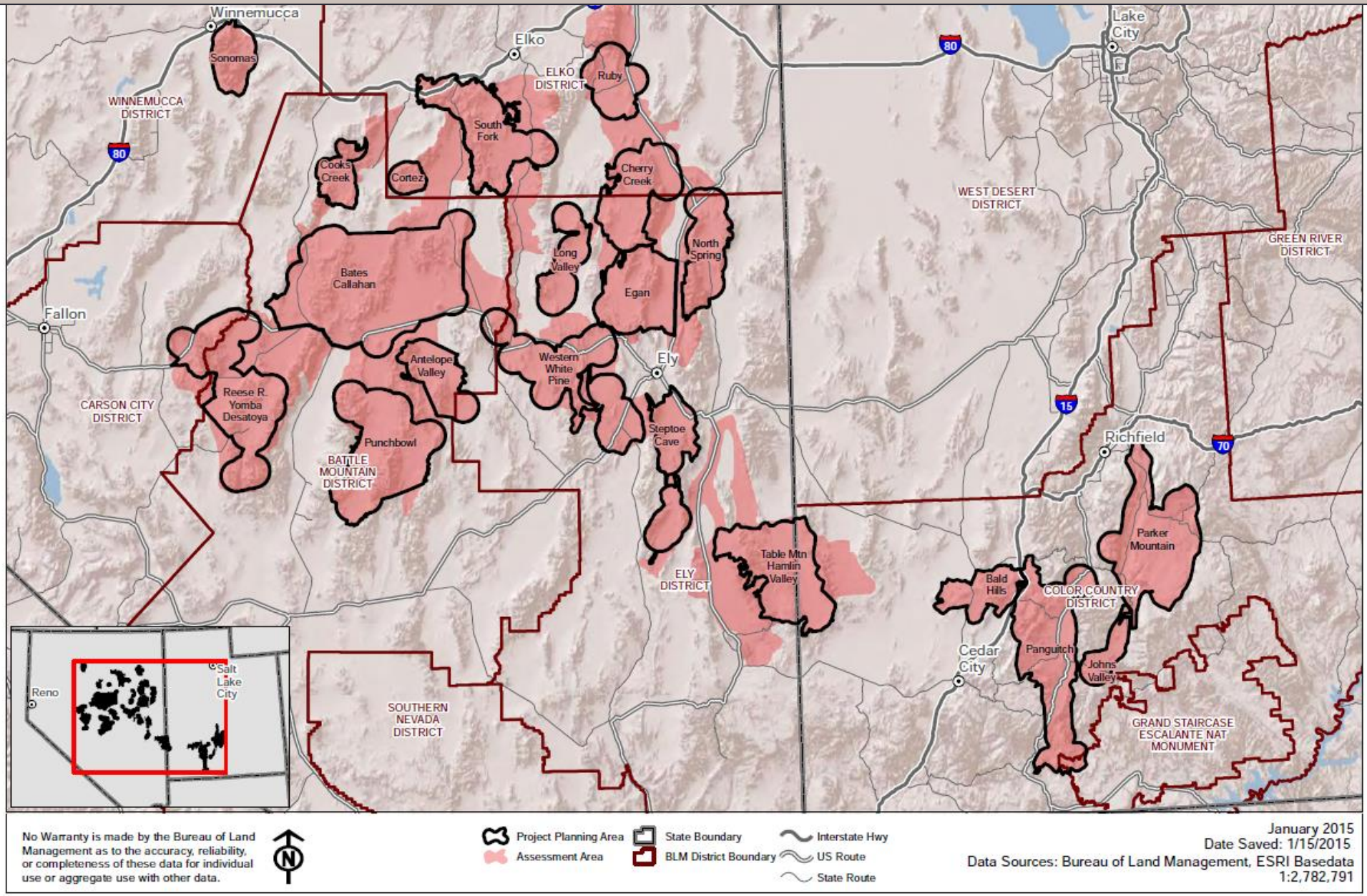
Post-fire rehabilitation

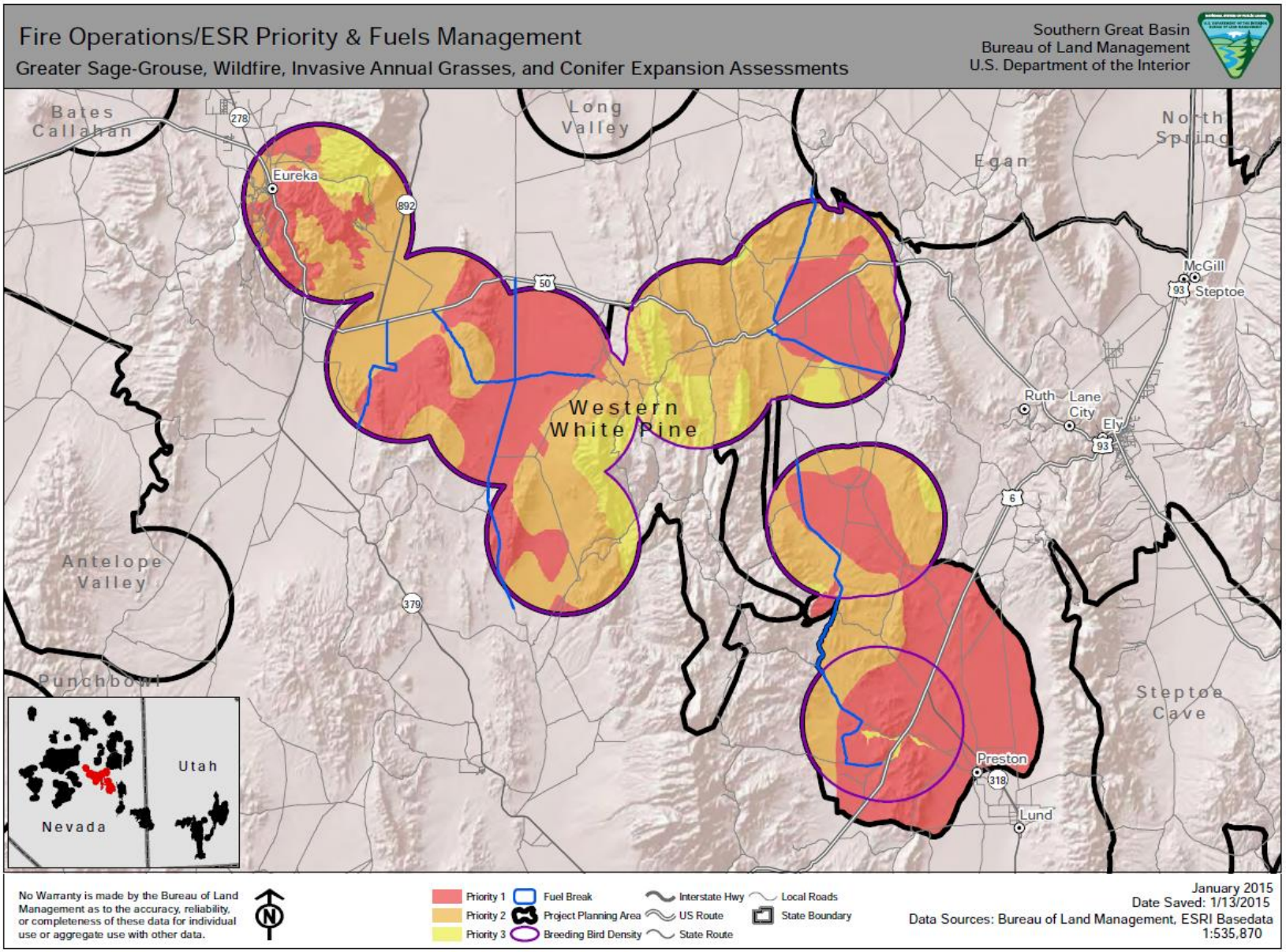
(reactive strategies)

Northern Great Basin FIAT: 18 Project Planning Areas



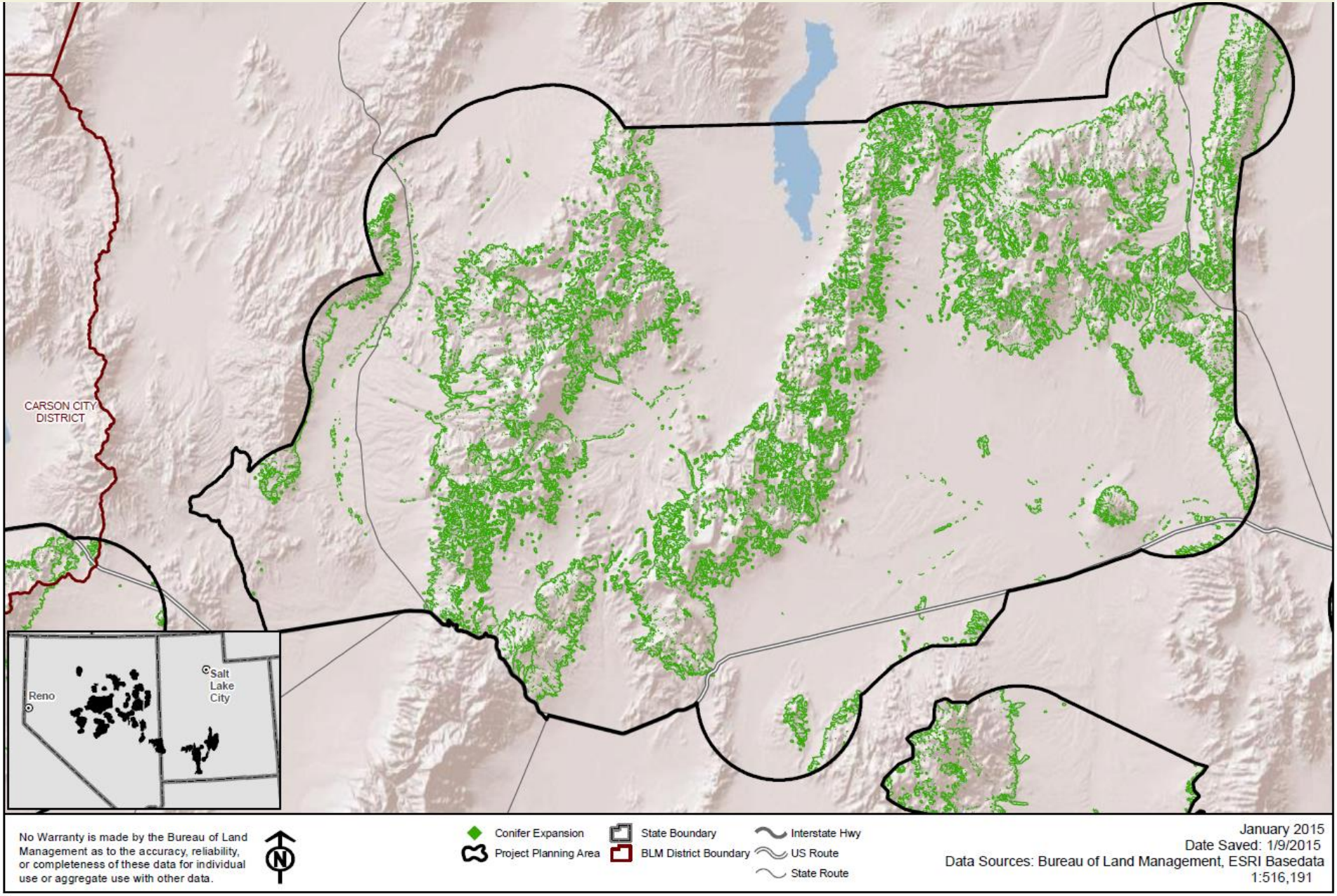
Southern Great Basin FIAT: 20 Project Planning Areas



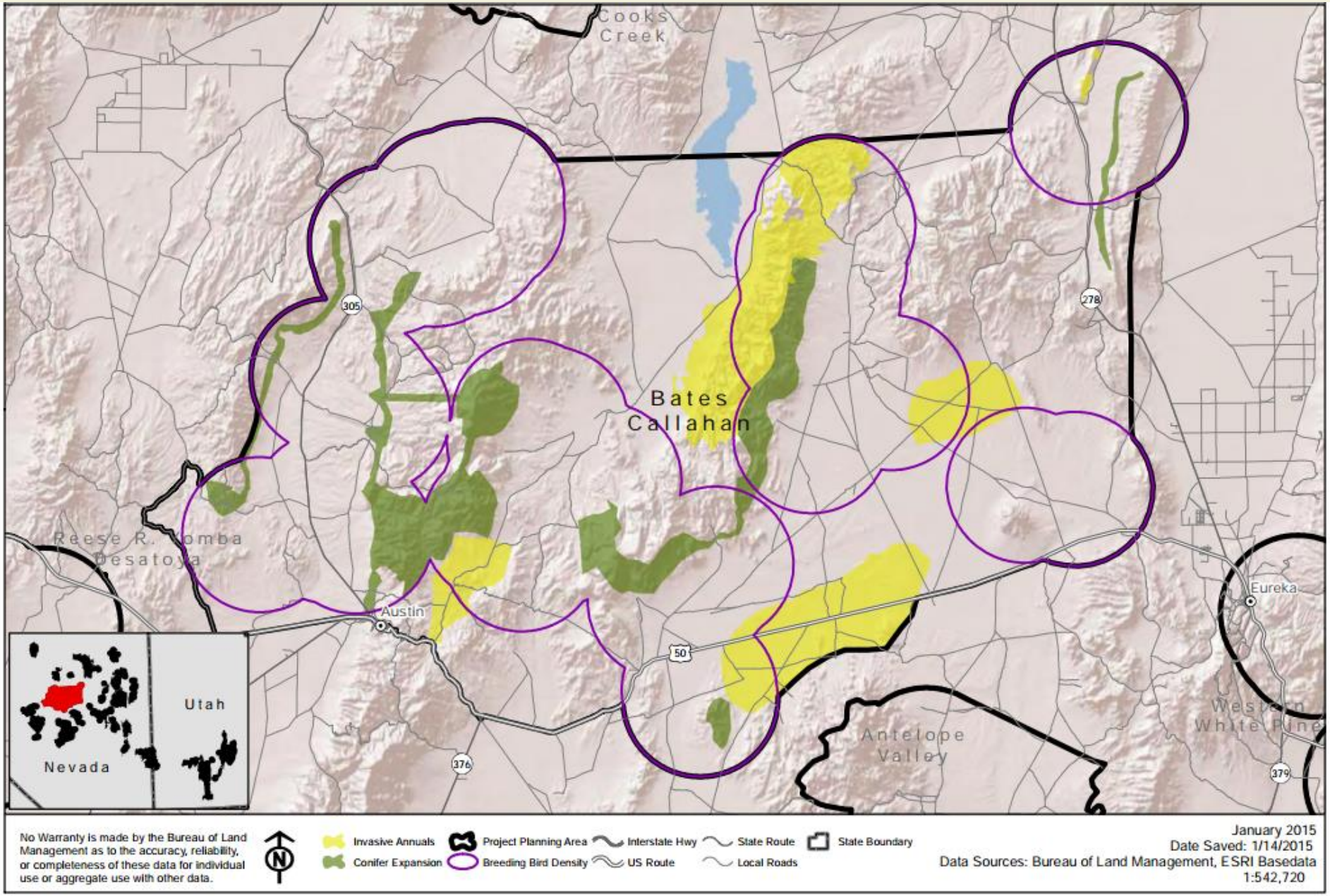


FIAT Step 2: Identifying treatment opportunities in or adjacent to focal habitats

Habitat restoration potential treatments identified using conifer expansion data and intersection with habitats and sagebrush cover



Identifying potential treatments for (1) conifer expansion and (2) invasive annual grasses



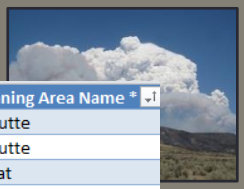
FIAT treatment areas input into Geodatabase

Fuels Treatments

A	B	C	D
OBJECTID *	SHAPE *	Potential Treatment Area Name	FIAT Planning Area Name *
6	Polygon	Beaty's Butte Conifer Treatment 1	Beaty's Butte
7	Polygon	Beaty's Butte Overstory Treatment 1	Beaty's Butte
8	Polygon	Beaty's Butte Overstory Treatment 2	Beaty's Butte
9	Polygon	Beaty's Butte Overstory Treatment 3	Beaty's Butte
18	Polygon	Beaty's Butte East Fuel Breaks	Beaty's Butte
19	Polygon	Beaty's Butte Southwest Fuel Breaks	Beaty's Butte
1	Polygon	Clover Flat Conifer Reduction 1	Clover Flat
11	Polygon	Clover Flat Fuel Breaks	Clover Flat
2	Polygon	Gravely Conifer Treatment 1	Gravelly
12	Polygon	Gravelly East Fuel Break	Gravelly
4	Polygon	North Warner Juniper Reduction	North Warner
5	Polygon	North Warner Invasive Species Restoration	North Warner
15	Polygon	North Warner Powerline Rd. Fuel Break	North Warner
16	Polygon	North Warner West Fuel Breaks	North Warner
17	Polygon	North Warner Northern Fuel Breaks	North Warner
10	Polygon	Orejana Water Development	Orejana
14	Polygon	Orejana Mowings	Orejana
20	Polygon	Orejana Overstory Treatment 1	Orejana
3	Polygon	South Warner Conifer/Maintenance Treatment 1	South Warner
13	Polygon	South Warner Powerline Rd. Fuel Break	South Warner

Post-Fire Rehabilitation Treatments

OBJECTID *	SHAPE *	Priority ESR Area Name	FIAT Planning Area Name *
8	Polygon	Beaty's Butte East ESR	Beaty's Butte
11	Polygon	Beaty's Butte < 6,000 ft ESR	Beaty's Butte
1	Polygon	Clover Flat Lek ESR	Clover Flat
2	Polygon	Gravelly North: Wyoming/Cheatgrass ESR	Gravelly
3	Polygon	Gravelly South RSR	Gravelly
5	Polygon	North Warner Low Sage 1 ESR	North Warner
6	Polygon	North Warner Big Sage Greater than 6000 and Low RR ESR	North Warner
12	Polygon	North Warner >6,000 ft ESR	North Warner
13	Polygon	North Warmer Low Sage < 6,000 ft ESR	North Warner
7	Polygon	Orejana ESR	Orejana
4	Polygon	South Warner ESR	South Warner



FIAT in summary

- Collaborative
- Application of management strategies based in science
- Represents an integrated framework for analysis and planning
- Answers “why here, why now?”