

# Conducting Wildfire, Invasive Annual Grass, and Conifer Expansion Assessments: The FIAT process



Doug Havlina - BLM Fire Ecologist, FIAT Coordinator



# Why another assessment?

- Regulatory certainty needed
- Agreed to in Portland and Denver Federal Family meetings
- FIAT assessments provide “quantified descriptions of future conservation actions to inform the sage-grouse listing decision” (WO IM-2014-134)



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# FIAT Collaboration

## Development Team

Mike Pellant* (lead)	Dave Pyke*
Jeanne Chambers*	Jeremy Maestas*
Chad Boyd*	Lou Ballard
Doug Havlina	Tim Metzger
Todd Hopkins	Tom Rinkes
Clint McCarthy	Joe Tague
Steve Knick	Mina Wuenschel
Mike Gregg	

\* = member of WAFWA resistance and resilience team

## Review Team

Laurie Kurth	Chris Theisen
Lauren Mermejo	Glen Stein
Jesse Delia	Mike Ielimi
Tate Fischer	Krista Gollnick Waid
Ken Collum	Chuck Mark
Dave Repass	Peggy Olwell
Don Major	Don Kemner





# FIAT Step 1

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

(March 2013 - August 2014)

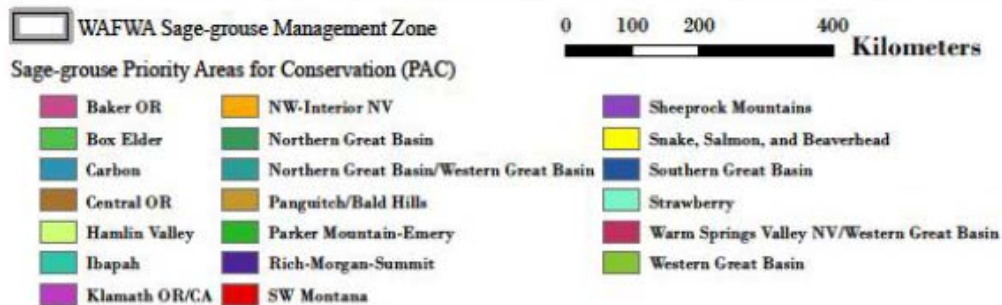
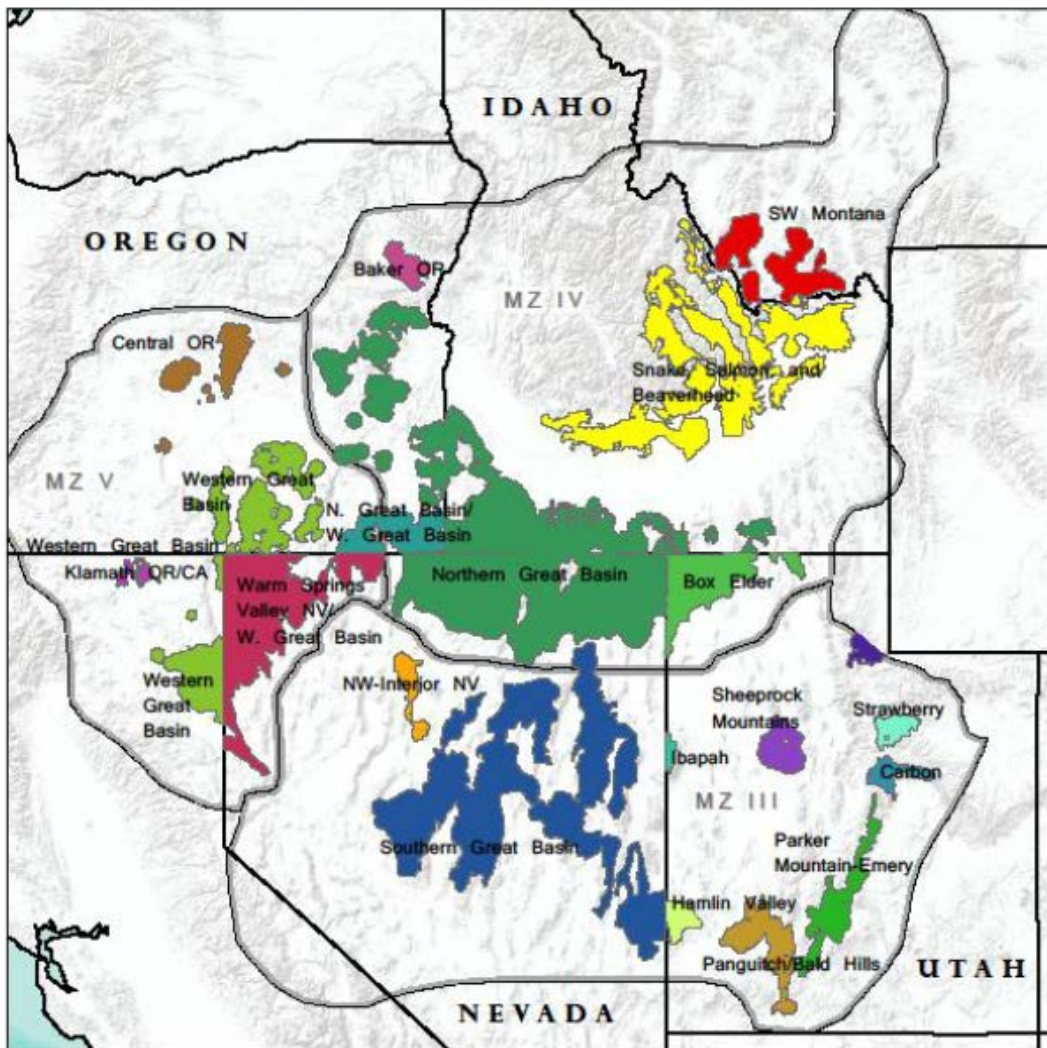
## Greater Sage-Grouse Wildfire, Invasive Annual Grasses & Conifer Expansion Assessment

June 2014



1

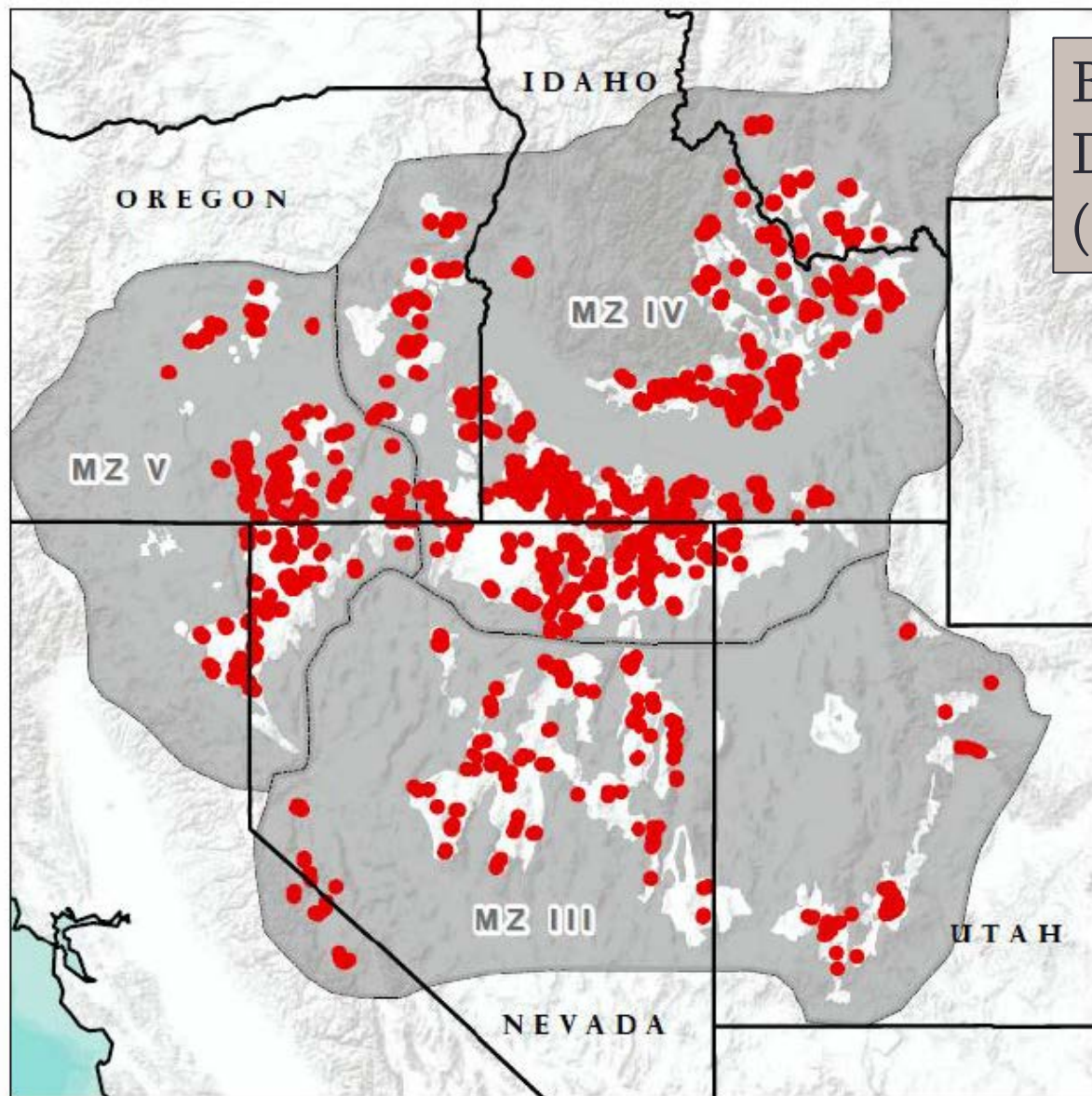




## PACs from 2013 COT report



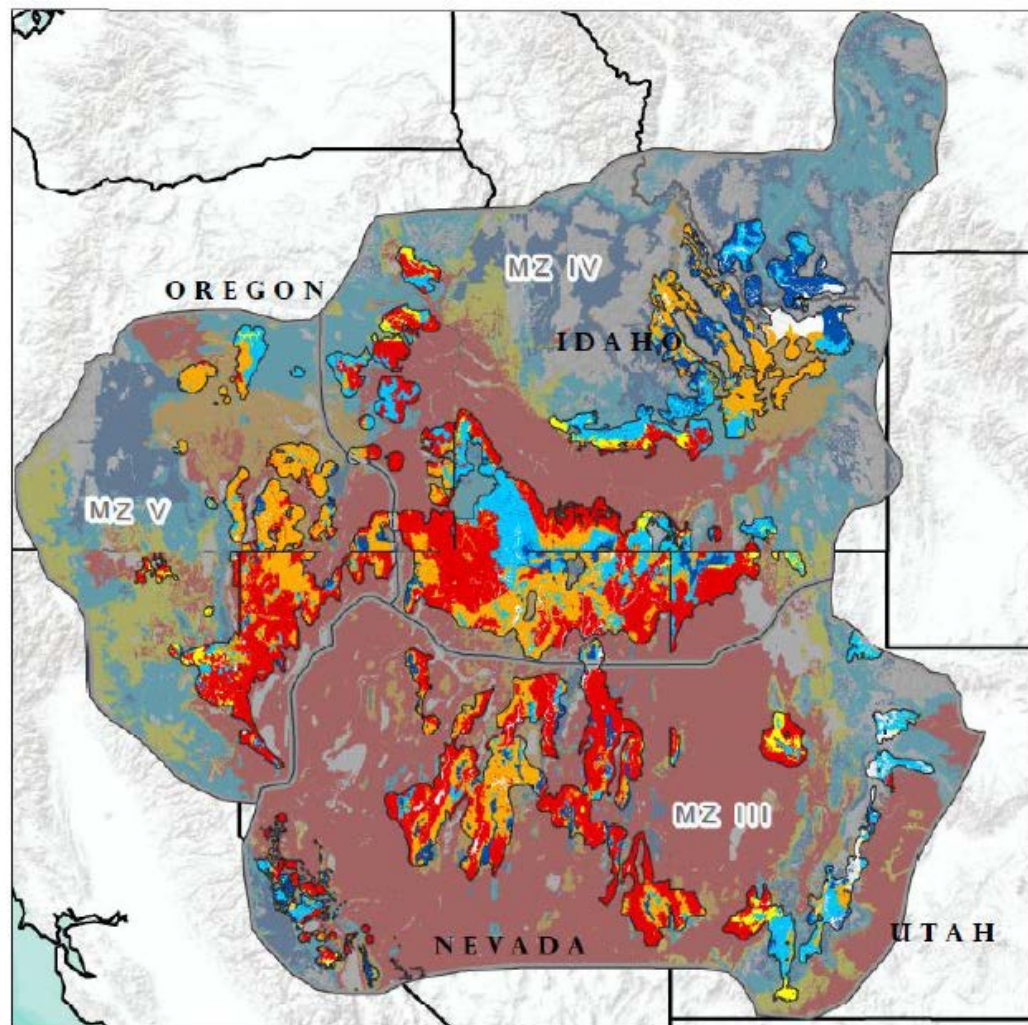




## Breeding Bird Density (Doherty 2010)







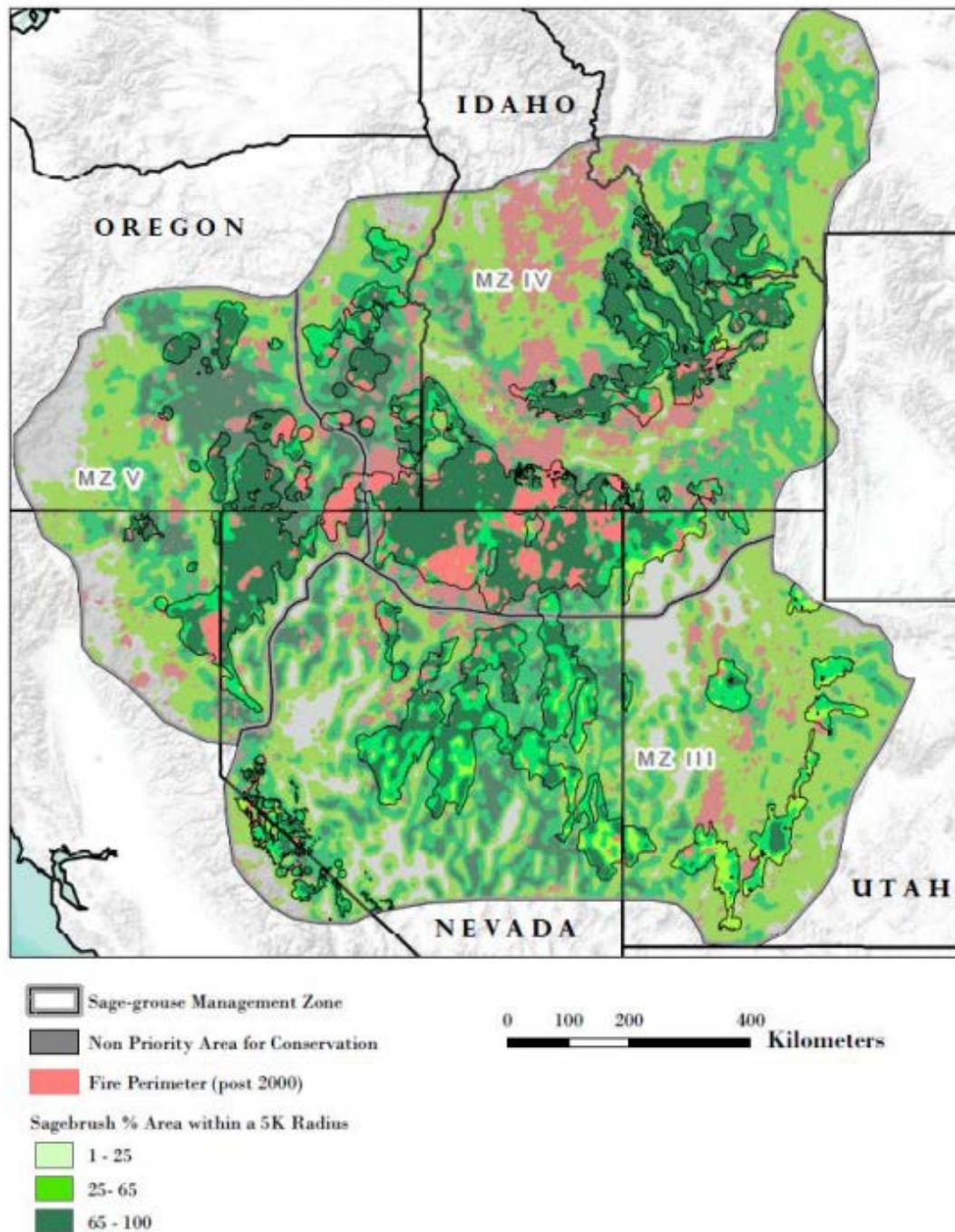
Sage-grouse Management Zone  
 Non Priority Area for Conservation

**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

0 100 200 400 Kilometers

## Soil moisture/temp regimes

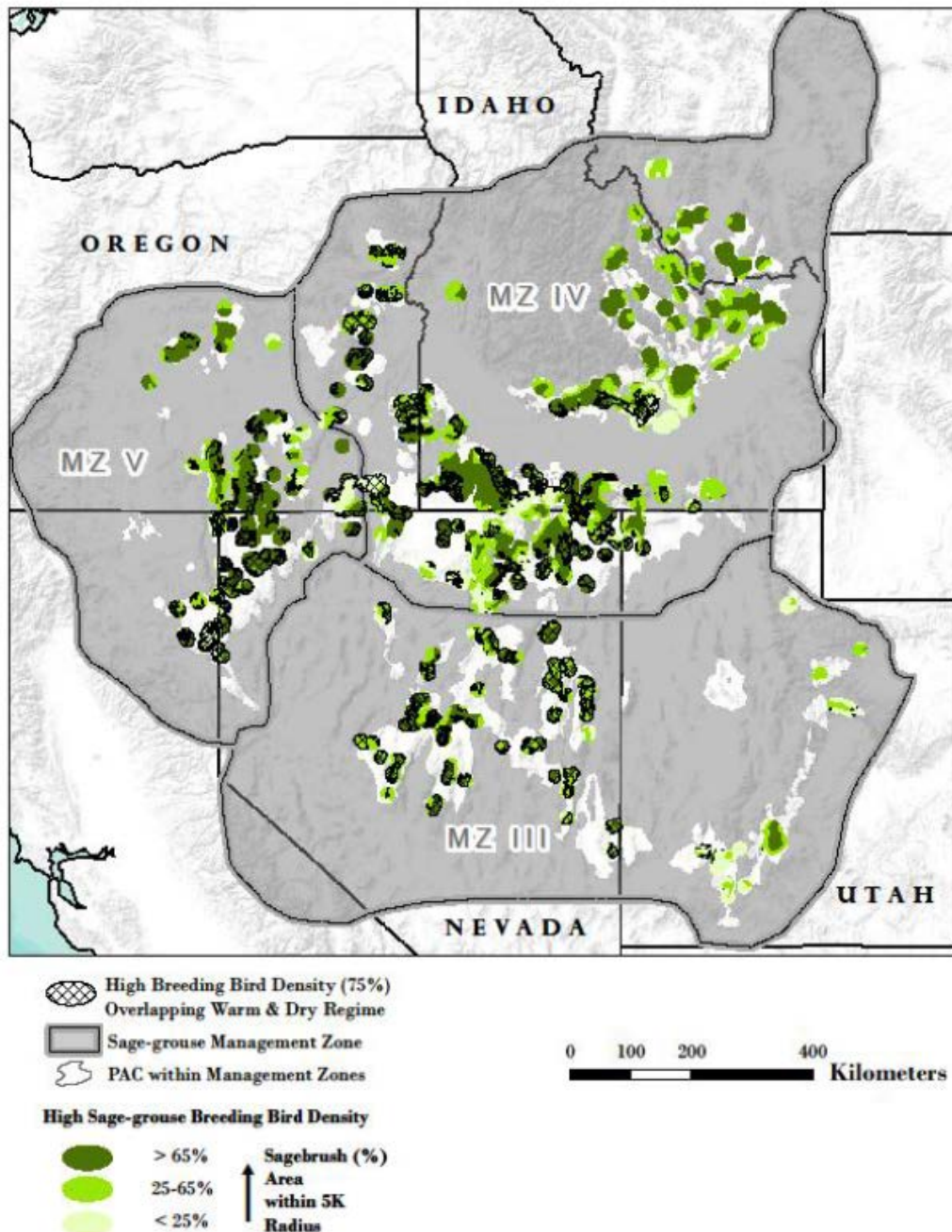




Sagebrush  
landscape cover  
(habitat indicator,  
correlation to  
persistence)



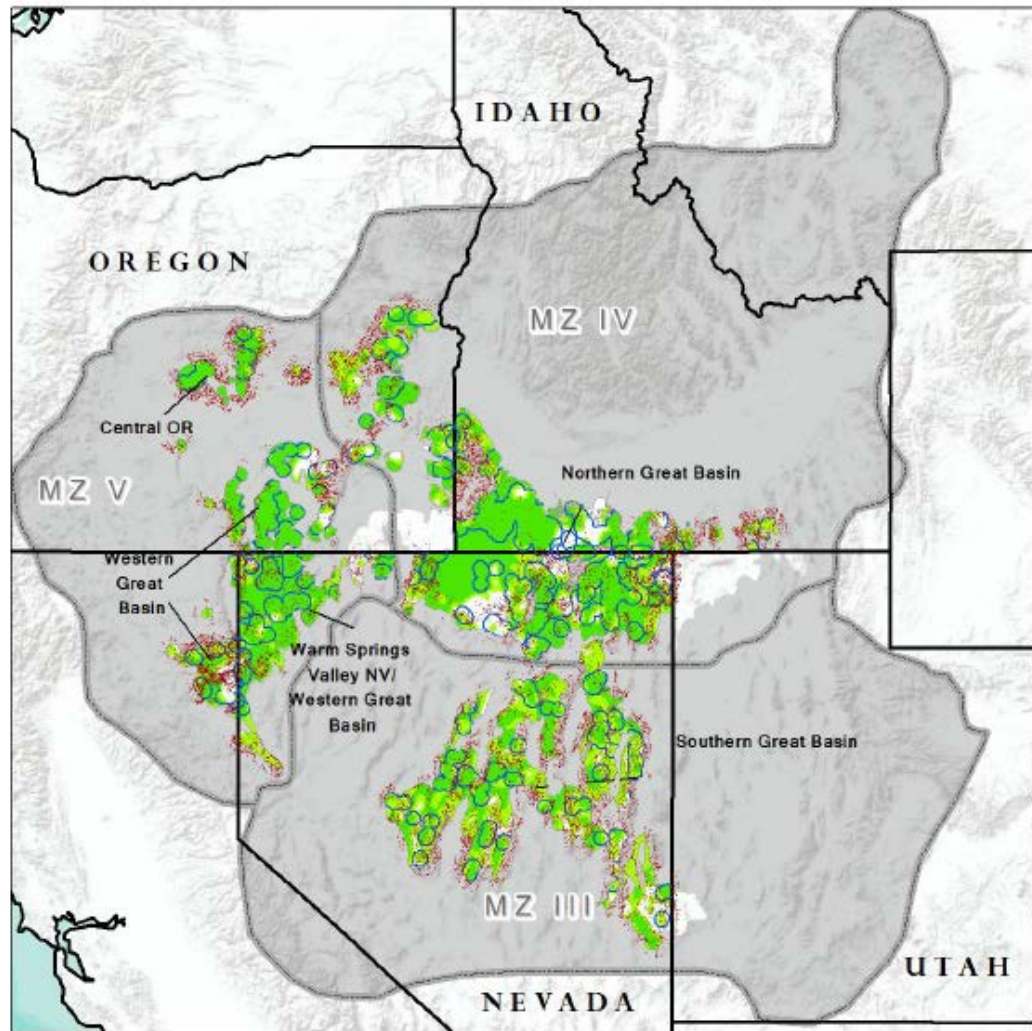




## Wildfire and Invasive Annual Grass Threat

- **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	<del>Snake, Salmon, and Beaverhead</del>	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%)



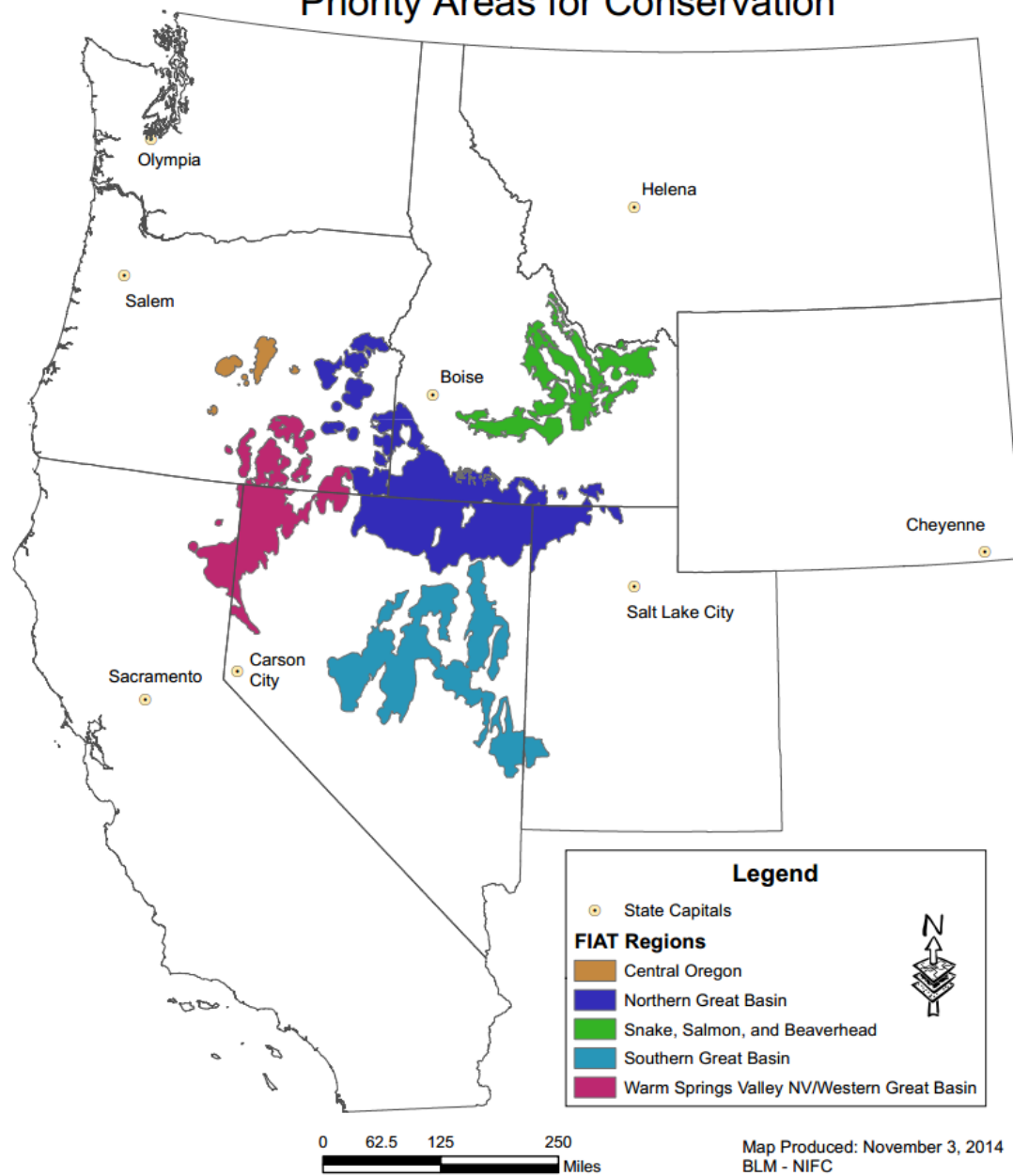


# FIAT PACs

1. Western Great Basin and Warm Springs Valley NV/Western Great Basin
2. Southern Great Basin (includes Hamlin Valley)
3. Northern Great Basin (includes Box Elder)
4. Central Oregon
5. Snake/Salmon/Beaverhead



## Greater Sage-Grouse Priority Areas for Conservation



# FIAT Step 2

(Sept. 2014 – Jan. 2015)

- Completing the 5 individual assessments
- Incorporate local data with step 1 findings
- Apply mgmt strategies, create implementation/activity plans for:
  - Fuels Management
  - Habitat Recovery/Restoration
  - Fire Operations
  - Post-fire Rehabilitation
- Develop a 3-5 year program of work (project areas and treatments)

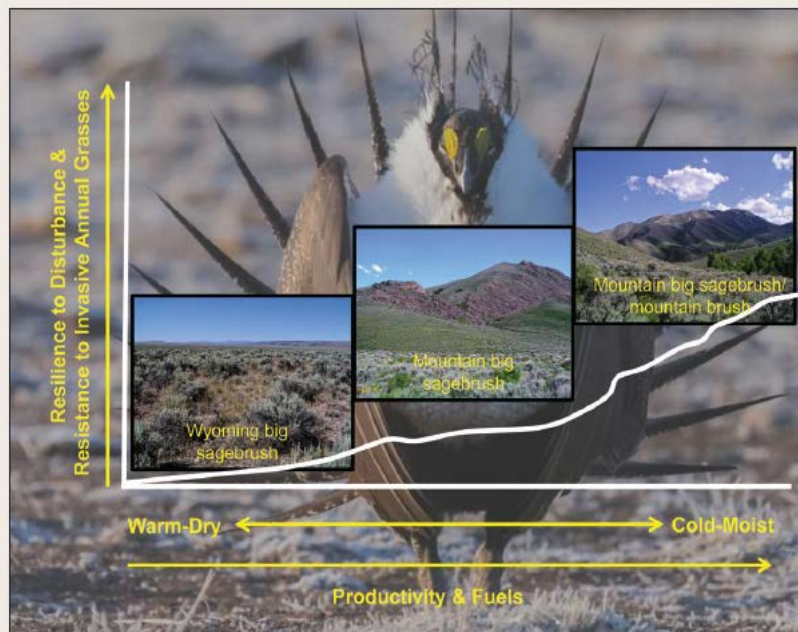




United States Department of Agriculture

## 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

Table 3. Potential management strategies based on sage-grouse habitat requirements and resistance and resilience.

Table 4. Management strategies (fire suppression, fuels management, post-fire rehabilitation, and habitat restoration) associated with each cell in the sage-grouse habitat matrix (Table 2).

[http://www.fs.fed.us/rm/pubs/rmrs\\_gtr326.pdf](http://www.fs.fed.us/rm/pubs/rmrs_gtr326.pdf)

# SAGE-GROUSE HABITAT MATRIX

## Proportion of Landscape Dominated by Sagebrush

### Resilience to Disturbance & Resistance to Invasive Annual Grasses

	Proportion of Landscape Dominated by Sagebrush		
	Low	Medium	High
	< 25% Sagebrush-Dominated Landscape	25-65% Sagebrush-Dominated Landscape	> 65% Sagebrush-Dominated Landscape
High	<b>1A</b> Natural sagebrush recovery possible. Sagebrush restoration potential is high	<b>1B</b> Natural sagebrush recovery is likely to occur, but certain areas may lack connectivity	<b>1C</b> Natural sagebrush recovery is likely to occur.
	Perennial grasses and forbs sufficient to recover Annual invasive risk is low Restoration potential high Recovery from inappropriate grazing high		
Moderate	<b>2A</b> Natural sagebrush recovery is possible, but time required for may be too great	<b>2B</b> Natural sagebrush recovery is likely to occur, but certain areas may lack connectivity	<b>2C</b> Natural sagebrush recovery is likely to occur
	Perennial grasses and forbs usually adequate for recovery Risk of annual invasives is moderately high on warmer and drier sites Seeding-transplanting success depends on site characteristics Recovery following inappropriate livestock use depends on site characteristics		
Low	<b>3A</b> Natural sagebrush recovery or restoration not likely	<b>3B</b> Natural sagebrush recovery may occur, but time required will likely be too great	<b>3C</b> Natural sagebrush recovery may occur, but time required will likely be too great
	Perennial grasses and forbs inadequate to recover Annual invasive risk is high Restoration potential low; needs multiple interventions Recovery from inappropriate grazing is low		

# Fuels management





# Habitat Recovery/Restoration



# Fire Operations





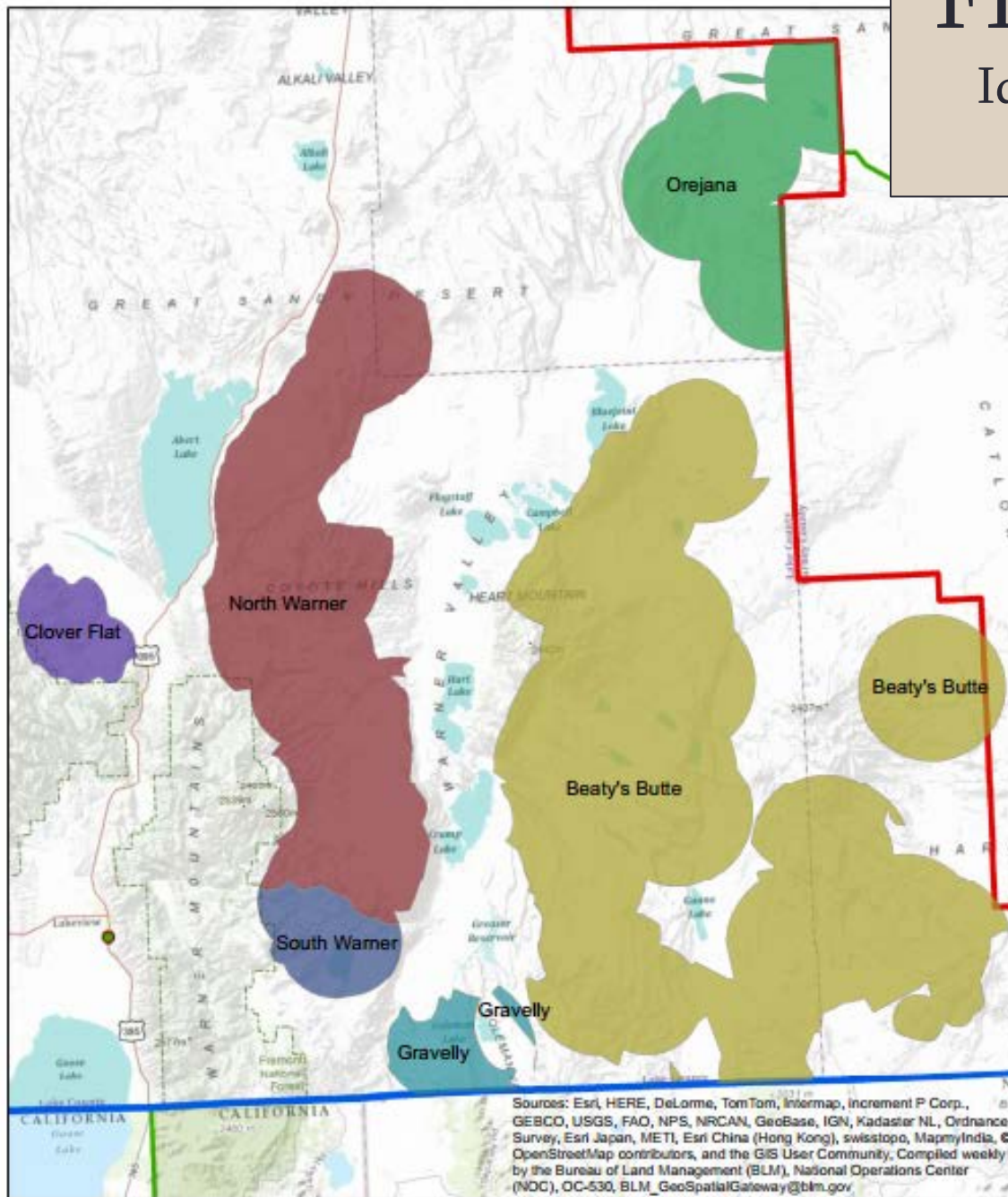
# Post-fire rehabilitation





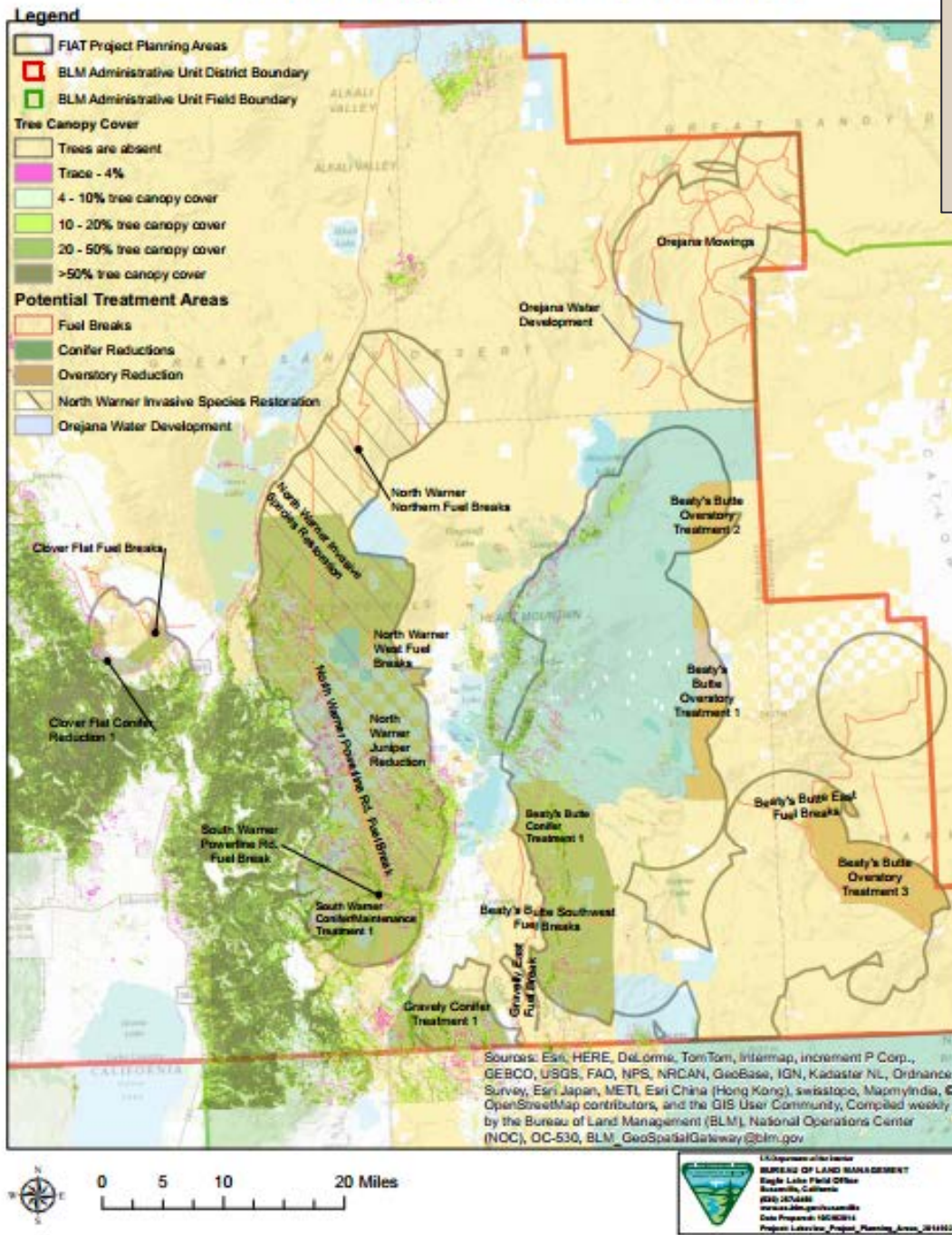
## Lakeview Oregon Project Planning Areas

# FIAT Step 2: Identifying Project Planning Areas



## Lakeview Oregon Project Treatment Areas

# FIAT Step 2: Identifying treatment opportunities





# FIAT project areas input into Geodatabase

A	B	C	D
OBJECTID *	SHAPE *	FIAT Project Planning Area Name *	Total Acres FIAT Project Planning Area
2	Polygon	Beaty's Butte	643612.1
1	Polygon	Clover Flat	31530.95
3	Polygon	Gravelly	29421.18
4	Polygon	North Warner	287418.5
6	Polygon	Orejana	124776.8
5	Polygon	South Warner	37522.99





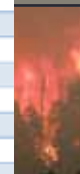
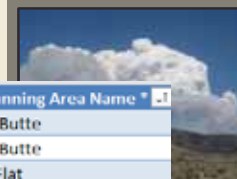
# FIAT treatment areas input into Geodatabase

## 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		Gravelly 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 Warner Low Sage < 6,000 ft ESR	North Warner
7 Polygon		Orejana ESR	Orejana
4 Polygon		South Warner ESR	South Warner



# 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)



# FIAT in summary

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