

Partial Answers to Some of Your Questions

- . What type of projects has the Forest Service been working on?
- . Is there forest inventory data?
- . What is stand density?

Harney Water Planning Meeting
Burns, Oregon -- March 22, 2018

Nathan Poage, Forest Analyst
(npoage@fs.fed.us, 541-575-3192)

Home

"If you can't measure it, you can't manage it."

The Landscape Pattern Monitoring Portal is designed to guide you through a landscape pattern change workflow, allowing you to monitor how natural and anthropogenic events have affected landscapes.

There are three tool components:

Collect Earth Online (CEO)

Web application for collection training and reference data for remote sensing projects

Cover Mapper

Web application to create cloud-free Landsat composites for two points in time, perform change detection, and create land cover classifications

Landscape Metrics

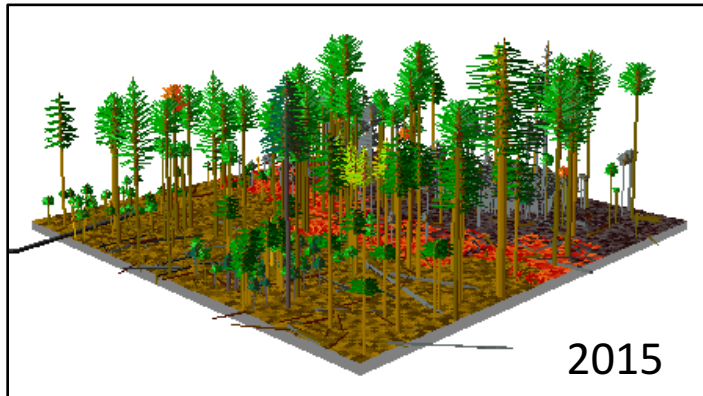
Tutorial on how to analyze landscape patterns using an R script and land cover classifications from Cover Mapper

Depending on your resource management needs, you can work through all three tools or you can use just one. Click any of the tool names to get started.

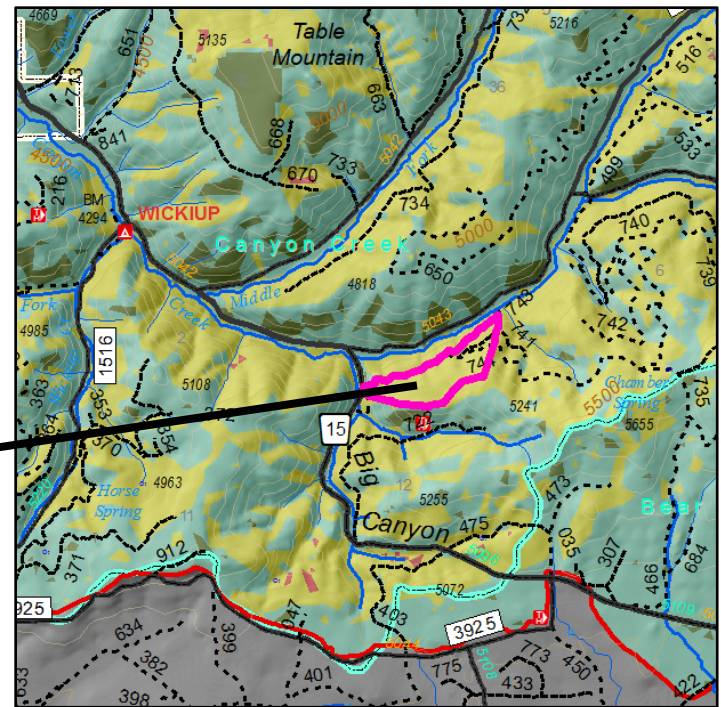
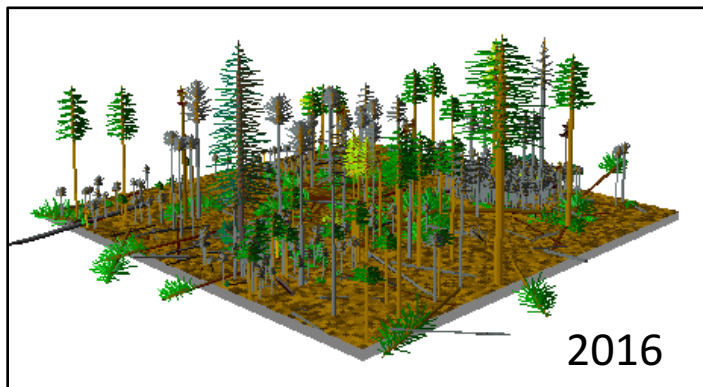
The Cover Mapper tool and the Landscape Pattern Monitoring Portal were proposed by USDA, Forest Service (USFS) personnel working in the Pacific Northwest Region (Region 6) and developed collaboratively with the Geospatial Technology and Applications Center (GTAC) with support from the Geospatial Technology and Applications Steering Committee (GeoTASC). For more information, click the [About](#) page.

STAND EXAMS

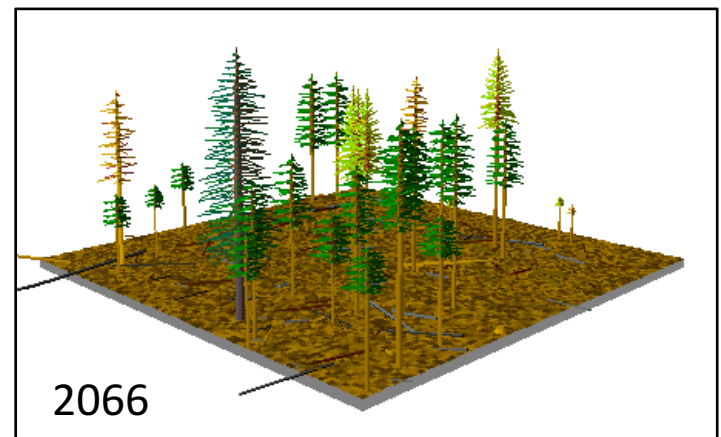
Used to Model Stand Development Scenarios



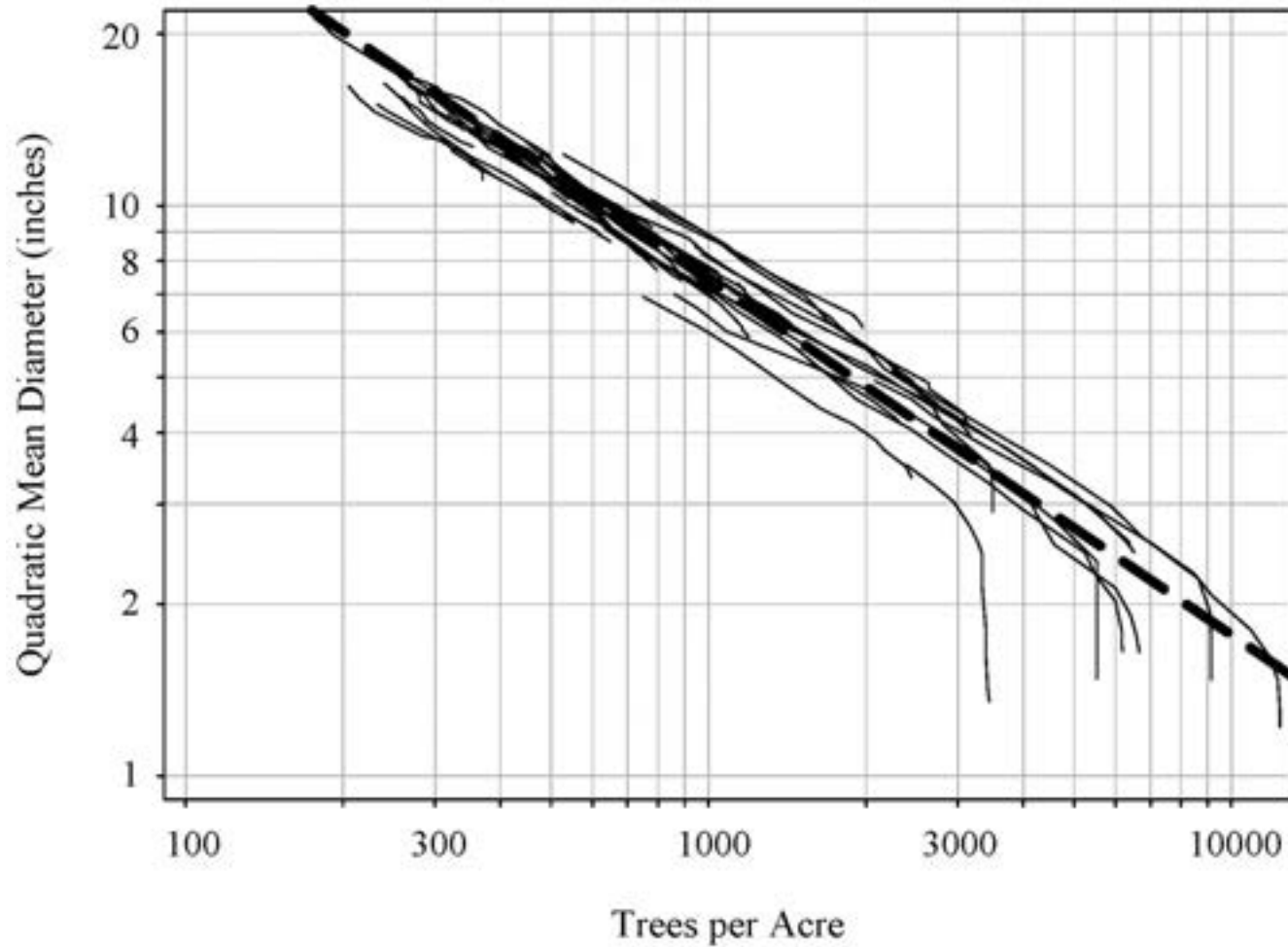
↓
Excluding all trees $\geq 21"$ DBH and
all LARCH, thin from above to 30 ft²/ac.



Yellow = Moderate Burn Severity
Blue = Low Burn Severity



Stand Density and Stand Development

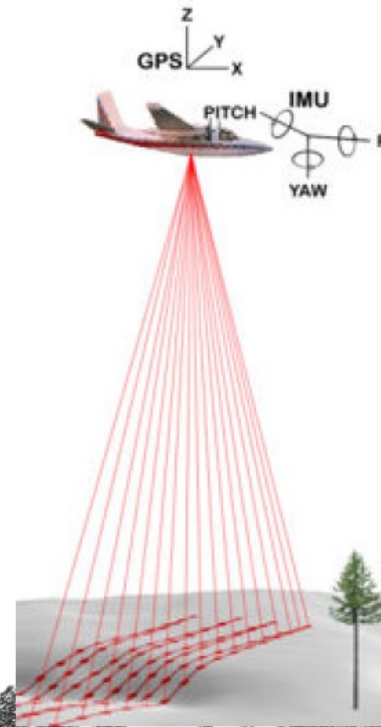


(Poage et al. 2007)

What is LIDAR? (light detection and ranging)

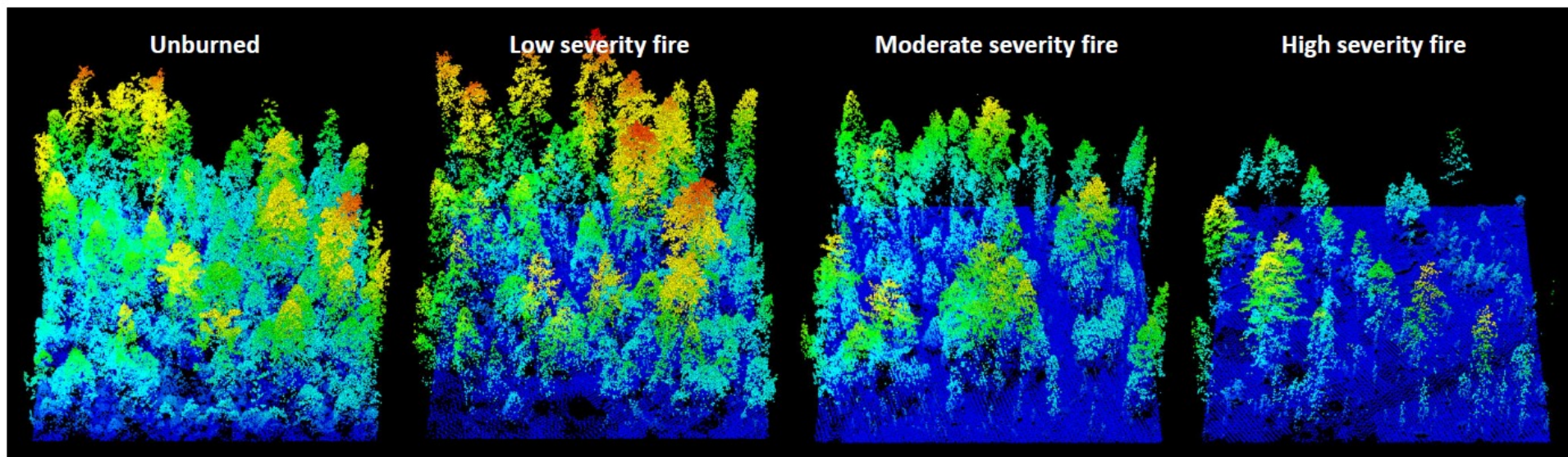
In a Nutshell

- Lidar pulses measure distance from instrument to a reflecting surface
 - Any surface visible to the sky
 - Small gaps in foliage usually allow some lidar pulses to see beneath outer surface of vegetation
- Accurate knowledge of plane's position and orientation allow position of reflecting surface to be reconstructed in 3D space
- High resolution, high precision measurements over large areas



(Kane and Jeronimo 2018)

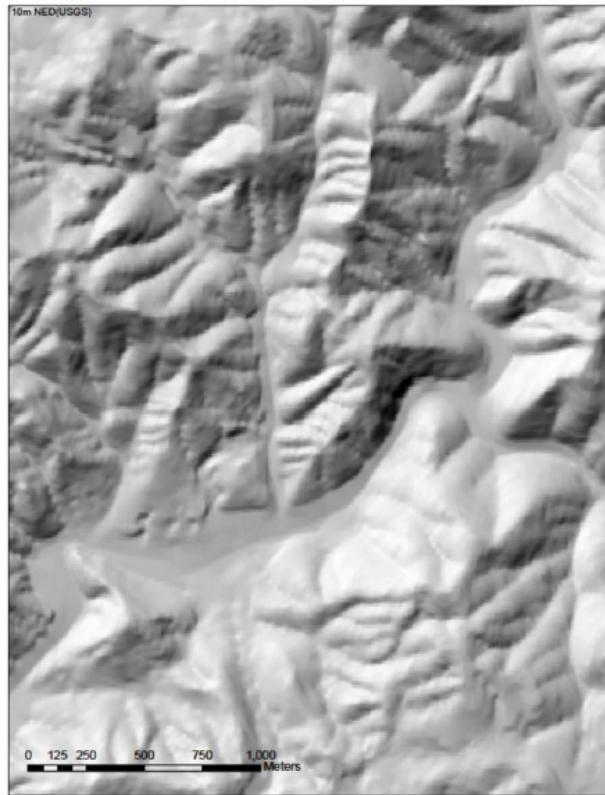
Data capture differences that we can see...



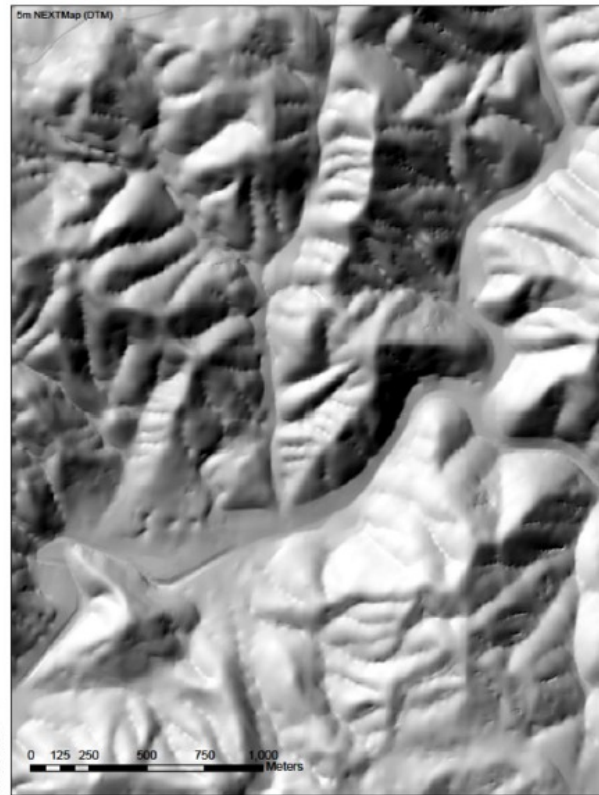
(Kane and Jeronimo 2018)

Revolution in Resolution

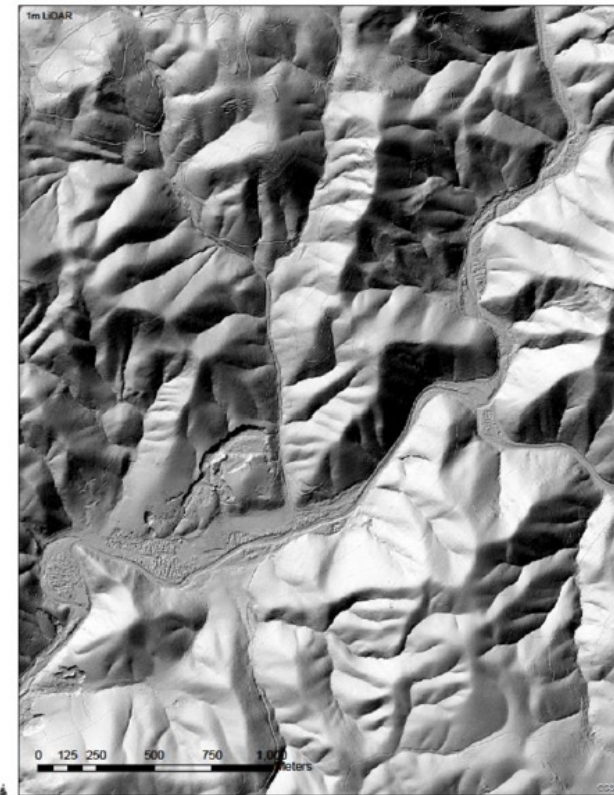
10 m USGS DEM



5 m NEXTMap DTM

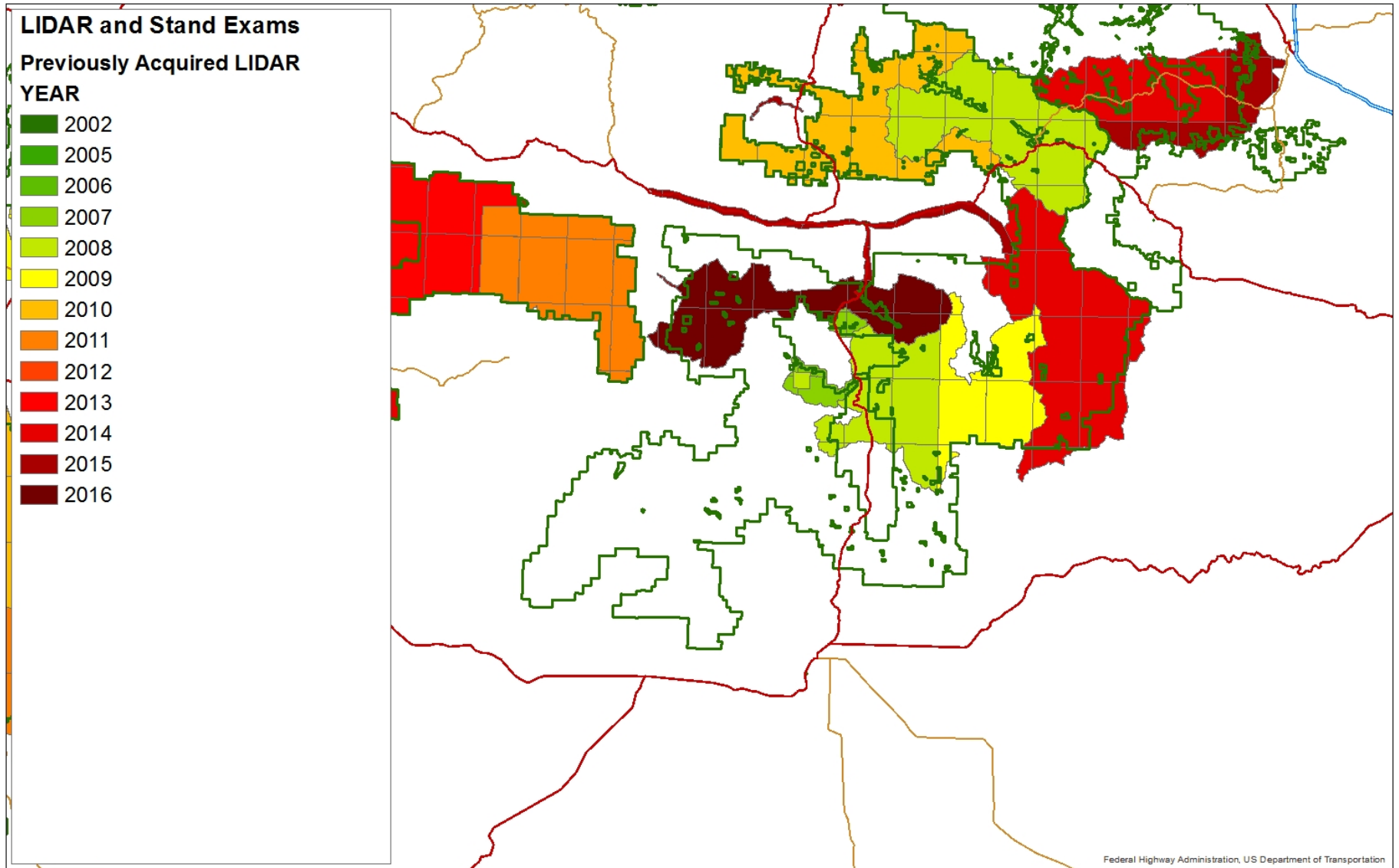


1 m Lidar DTM

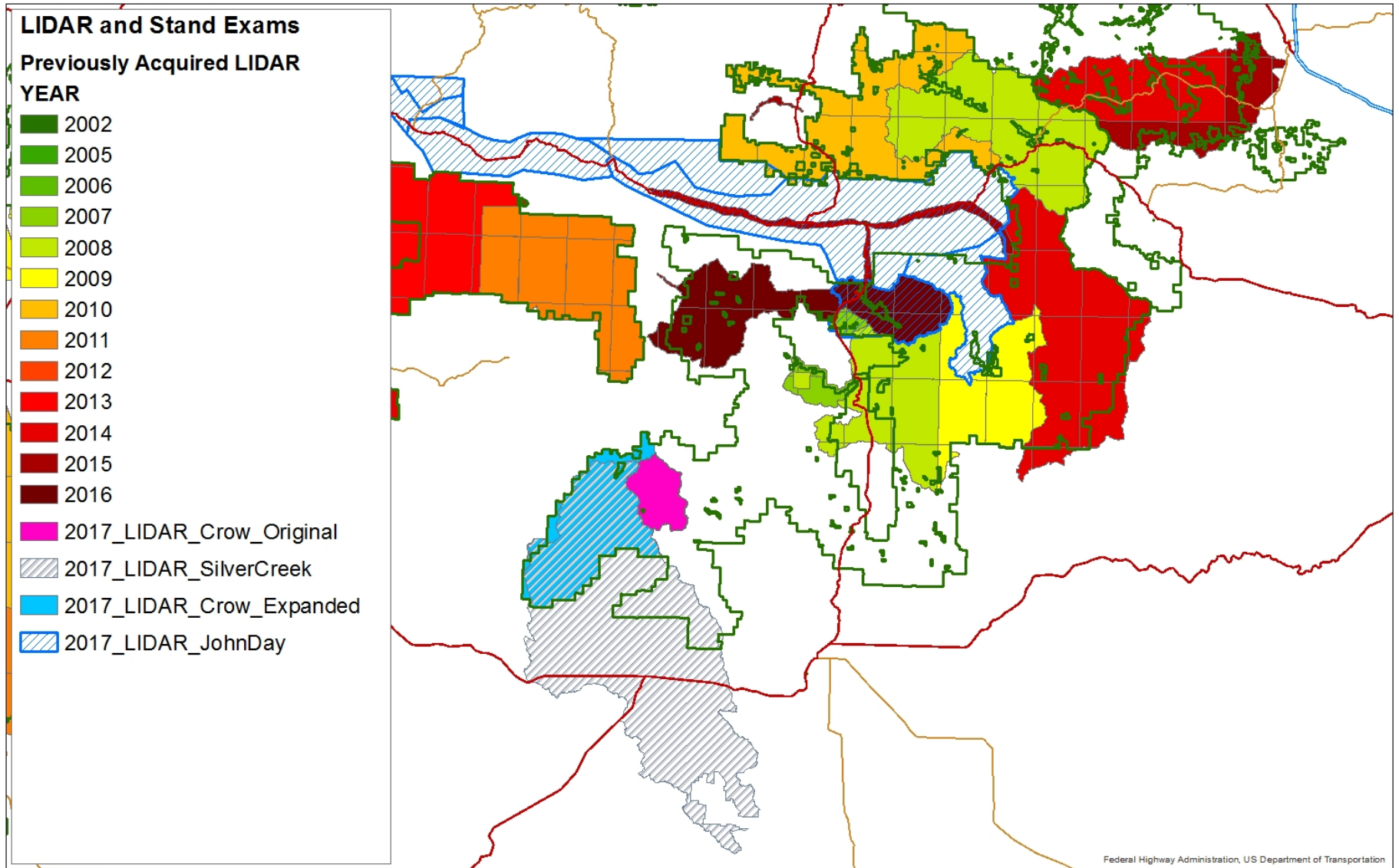


(Kane and Jeronimo 2018)

LIDAR and Stand Exams in 2016...

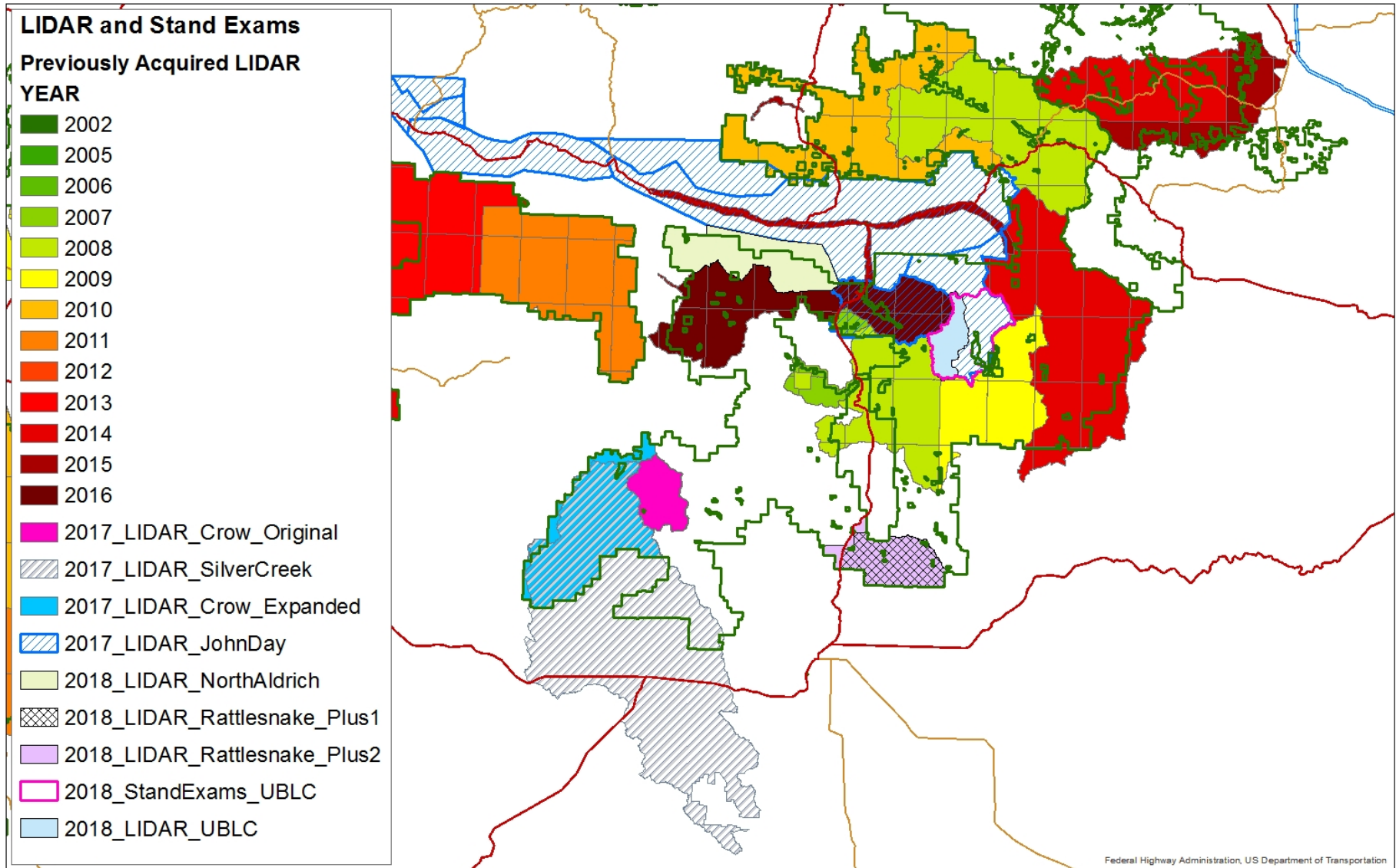


LIDAR and Stand Exams in 2017...



Federal Highway Administration, US Department of Transportation

LIDAR and Stand Exams in 2018...



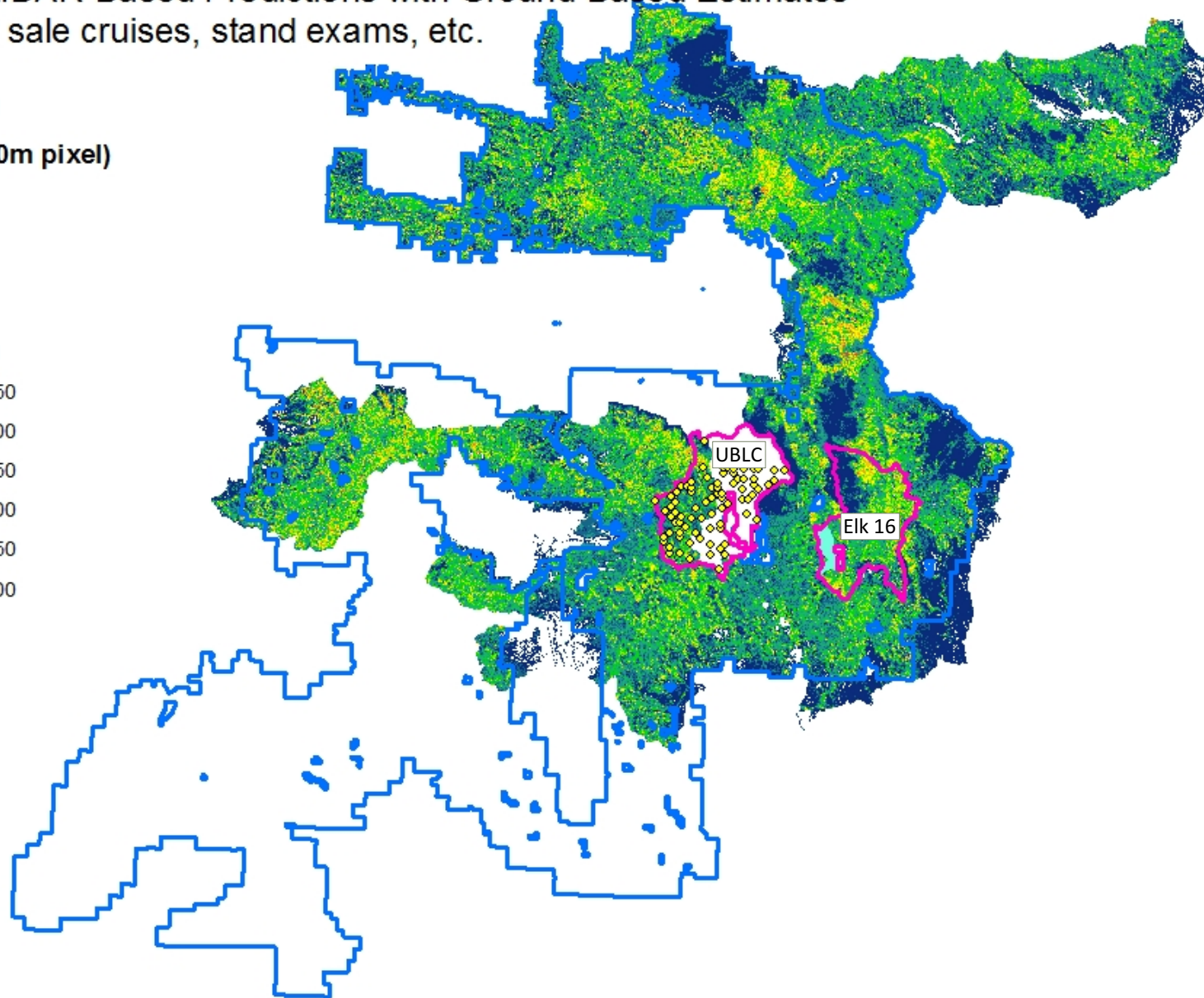
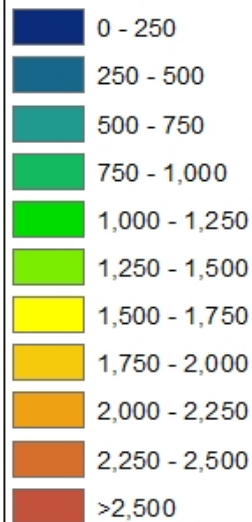
Federal Highway Administration, US Department of Transportation

Validating LIDAR-Based Predictions with Ground-Based Estimates from timber sale cruises, stand exams, etc.

Total Volume

(cubic feet \ 30m pixel)

<VALUE>

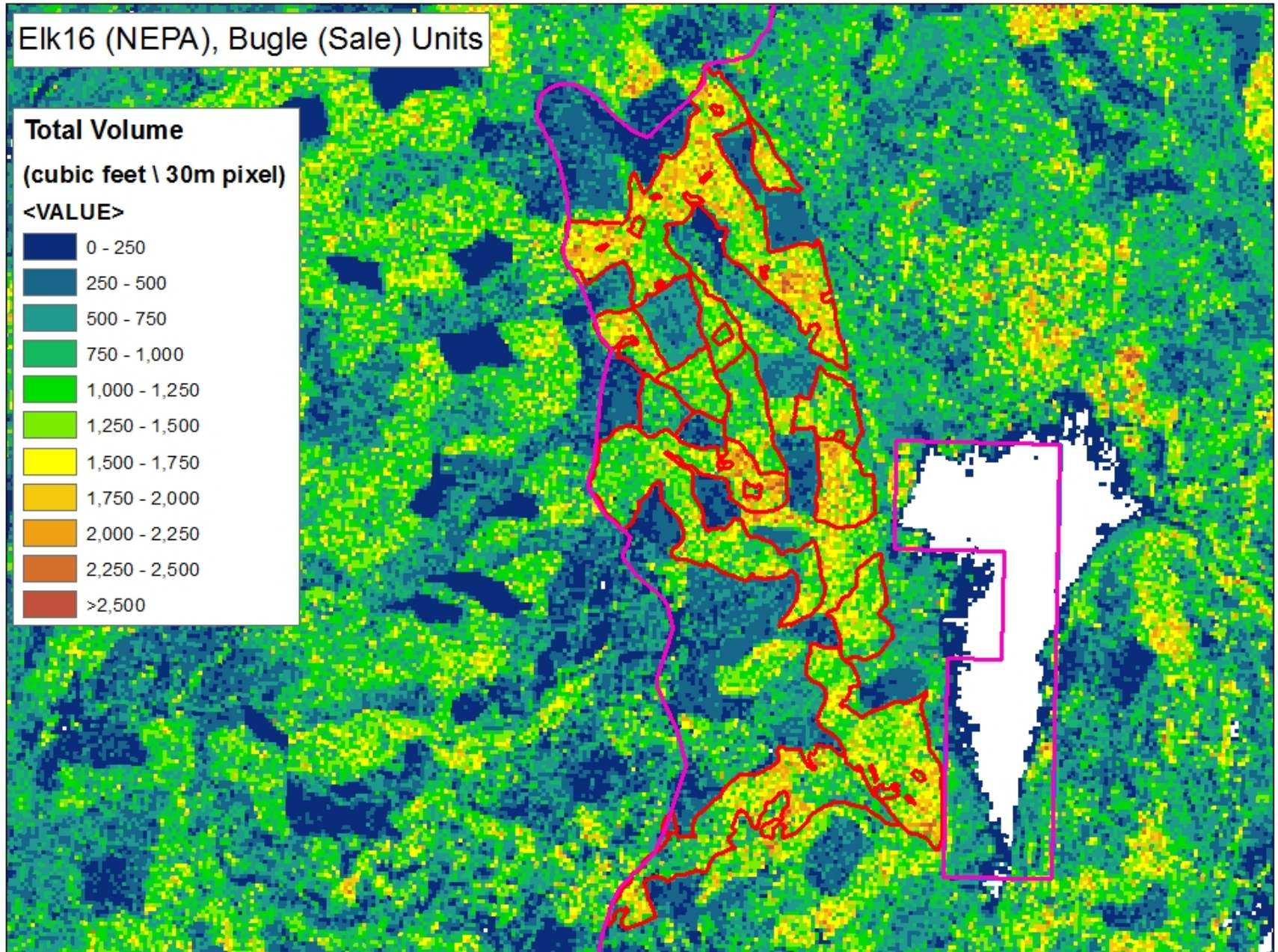
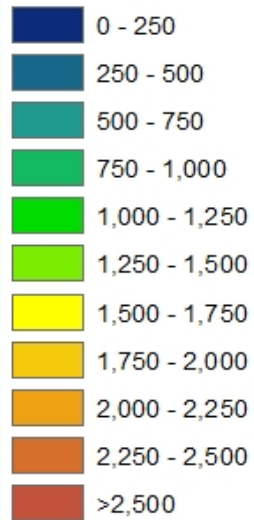


Elk16 (NEPA), Bugle (Sale) Units

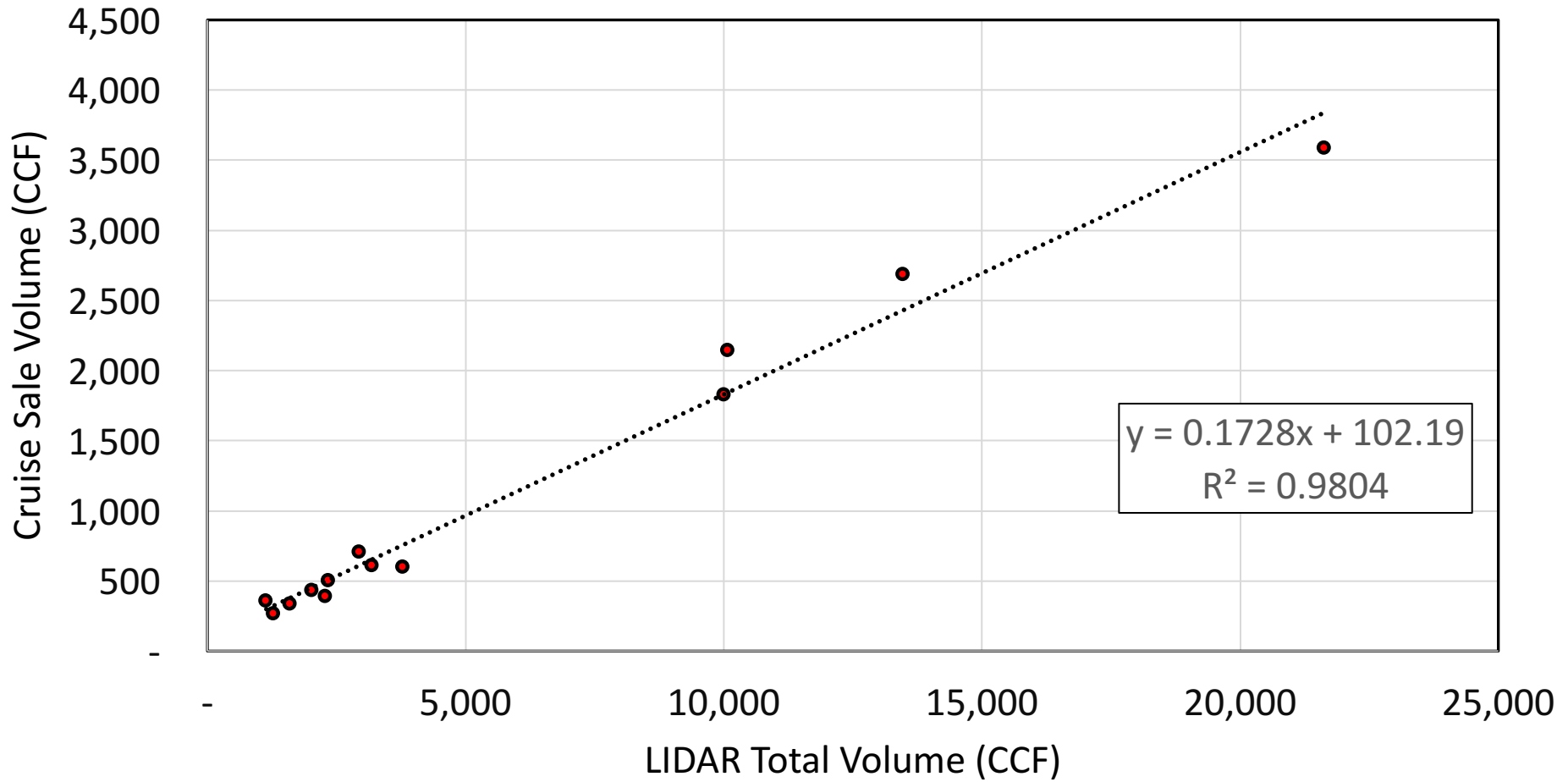
Total Volume

(cubic feet \ 30m pixel)

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Elk 16 Bugle Units : LIDAR Total Volume (x) vs. Cruise Sale Volume (y)

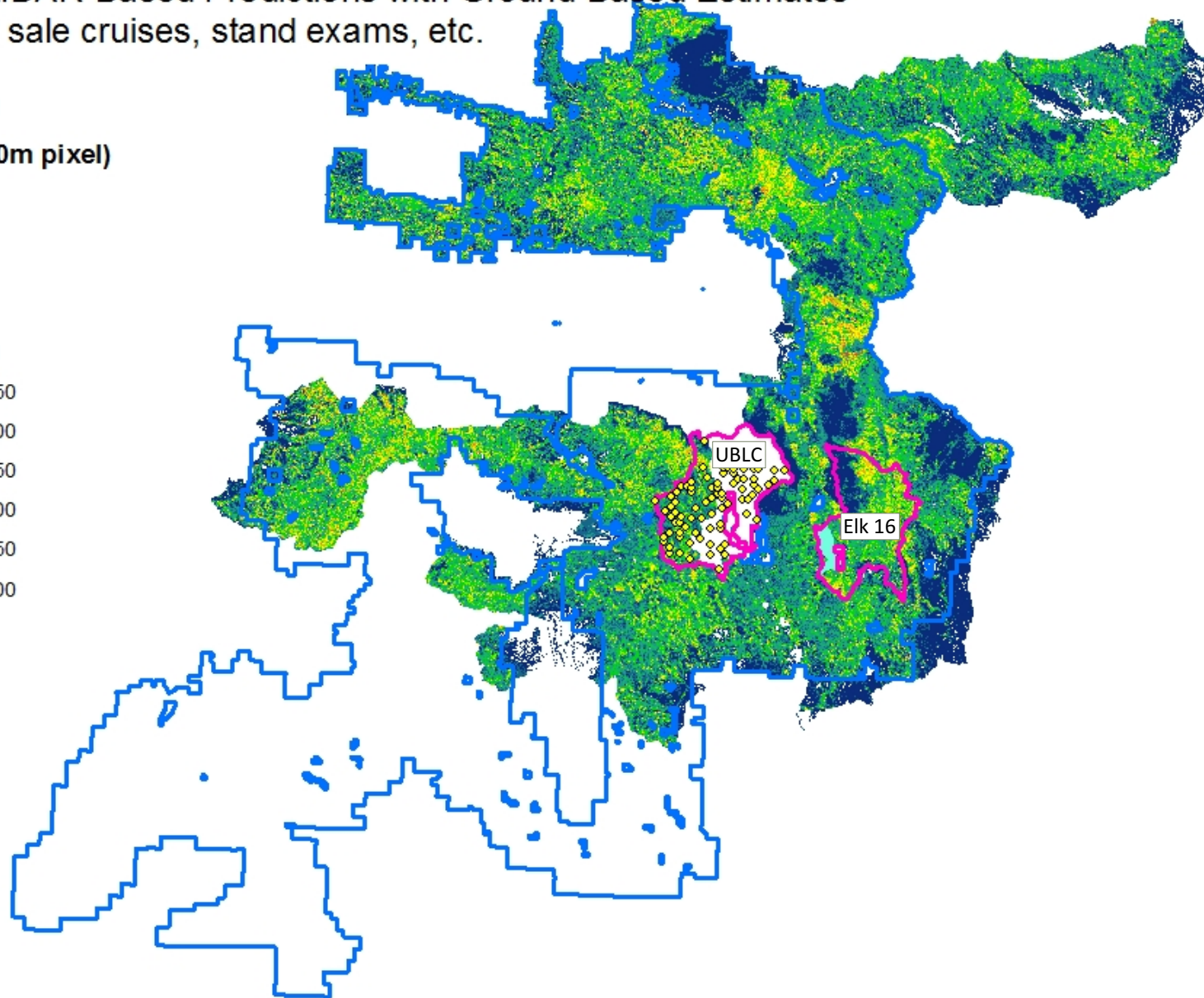
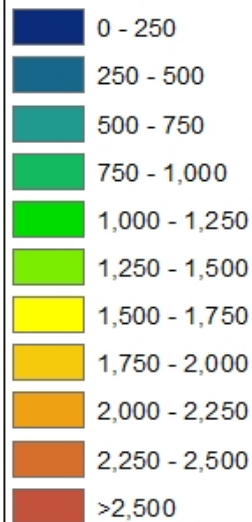


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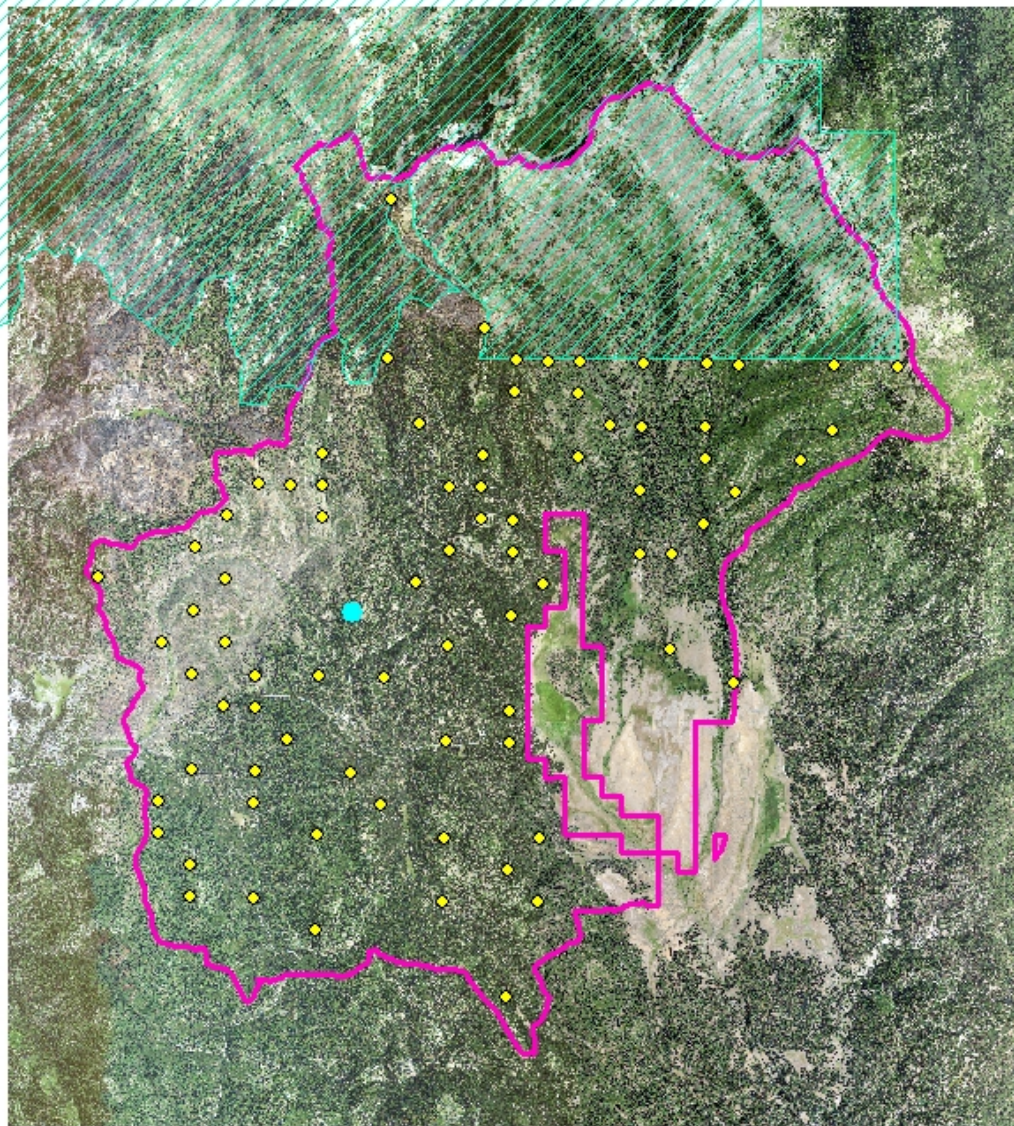
Total Volume

(cubic feet \ 30m pixel)

<VALUE>



Upper Bear / Lake Creek (UBLC) Project Area



0 1 2 4 Miles
[Scale bar with tick marks]

LIDAR Training Plots for Stand Structure Metrics

UBLC_2018_SETO_20180314.mxd



0 0.1 0.2 Miles

eCognition to Assist in Updating Stand Polygons

UBLC_2018_SETO_20180314.mxd



0 0.1 0.2 Miles

eCognition to Assist in Updating Stand Polygons

UBLC_2018_SETO_20180314.mxd

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Landscape Pattern Monitoring Portal

How-To Inputs **Outputs**

Training Data >

Composites >

Change Detection >

Change Detection Index: ?

RdNBR dNBR dNDVI dSAVI

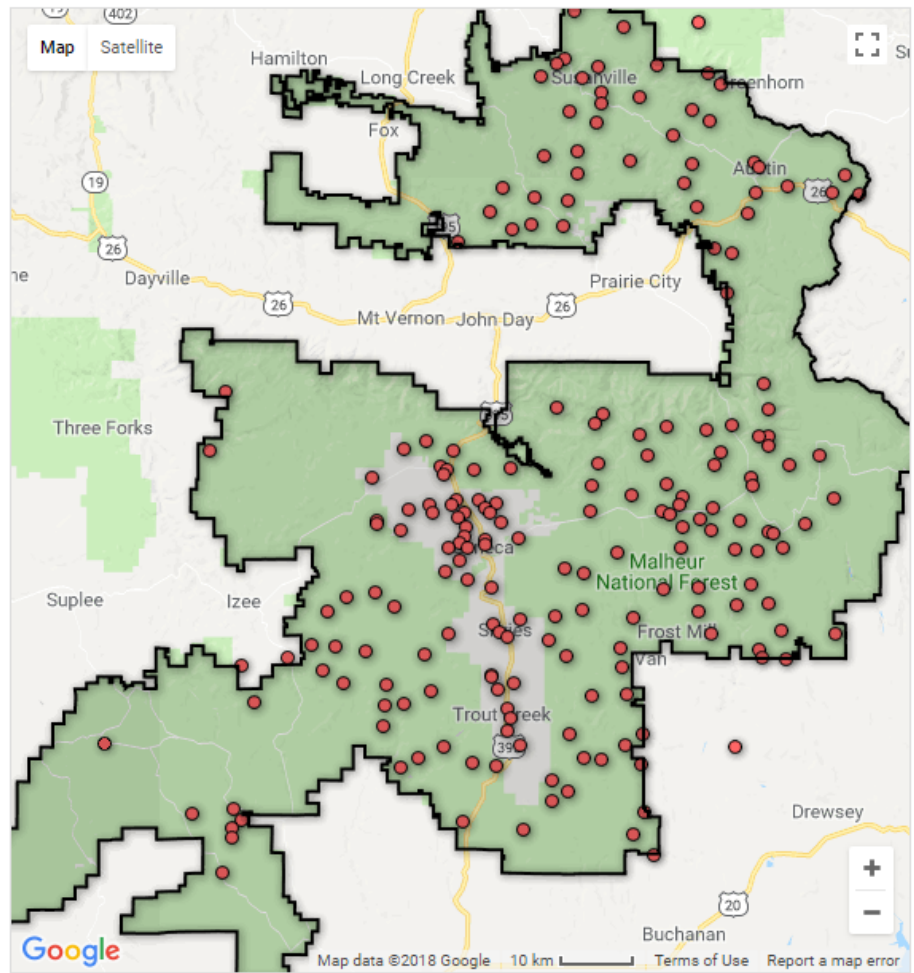
Gain/Loss Percentiles: ?

9 91

Visualization >

Advanced ? >

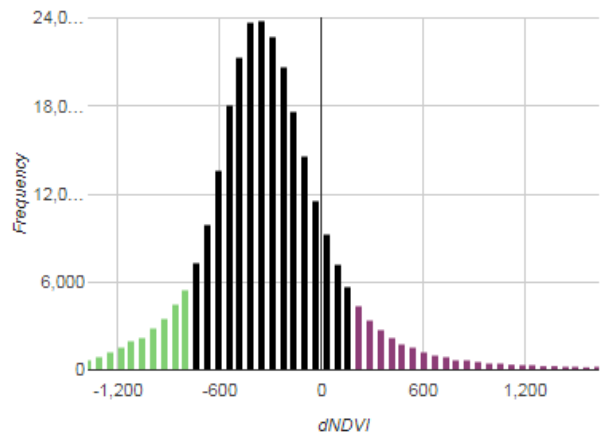
Run Reset All



How-To Inputs **Outputs**

Change Histogram

Difference Image Histogram: ?



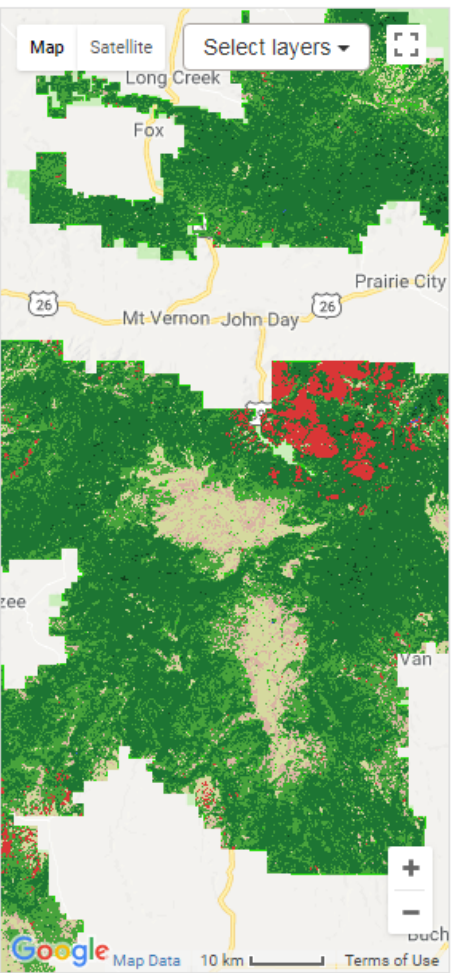
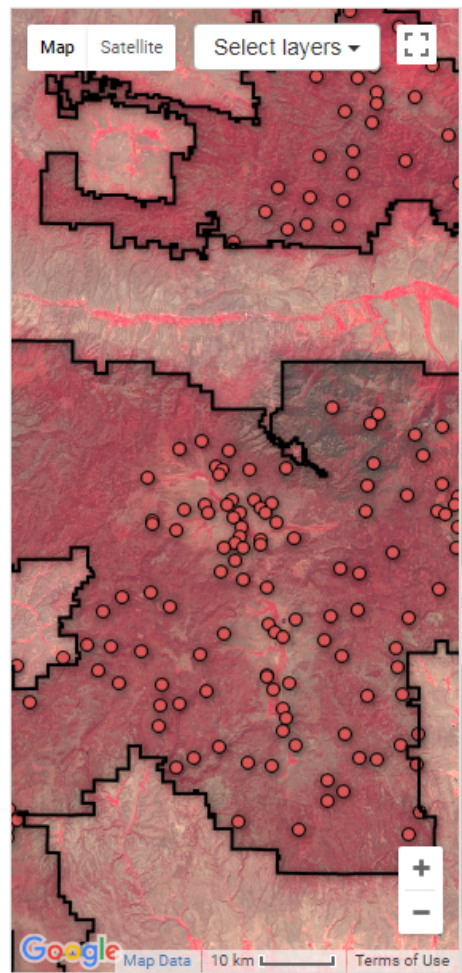
Gain **No Change** **Loss**

Gain Threshold: ?

-798

Loss Threshold: ?

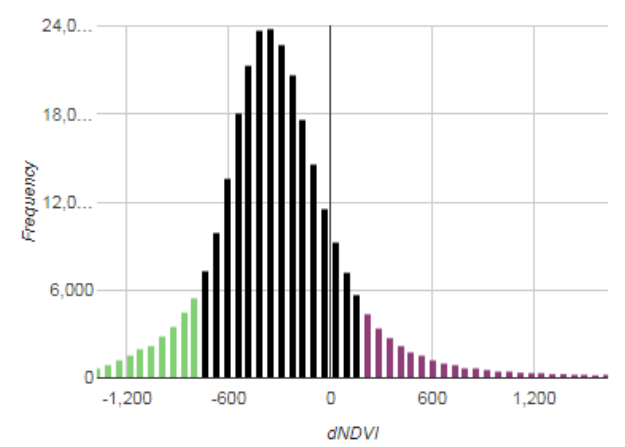
222



How-To Inputs **Outputs**

Change Histogram

Difference Image Histogram: ?



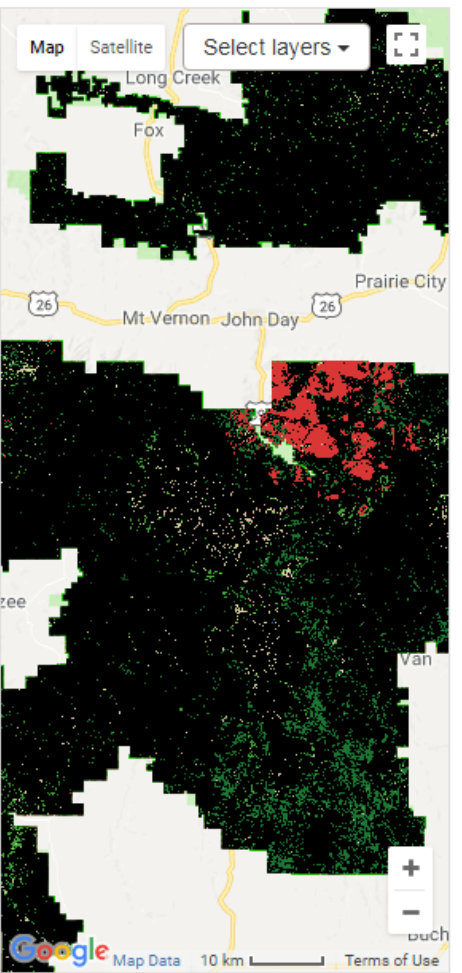
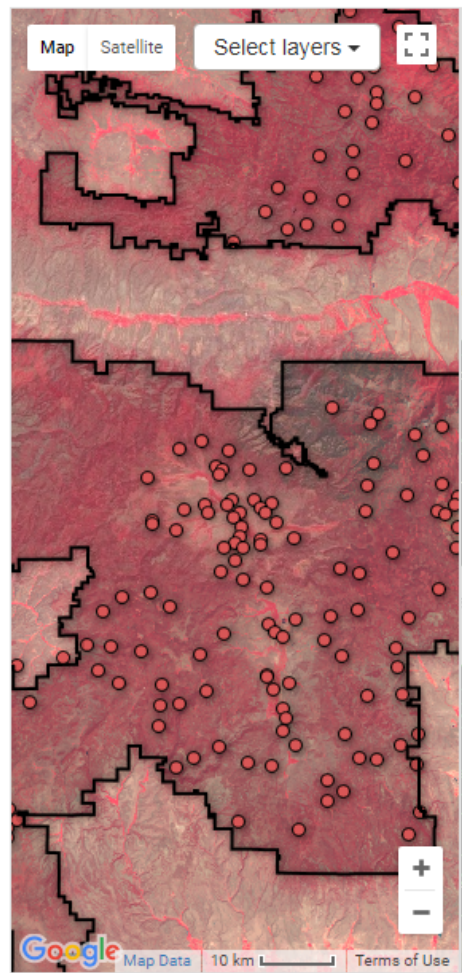
■ Gain ■ No Change ■ Loss

Gain Threshold: ?

-798

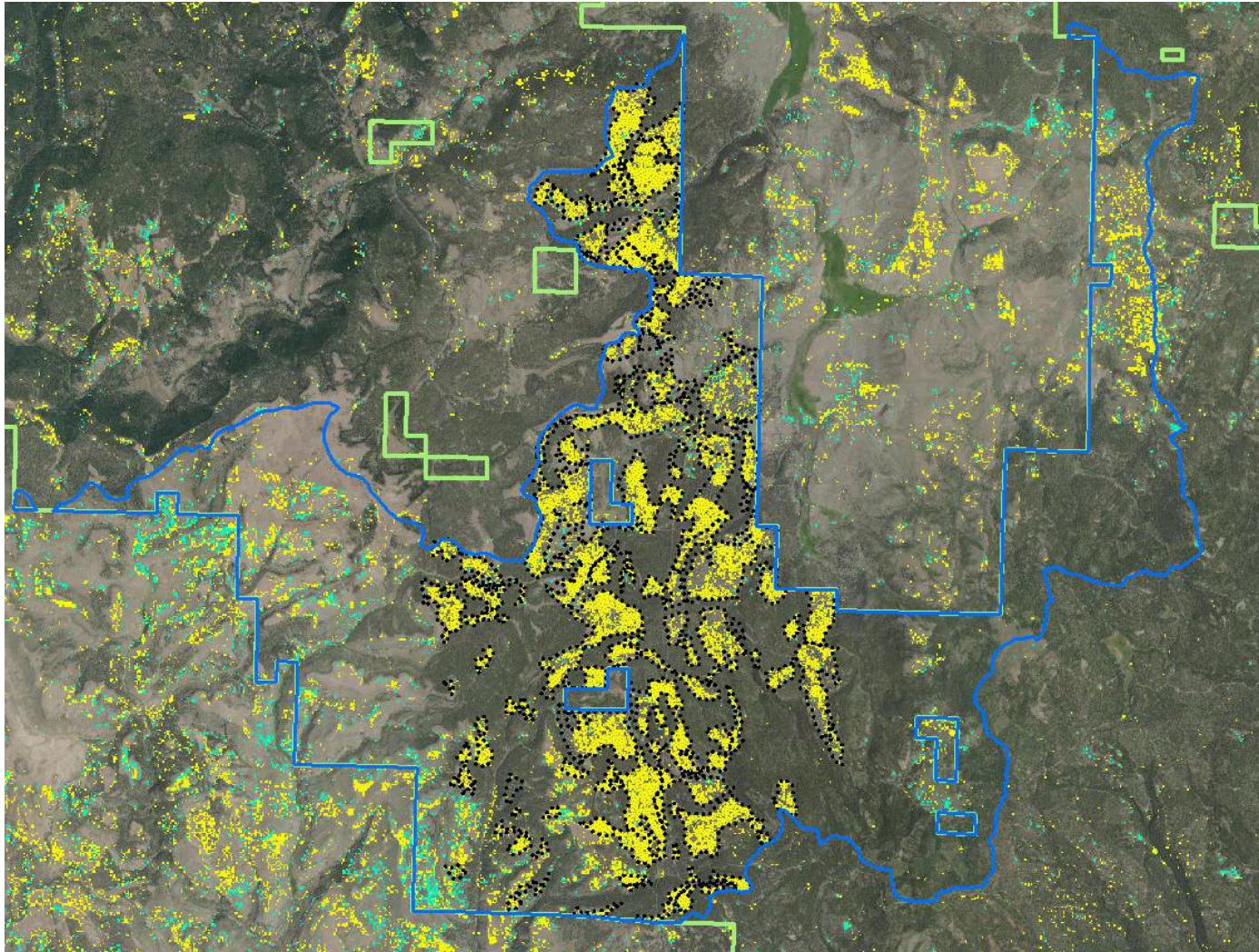
Loss Threshold: ?

222



Detecting the Marshall Devine Thinning Units

(yellow = recently became more open)

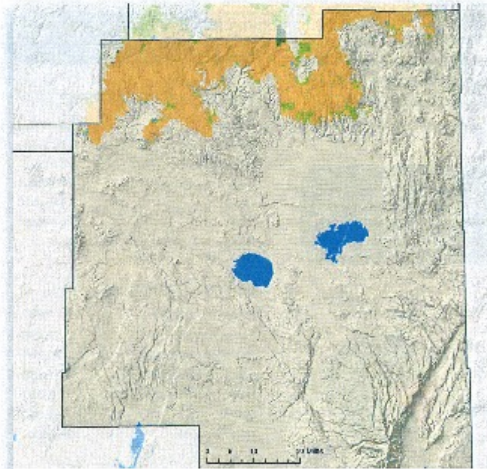


Thank You

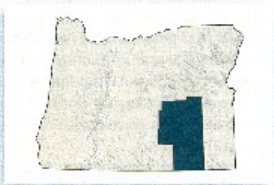
Vegetation Management Working Group Meeting--
March 22, 2018

Jon Reponen, BLM

HARNEY COUNTY



■ FEDERAL ■ STATE AND OTHER PUBLIC
■ LARGE PRIVATE ■ TRIBAL
■ SMALL PRIVATE ■ NON-FORESTED LAND



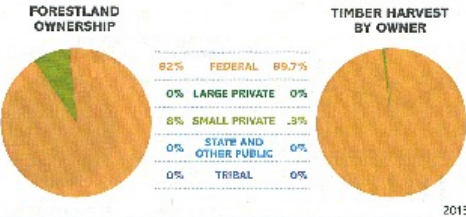
LAND AREA (thousands of acres)	
Total land	6,486
Total forestland (8%)	541

FORESTLAND OWNERSHIP (thousands of acres)	
Federal	496
Large private	2
Small private	41
State and other public	2
Tribal	0
TOTAL	541

TIMBER HARVEST (thousands of board feet)	
Federal	16,298
Large private	0
Small private	43
State and other public	0
Tribal	0
TOTAL	16,341

FOREST SECTOR JOBS	
Forest sector jobs	107
% of county employment	3.7

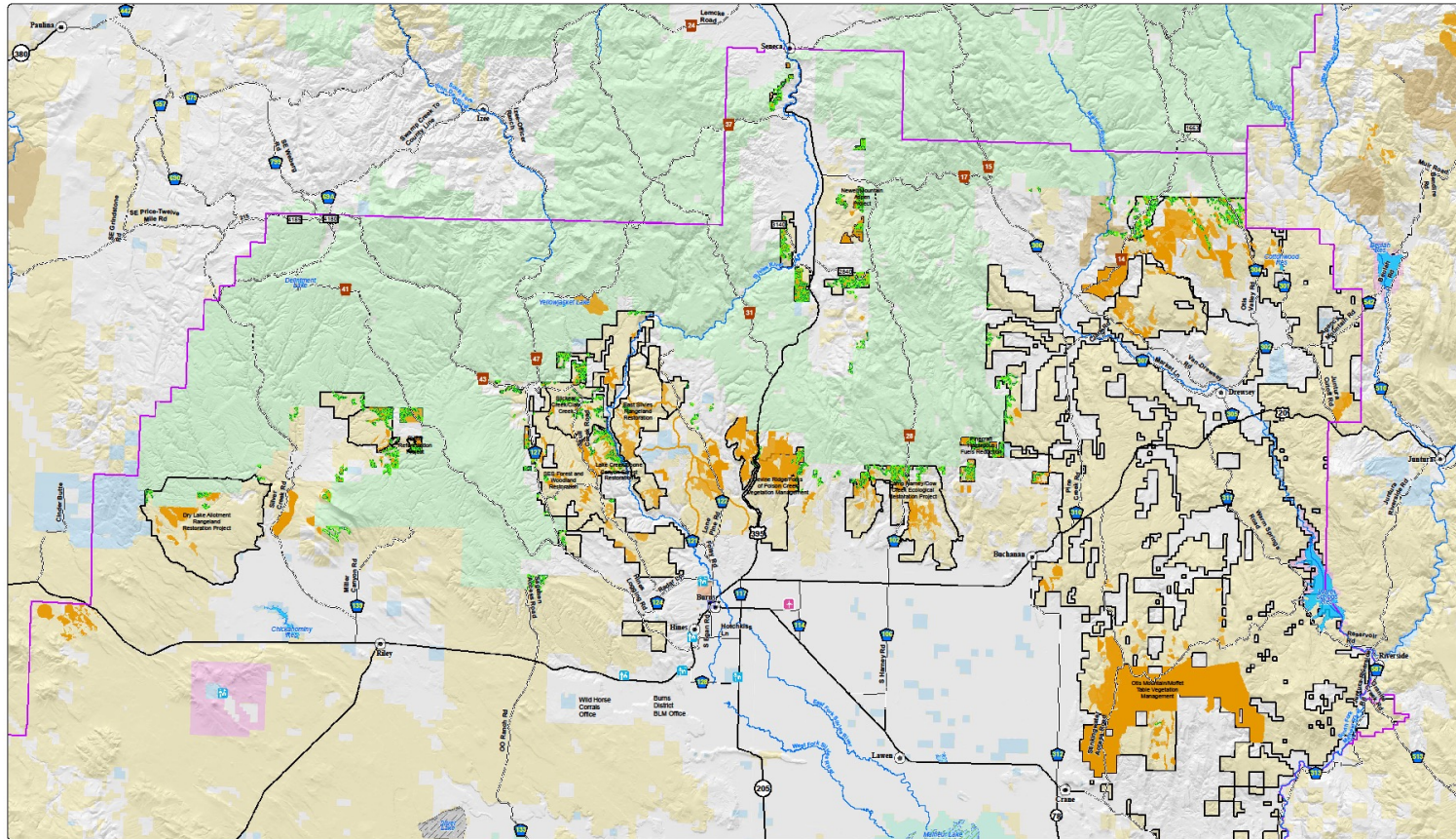
PRIMARY WOOD PROCESSING	
Facilities	0



OregonForestFacts.org © 2017, Oregon Forest Resources Institute.
 Timber harvest and forest sector jobs data is from 2015. Wood processing data is from 2016.
 Jobs data is from Oregon Employment Department. Ownership, harvest data and map provided
 by the Oregon Department of Forestry.

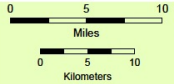
Oregon Forest Resources Institute:
<https://oregonforests.org/>

County Economic Fact Sheets:
<https://oregonforests.org/node/9>



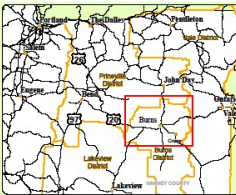
US DEPARTMENT OF THE INTERIOR
 Bureau of Land Management
 Burns District, Oregon
 Three Rivers Resource Area
Ongoing Forestry and Fuels Projects
 Last updated: February 2018

Forestry Forestry	Major Lakes Perennial Lake Intermittent Lake Playa Marsh	BLM Wilderness Study Area BLM Wilderness Study Area Steens Mtn Wilderness
Treatments Treatment	Rivers Rivers	Land Administration Bureau of Land Management U.S. Forest Service U.S. Fish and Wildlife Service State Bureau of Indian Affairs Other Federal National Park Service Local Government Privately Owned Undetermined
Project Area Boundary Project Area Boundary	District Boundary District Boundary	
Offices-Schools-Hospitals Hospital School Office	Town Town	
Highways Highways	Air Operations Airport	
Not All Roads Are Shown Not All Roads Are Shown		



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 Longitude: 119.2542° W
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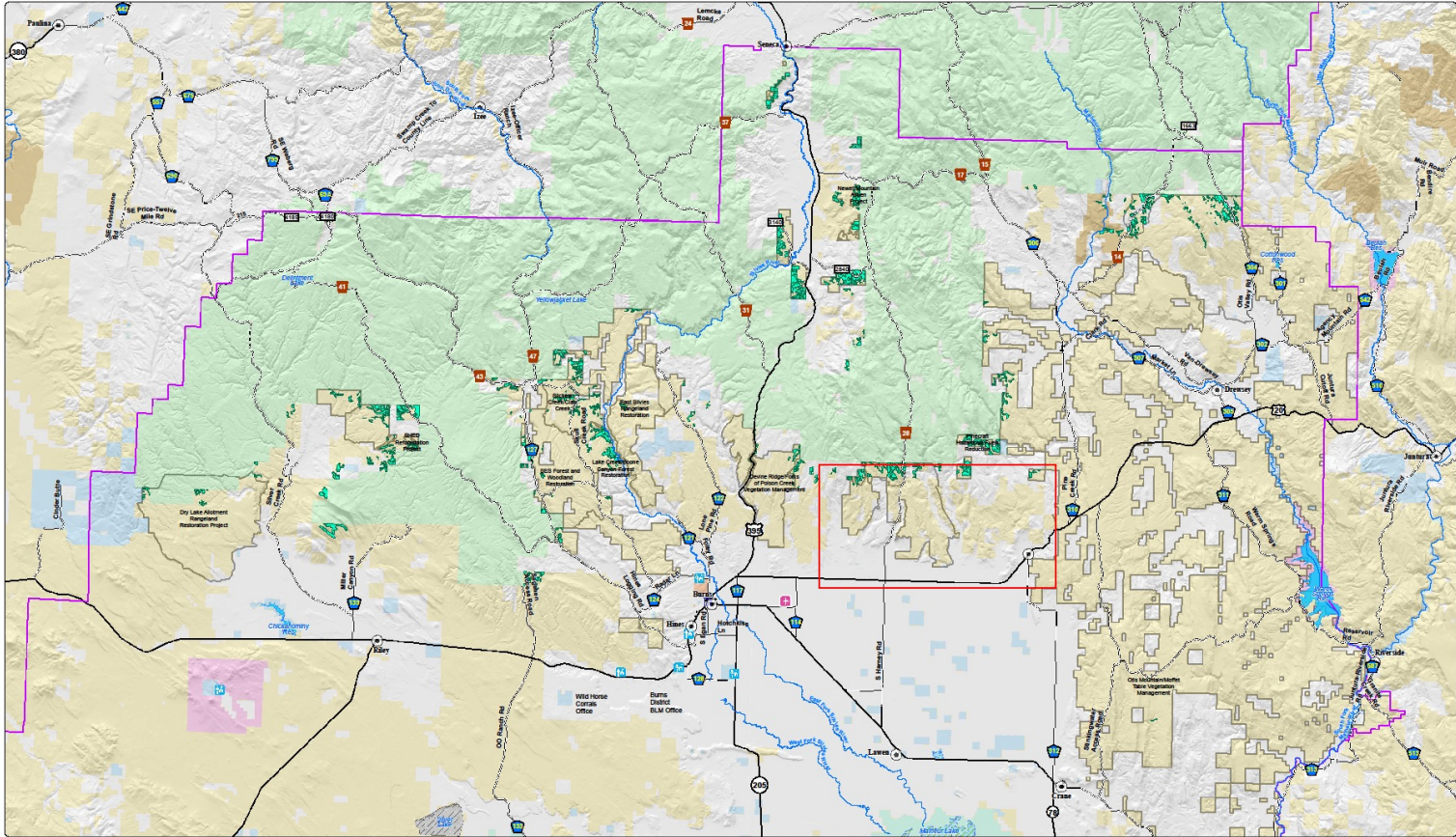
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Three Rivers Timber Sales						
As of 02/28/2018						
FY	Sale Name	Volume (bf)	Acres	Receipts	bf/ac	Per Thousand
1991	Pine Springs Fire (Salvage)	1,510,230	1,135	\$ 369,650.85	1,331	\$ 244.76
1992	Pineskull Fire (Salvage)	68,000	215	\$ 8,908.00	316	\$ 131.00
1993	None	-	-	\$ -	-	-
1994	Hazard Salvage (Hwy 395)	20,000	110	\$ 5,880.00	182	\$ 294.00
	Tudor Canyon Aspen	23,300	8	\$ 8,305.60	2,913	\$ 356.46
1995	Spud Fire (Salvage)	25,113	36	\$ 10,080.00	698	\$ 401.39
	Jordan Fire (Salvage)	270,000	197	\$ 59,400.00	1,371	\$ 220.00
1996	Loco Wind (Salvage)	53,000	92	\$ 7,957.00	576	\$ 150.13
	Rattle (Salvage)	1,430	2	\$ 326.00	715	\$ 227.97
1997	South Silvies (Salvage)	325,000	116	\$ 61,990.00	2,802	\$ 190.74
	Cricket Fire (Salvage)	78,000	25	\$ 28,938.00	3,120	\$ 371.00
1998	None	-	-	\$ -	-	-
1999	Cow Creek Forest Health	500,000	272	\$ 72,732.00	1,838	\$ 145.46
2000	None	-	-	\$ -	-	-
2001	Cow Creek Aspen Negotiated	49,000	8	\$ 6,498.00	6,125	\$ 132.61
	Cow Creek Aspen II Negotiated	16,000	27	\$ 3,797.00	593	\$ 237.31
2002	Loma Aspen Negotiated	66,000	18	\$ 5,605.00	3,667	\$ 84.92
	Loma Aspen Mod.	20,000	3	\$ 972.00	6,667	\$ 48.60
2003	Snowshoe Aspen Negotiated	10,000	8	\$ 80.00	1,250	\$ 8.00
2004	Coffeepot Aspen Negotiated	91,000	20	\$ 3,241.42	4,550	\$ 35.62
2004	Squaw Creek Aspen	54,686	10	\$ 2,550.01	5,469	\$ 46.63
	Newell Timber Sale	679,000	843	\$ 29,264.90	805	\$ 43.10
2005	Hopper Stewardship	314,000	147	\$ 22,890.60	2,136	\$ 72.90
	Gibby Aspen	24,000	6	\$ 1,084.80	4,000	\$ 45.20
2006	Black Rock North T.S. (Salvage)	70,000	40	\$ 1,053.00	1,750	\$ 15.04
	Black Rock South T.S. (Salvage)	77,390	29	\$ 6,311.43	2,669	\$ 81.55
2007	Lone Ewe/Pacific Rim T.S. (Salvage)	472,000	127	\$ 2,318.00	3,717	\$ 4.91
	Theimer Stewardship	61,000	163	\$ 2,318.00	374	\$ 38.00
2008	Pinecraft Forest Health	1,400,000	774	\$ 35,420.00	1,809	\$ 25.30
	Lake Creek Stewardship	147,000	413	\$ 3,087.00	356	\$ 21.00
2009	West Rim Negotiated (Salvage)	44,000	16	\$ 660.00	2,750	\$ 15.00
	West Rim T.S. (Salvage)	340,000	97	\$ 5,892.50	3,505	\$ 17.33
2010	Rudy T.S.	1,516,000	747	\$ 182,304.00	2,029	\$ 120.25
	Cherry Negotiated (Salvage)	25,000	7	\$ 635.00	3,571	\$ 25.40
2011	Mill Creek Stewardship	854,000	250	\$ 46,970.00	3,416	\$ 55.00
	Clemen's Negotiated Aspen	23,000	23	\$ 719.90	1,000	\$ 31.30
2012	Claw Creek Stewardship	724,000	457	\$ 30,625.20	1,584	\$ 42.30
	Nelson Negotiated Timber Sale	60,000	49	\$ 2,010.00	1,224	\$ 33.50
2013	Rudy II Negotiated Timber Sale	231,000	271	\$ 7,068.60	852	\$ 30.60
2013	EP Mine Negotiated Timber Sale	190,110	66	\$ 5,882.40	2,880	\$ 30.94
2014	Claw Creek Stewardship (Mod)	12,000	5	\$ 507.60	2,400	\$ 42.30
2015	None	-	-	\$ -	-	-
2016	None	-	-	\$ -	-	-
2017	Bluebuket Stewardship	389,000	179	\$ 13,615.00	2,173	\$ 35.00
		10,833,259	7,011	\$ 1,057,548.81		

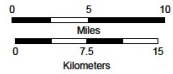
Proposed Timber Sales / Stewardship Contracts				
FY	Sale Name	Volume (bf)	Acres	Est. bf/ac
2017	Dragoon TS (Rattlesnake)	482,400	603	\$ - 800
2019	Slickear Stewardship	960,000	800	\$ - 1,200
Statistics				
Years	bf/year	Acres/year	Receipts/year	
27	401,232	260	\$ 39,168.47	
Minimum:	-	-	\$ -	
Average:	174,220	131	\$ 25,791.13	
Maximum:	1,516,000	1,135	\$ 369,650.85	
Totals by type				
Type Sale	BF per Type	Acres/Type	Receipts/Type	
Negotiated Sales	858,096	517	\$ 47,814.73	
Salvage Sales	3,379,163	2,244	\$ 569,999.78	
Timber Sales	4,095,000	2,636	\$ 319,720.90	
Stewardship Contract	2,501,000	1,614	\$ 120,013.40	
	10,833,259	7,011	\$ 1,057,548.81	
Totals by Timber Sale or Stewardship				
Timber (Sales, Negotiated, Salvage)	8,332,259	5,397	\$ 937,535.41	\$ 37,501.42 over 26 years
Stewardship Contracts	2,501,000	1,614	\$ 120,013.40	\$ 8,572.39 over 15 years
	10,833,259	7,011	\$ 1,057,548.81	

Treatment Target	Resource Area: Three Rivers	Resource Area: Andrews	
Conifers*:	13,380	-	Acres
Douglas-fir:	104	-	Acres
Juniper:	58,433	28,561	Acres
Ponderosa pine/fir Mix:	58	-	Acres
Ponderosa pine:	518	-	Acres
	72,493	28,561	Acres
		101,054	Acres
*Conifers: Ponderosa pine, Juniper			
<i>PC / Documents / (BNS) Forestry / ASQ</i>			

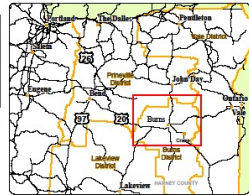
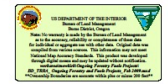


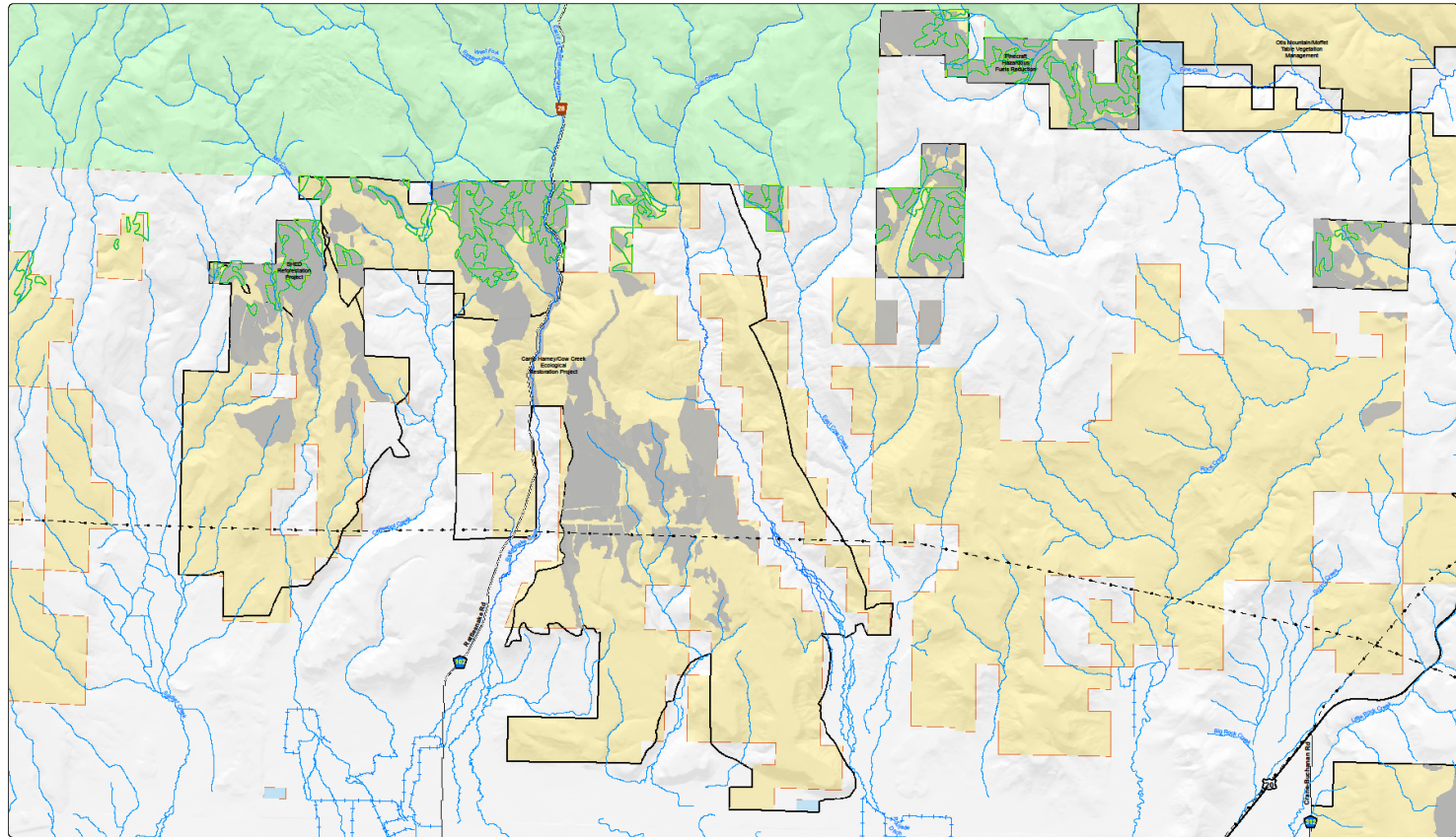
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Rivers — Rivers	Project Area Boundary □ Project Area Boundary	BLM Wilderness Study Area □ BLM Wilderness Study Area
Offices-Schools-Hospitals H Hospital S School O Office	District Boundary □ District Boundary	Land Administration B Bureau of Land Management U U.S. Forest Service F U.S. Fish and Wildlife Service S State B Bureau of Indian Affairs O Other Federal P Privately Owned U Undetermined
Major Lakes P Perennial Lake I Intermittent Lake M Marsh	Forestry F Forestry	
Highways — Highways	Air Operations A Airport	
Not All Roads Are Shown — Not All Roads Are Shown	Town T Town	



Disclaimer
 Model Used: WVM0215
 Latitude: 43.25020° N
 Longitude: 119.05412° W
 Source: <http://blm.gov/geo/geoinfo/data/destination>
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 changes by 15.12° W per year





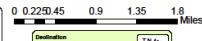
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Ongoing Forestry and Fuels Projects

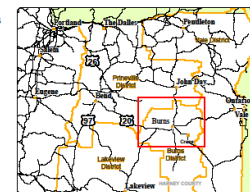
Mill, Coffeepot, Rattlesnake, Cow and Pine Creeks

Last updated: February 2018

Bureau of Land Management	Harvest	Project Area Boundary
U.S. Forest Service	Transmission Line	District Boundary
State	Perennial Stream	District Boundary
Privately Owned	Intermittent Stream	Forestry
	Epithermal/Unclassified Stream	
	Canal or Ditch	
	Highways	
	Highways	
	Not All Roads Are Shown	
	Not All Roads Are Shown	



Coordinate
 Model Used: WGS84
 Latitude: 43.800000 N
 Longitude: 121.000000 W
 Source: ArcGIS/MapInfo/MapInfo
 Date: 02/17/2018 10:17:16 AM
 changed by 0.127 m per year



MECHANICAL TREATMENTS







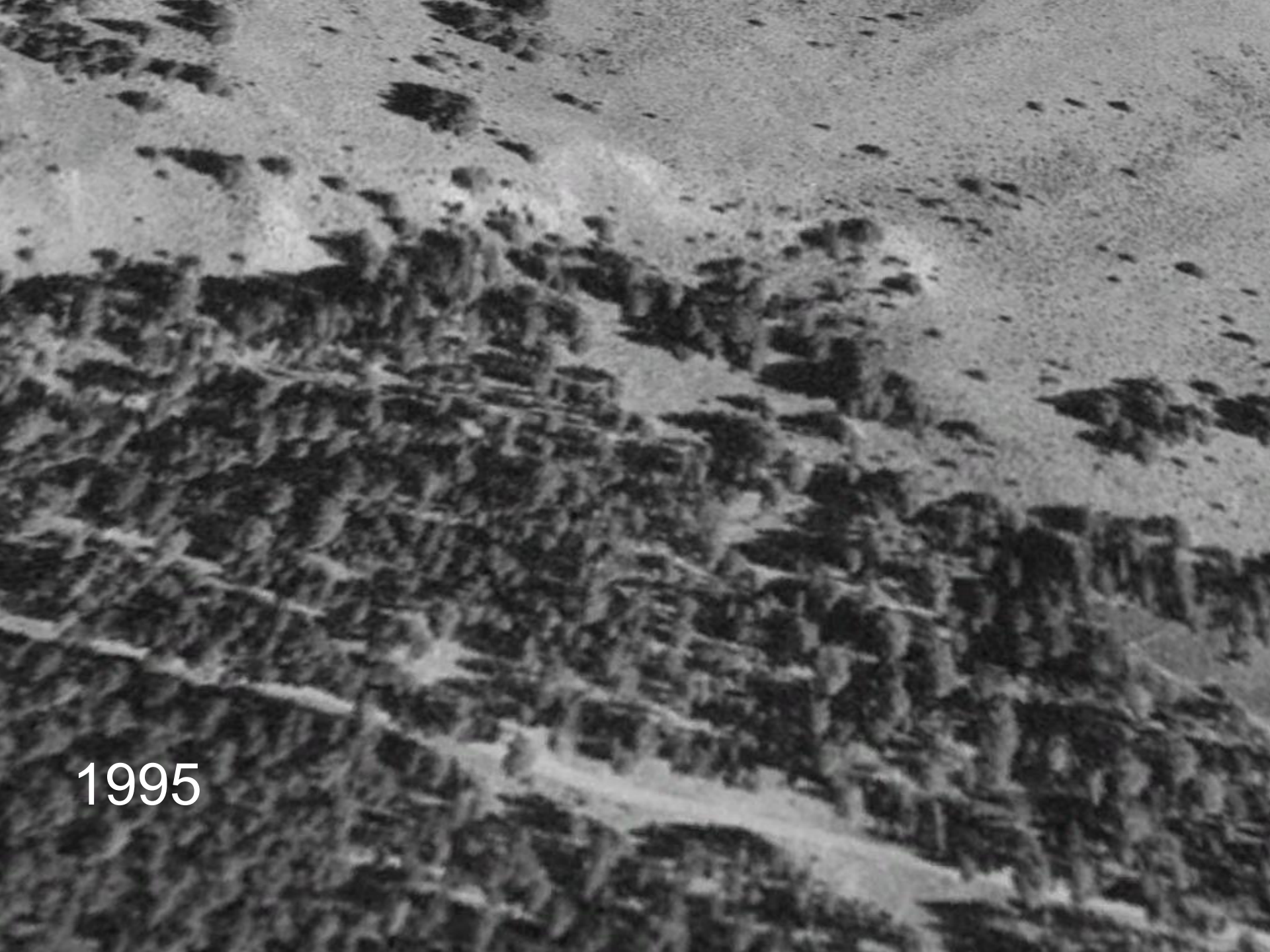
Aspen Restoration



- Logged 1996
- Fenced 1998
- August 2003

Loco Aspen – Harvested Jan/Feb 2002





1995



2016



QUESTIONS?