



FIRESCIENCE.GOV
Research Supporting Sound Decisions

**Rogue River-Siskiyou NF LTEP Data Archival Project
13-4-01-9**

Brett A. Morrissette
Kylie M. Meyer
Bernard T. Bormann
Don Henshaw

Oregon State University
Oregon State University
University of Washington
US Forest Service

Abstract

The Long-Term Ecosystem Productivity (LTEP) study has been generating data since the late 1980s. This project focusses on data from the Rogue River-Siskiyou National Forest research site. Portions of this site were burned in the 2002 Biscuit Fire. Pre and Post fire data have been collected, however, these data were stored in individual excel files.

Updating the files to a consistent format, ensuring proper metadata, and delivering flat files to the Forest Science Database (FSDB) were undertaken. The tree measurement dataset is now online. Understory, Fine Woody Debris (FWD), Coarse Woody Debris (CWD), Biscuit Fire related snag datasets are being brought into similar format as the tree measurement dataset.

Background

The purpose of this project is to bring data from the Long-Term Ecosystem Productivity (LTEP) study Rogue River-Siskiyou National Forest study site into a database with proper metadata, formatting, and thorough QC/QC. There are successive measurements on 10,357 individual trees beginning in 1992. Additional measurements were taken in 1995 (post-harvest), 1998, 1999, 2000, 2003 (year after fire), 2005, and 2010, see table 1 for more detail on number of trees measured and site.

Rogue River-Siskiyou NF LTEP Tree Measurements by Year				
Year	Total tree measurement count	Trees measured in year	Blocks Measured	Notes
1992	6116	6116	1,2,3	Pre-treatment
1995	7441	1325	A and B	Burn Study Pre-treatment
1998	8233	792	A and B	Burn Study Post-treatment
1999	8575	342	1,2,3	Thinned only
2000	9258	683	1,2,3	Controls only
2003	10220	962	1,3,B	Biscuit burned units
2004	11181	961	1,3,B	Biscuit burned units
2005	13125	1944	All	No early or mid-treatments
2010	16043	2918	All	All units with trees measured

Table 1: A summary table of the sites measured, number of trees measured, and essential notes by sampling year.

This LTEP study site had 13 of 27 experimental units burn to varying degrees during the 2002 Biscuit fire. The prior experimental measurements set up for an ideal fire study on the site. Two entire experimental units were entirely within the fire boundary, two unaffected by the fire, and one unit with 3 of 7 experimental units burned (fire line put through the block). Post fire measurements began in 2003 looking at fire related mortality, change in species composition, impacts to biomass accumulation, and soil nutrient cycling.

Funding for this project enabled the LTEP study to begin the process of getting data collected on the Rogue River-Siskiyou National Forest study site into a standard database. The tree measurement database is complete. Work has begun on additional datasets of understory, Fine Woody Debris (FWD), Coarse Woody Debris (CWD), and

Biscuit Fire related snags. These data will provide a comprehensive dataset for the western Siskiyou Foothills eco-region (EPA Ecoregions).

Study Site Description

The Rogue River Siskiyou National Forest, Siskiyou long term ecosystem productivity (LTEP) site was established in 1988 as one of four linked, free-standing experiments in a regional study in western Oregon and Washington. The Siskiyou LTEP site contains 27 15-acre experimental units including 3 blocks of 7 treatments (21 standard LTEP experimental units) and an additional 2 blocks of 3 units each, which were part of a thinning and understory prescribed fire study. The LTEP treatments created early, mid, and late seral conditions along with a control in each block. Coarse wood was either completely removed at harvest, low treatment, or retained at 10-15 trees per acre, high treatment.

Key Findings

This project was not funded to produce findings. It was funded to archive data.

Management Implications

Data will be available for researchers to access and incorporate into larger studies on forest management, fire impacts, fire recovery, and biomass response to fire and management to name a few fields these data can be drawn from.

Relationship to other recent findings and other ongoing work on this topic

This data archive project is the initial step in making previous Joint Fire Science Program (JFSP) funded LTEP research data available to a larger audience. The majority of the work done on the site since the Biscuit Fire has been funded by the JFSP. Working with the entire dataset may help researchers explore the change in forest conditions resulting from large scale wildfire.

Future Work Needed

Additional dedicated resources are needed to complete the dataset. It is currently being worked on in a piece meal approach.

Deliverables Crosswalk

Plot type	Plot area or length	Original, unique variables within measurement type	Variables	Repeat	measures [§]	Experimental units	Plots per exp. unit	Total plots measured	Data points	Status
Trees (standard)	324 m ² (18x18 m)	Permanent tag #, species, DBH, height, base of live crown, 1st and 2nd damage class	7	5	27	5	675	23625	Complete	
Trees (enhanced)	324 m ² (18x18 m)	Sapwood radii, rings per sapwood, char circumference, scorch height, burn severity	5	2	27	5	270	2700	Complete	
Snags	324 m ² (18x18 m)	Species, height, decay class	3	3	27	5	405	3645	In progress/Complete	
Understory plants	9 m ² (3x3 m)	Species, cover type, % cover, height	4	3	27	16	1296	15552	In progress	
Understory biomass	9 m ² (3x3 m)	Dry weight (4), slope, aspect	6	1	27	16	432	2592	In progress	
Fine wood (1-10 cm)[†]	1m ² (1x1 m)	Dry weight, slope, %C and %N	4	3	27	16	1296	15552	In progress	
Coarse wood (>10 cm)[†]	25 m (transect)	Dry weight, decay class, slope, aspect, %C and %N	5	3	27	10	810	12150	In progress	
Soil organic layer	710 cm ² pre-treat 350 cm ² post-treat	Dry weight, slope, O type, %C, and %N	5	3	27	16	1296	19440	Additional funds needed	
Mineral soil 0-3 cm	150 cm ² (10x15 cm)	Fraction dry weight (> 4mm, <4 mm), roots, charcoal, %C and %N	6	3	27	16	1296	23328	Additional funds needed	
Mineral soil 3-15 cm	150 cm ² (10x15 cm)	Fraction dry weight (> 4mm, <4 mm), roots, charcoal, %C, and %N	6	3	27	16	1296	23328	Additional funds needed	
Mineral soil 15-30 cm	150 cm ² (10x15 cm)	Fraction dry weight (> 4mm, <4 mm), roots, charcoal, %C, and %N	6	3	27	16	1296	23328	Additional funds needed	
^v Does not include plot descriptive data including treatment, slope, aspect, etc.. or lidar cloud statistics.										
Many important variables can be calculated from these core original variables (basal area for example).										
[§] Initial measure 1993; most recent measure 2011										
[†] Diameter or equivalent area if not round										
								Original data to be prepared for databases	165240	



Undergraduate forestry student, Nicholas Daniel, and recent forestry graduate, Dylan Burgess, seasonal worker collecting sapwood cores.



Faculty research assistant, Jay Sexton, cutting cookies from fire killed snags.



Exchange student, Martyn Davies, and seasonal worker (Amy Barnhart) collecting soil samples.



Exchange student, Martyn Davies, collecting organic soil layer.



Exchange student, Martyn Davies, collecting mineral soil layer.