

LANDFIRE Biophysical Setting Model

Biophysical Setting: 0210350

North Pacific Dry Douglas-fir Forest and Woodland

- This BPS is lumped with:
 This BPS is split into multiple models:

General Information

Contributors (also see the Comments field) **Date** 6/13/2004

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<u>Vegetation Type</u>	<u>Dominant Species</u>	<u>Map Zone</u>	<u>Model Zone</u>	
Forest and Woodland	PSME TSHE	2	<input type="checkbox"/> Alaska	<input type="checkbox"/> Northern Plains
General Model Sources	ABGR		<input type="checkbox"/> California	<input type="checkbox"/> N-Cent. Rockies
<input checked="" type="checkbox"/> Literature			<input type="checkbox"/> Great Basin	<input checked="" type="checkbox"/> Pacific Northwest
<input type="checkbox"/> Local Data			<input type="checkbox"/> Great Lakes	<input type="checkbox"/> South Central
<input checked="" type="checkbox"/> Expert Estimate			<input type="checkbox"/> Hawaii	<input type="checkbox"/> Southeast
			<input type="checkbox"/> Northeast	<input type="checkbox"/> S. Appalachians
				<input type="checkbox"/> Southwest

Geographic Range

This forested type occurs in the foothills around the rim of the Willamette Valley, Oregon. It is more abundant at the south end of the valley.

Biophysical Site Description

The type occurs in the lower hills of both the Coast range and Cascades. Precipitation averages 50-55in per yr. Elevation 1000-1800ft.

Vegetation Description

These types commonly include Douglas-fir with western hemlock and grand fir, particularly in later seral stages. Willamette Valley grasses may be present in the post-replacement and open classes. Dry sites may contain Incense-cedar.

A reviewer felt that in the Rogue valleys TSHE and ABGR are not present at any cover. The valley aprons are too hot and dry.

Disturbance Description

Fire Regime III overall. Mix of III and I. Burns more frequently than Douglas-fir-Hemlock. Since the type spans between the frequent fires of the Willamette Valley grasslands and forested hills, the range of fire return is wide.

Native American burning may have increased the frequency of fire in certain locations, especially at lower elevations where the grasslands fire regime impinges. In areas where Native American burning may have increased fire frequency, the Dry Douglas-fir Woodland setting took on savannah-like conditions with

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widely spaced Douglas-firs. These trees have a very coarse appearance, with very large limbs, in some cases persisting down nearly to the ground.

The large persistent limbs on individual trees, along with proximity of the Douglas-fir savannahs to oak savannahs in near-valley locations, suggest a subset of the North Pacific Dry Douglas-fir Forest and Woodland may have been subject to Fire Regime I conditions prior to cessation of Native American burning.

Adjacency or Identification Concerns

This BpS is affected by fires from the adjacent oak woodland. It burns more frequently than the Douglas-fir-Hemlock type in the foothills.

Native Uncharacteristic Conditions

Scale Description

This type occurs in relatively small patches at low abundance.

Issues/Problems

Comments

This BpS was influenced from the R#DFWV Rapid Assessment model. Reviewers of that Rapid Assessment model thought that its fire frequency (all fire=26) was too high. The current model allows for less fire than the RA model. One thesis showed MFRI= 28yrs (cross-dated) in the southern Willamette Valley foothills, while another showed 50-60yrs in the Coburg Hills (not cross-dated). The cross-dated fire history informed this (021035) model, and may reflect the detection of lower severity fires than those that non-cross-dated results may show. Due to comments from reviewers fir beetle was added to the current model. Also, reviewers felt that wind storms may be significant enough to be worth modeling.

As a result of final QC for LANDFIRE National by Kori Blankenship the user-defined min and max fire return intervals for surface severity fire were deleted because they were not consistent with the modeled fire return interval for this fire severity type.

Vegetation Classes

Class A	5 %	Indicator Species and Canopy Position	Structure Data (for upper layer lifeform)		
			<i>Min</i>	<i>Max</i>	
Early Development 1 All Structure		PSME	Cover	0 %	40 %
Upper Layer Lifeform		Upper	Height	Tree 0m	Tree 10m
<input type="checkbox"/> Herbaceous			<i>Tree Size Class</i> Sapling >4.5ft; <5"DBH		
<input type="checkbox"/> Shrub			<input type="checkbox"/> Upper layer lifeform differs from dominant lifeform.		
<input checked="" type="checkbox"/> Tree	Fuel Model				

Description

Grasses, forbs, and seedling to pole-sized Douglas-fir. Seedlings average <1in dbh and <5m height, and pole trees average 5in dbh and 13m height.

Succession to Class B after 20 years. Replacement fires (MFRI=370yrs) reset. Mixed fires (MFRI=50yrs) may also occur.

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Class B 10 %

Mid Development 1 Closed

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model

Indicator Species and Canopy Position

PSME
 Upper
 TSHE
 Mid-Upper
 ABGR
 Mid-Upper

Structure Data (for upper layer lifeform)

	Min	Max
Cover	41 %	100 %
Height	Tree 10.1m	Tree 25m
Tree Size Class	Pole 5-9" DBH	

Upper layer lifeform differs from dominant lifeform.

Description

>40% pole (averaging 5in dbh, 13m tall) to small-sized Douglas-fir (averaging 12in dbh, 2m tall) with some grand fir and western hemlock. In certain conditions, growth rates may produce larger diameters than noted.

Succession to Class E after 40 yrs. Replacement fires (MFRI=370yrs) reset. Surface fires (MFRI=200yrs) maintain in Class B, and Mixed fires (MFRI=67yrs) open up to Class C.

Class C 10 %

Mid Development 1 Open

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model

Indicator Species and Canopy Position

PSME
 Upper
 TSHE
 Mid-Upper
 ABGR
 Mid-Upper

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	40 %
Height	Tree 10.1m	Tree 25m
Tree Size Class	None	

Upper layer lifeform differs from dominant lifeform.

Description

<40% Douglas-fir pole-sized (5in dbh, 15m tall) to small-sized (12in dbh, 2 m tall) with open understory (including grand fir and western hemlock). In certain conditions, growth rates may produce larger diameters than noted.

Succession to Class D after 40yrs. Replacement fires (MFRI=370yrs) reset. Mixed fires (MFRI=100yrs) and surface fires (MFRI=50yrs) maintain in Class C. If no fires occur for 38yrs, the stand closes in to become Class E.

Class D 45 %

Late Development 1 Open

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model

Indicator Species and Canopy Position

PSME
 Upper
 TSHE
 Mid-Upper
 ABGR
 Mid-Upper

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	40 %
Height	Tree 25.1m	Tree >50.1m
Tree Size Class	Very Large >33"DBH	

Upper layer lifeform differs from dominant lifeform.

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Description

<40% medium and large Douglas-fir (averaging 20in dbh, 3m tall) with open understory of western hemlock and grand fir.

Maintains in Class D. Replacement fires (MFRI=370yrs) reset. Mixed fires (MFRI=100yrs) and surface fire (MFRI=50yrs) maintains in Class D. Douglas-fir beetles may occur (mean return 330yrs) taking out the older trees and causing transition to Class C. After 40yrs without fire, the stand closes in to become Class E.

Class E 30 %

Late Development 1 Closed

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model

Indicator Species and Canopy Position

- PSME
- Upper
- TSHE
- Mid-Upper
- ABGR
- Mid-Upper

Structure Data (for upper layer lifeform)

	Min	Max
Cover	41 %	90 %
Height	Tree 25.1m	Tree >50.1m
Tree Size Class	Very Large >33"DBH	

Upper layer lifeform differs from dominant lifeform.

Description

>40% medium (15in dbh, 25m tall) and large, even-aged Douglas-fir (20in dbh, 35m tall) with some grand fir and western hemlock in overstory, little understory.

Maintains in Class E. Replacement fires (MFRI=370yrs) reset. Mixed fires (MFRI=50yrs) open up to Class D. Douglas-fir beetles may occur (mean return=330yrs) taking out the older trees and causing transition to Class E.

Disturbances

Fire Regime Group:** III

Historical Fire Size (acres)

- Avg 0
- Min 0
- Max 0

Sources of Fire Regime Data

- Literature
- Local Data
- Expert Estimate

Additional Disturbances Modeled

- Insects/Disease
- Native Grazing
- Other (optional 1)
- Wind/Weather/Stress
- Competition
- Other (optional 2)

Fire Intervals

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	375	100	400	0.00267	10
Mixed	70	40	150	0.01429	51
Surface	90			0.01111	40
All Fires	36			0.02806	

Fire Intervals (FI):

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class.

References

Kertis, J. 2004. Valley fringe fire history study. Unpub. Data on file. Corvallis, OR: USDA Forest Service, Siuslaw National Forest.

NatureServe. 2007. International Ecological Classification Standard: Terrestrial Ecological Classifications.

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Robbins, D. 2005. Temporal and Spatial Variability of Historic Fire Frequency in the Southern Willamette Valley Foothills of Oregon. MS thesis. Oregon State University.

Weisberg, P.J. 1998. Fire History, Fire Regimes and Development of Forest Structure in the Central Western Oregon Cascades. PhD dissertation. Oregon State University. 256 pp.

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