

University of Washington, School of Environmental and Forest Sciences

Visualizing Washington State Historic Timber Harvest Levels From 1965 to 2013



**School of Environmental
and Forest Sciences**

UNIVERSITY *of* WASHINGTON

College of the Environment

Andrew Cooke & Luke Rogers
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Introduction

This project was developed as a way to visualize changes in timber harvests (both volumes and locations) over time in Washington State.

Historical timber harvest volume data is available from the Washington State Department of Natural Resources (DNR), but harvest locations are not. As a proxy for timber harvest locations ownership data from two recent projects was used to create a visual representation of where and how intensely timber was harvested from 1965 to 2013.

Data

Washington State Department of Natural Resources Timber Harvest Reports

Timber harvest volume data was developed by the DNR and is available as Timber Harvest Reports at: http://dnr.wa.gov/BusinessPermits/Topics/EconomicReports/Pages/obe_washington_timber_harvest_reports.aspx.

The data from the DNR exists for three distinct time periods. Data is available for some owner types and locations prior to 1965. Statewide data is available in a summary Microsoft Excel workbook for the years 1965 to 2002. For the years 2003 to 2013, the data are in single Excel workbooks, one for each year. Data prior to 1965 was not used because of inconsistent availability of data.

Harvest Volumes are reported in various combinations of species, county, and owner type, depending on the year. For this project all species were combined into a total harvest volume for each county and owner type.

Owner types for the time period 1965 to 2002 were combined into six final owner classes as follows:

DNR Owner Type	Project Owner Class
National Forest	National Forest
Other Federal	Other Federal
Other Non-Federal	Other Public
'Forest Industry' + 'Private Large' + 'Private Small'	Private
State	State DNR
Native American	Native American

Owner types for the time period 2003 to 2013 were combined into six final owner classes as follows:

DNR Owner Type	Project Owner Class
Federal (for all counties except: Kitsap, Pacific, Pierce, Spokane, Stevens, and Thurston)	National Forest
Federal (for counties: Kitsap, Pacific, Pierce, Spokane, Stevens, and Thurston)	Other Federal
Other Public	Other Public
'Private - Industrial' + 'Private - Large' + 'Private - Small' + 'Private - Unknown'	Private
State	State DNR

There is no Native American harvest volume data after the year 2002. The DNR no longer reported these data. There is no National Forest harvest volume data for the year 1979. It was estimated using the average of National Forest harvest volumes for the years 1975 to 1984.

Spatial Data

Actual locations for individual harvests are not available, but volume information is available for each owner class in each county for each year.

It is possible to identify land ownership polygons for each owner class and combine that with county polygons to estimate where these volumes are coming from spatially.

Using a 'Dot Density' symbology method allows these combined owner class/county polygons to be filled with dots based on the timber harvest volume for each owner class in each county. Fewer dots represents less volume; more dots represents more volume.

Land ownership records are not available back to 1965, so it is not possible to change owner class boundaries over time (except as noted in the next paragraph). Current boundaries were used, and it is assumed (and known to be inaccurate) that these boundaries were the same back to 1965.

Based on work done to develop a Public Land Inventory database in collaboration with the Washington State Recreation and Conservation Office (RCO) we were able to change owner class boundaries for lands that changed from Private to State DNR for the years 2003 to 2013 and for some Private to Other Public transitions for the years 1915 to 2013.

Spatial data came from the Public Land Inventory database developed for RCO¹. Private Ownership data came from a derivative of the 2012 Washington State Parcel Database developed for the DNR as part of the Washington Biomass Assessment².

DNR parcels that have been deferred (DEFER_YR = -1) were not available for timber management during the time frame of the project.

Forest Service parcels were based off boundaries from 2011, Road-less areas were designated as having never been harvested and Northwest Forest Plan management restrictions were assumed to have gone into effect in 1994.

Forest cover was identified using Gradient Nearest Neighbor data developed by the LEMMA (Landscape Ecology, Modeling, Mapping, and Analysis) team of the USDA Forest Service, Pacific Northwest Research Station, and the Department of Forest Ecosystems and Society, Oregon State University³.

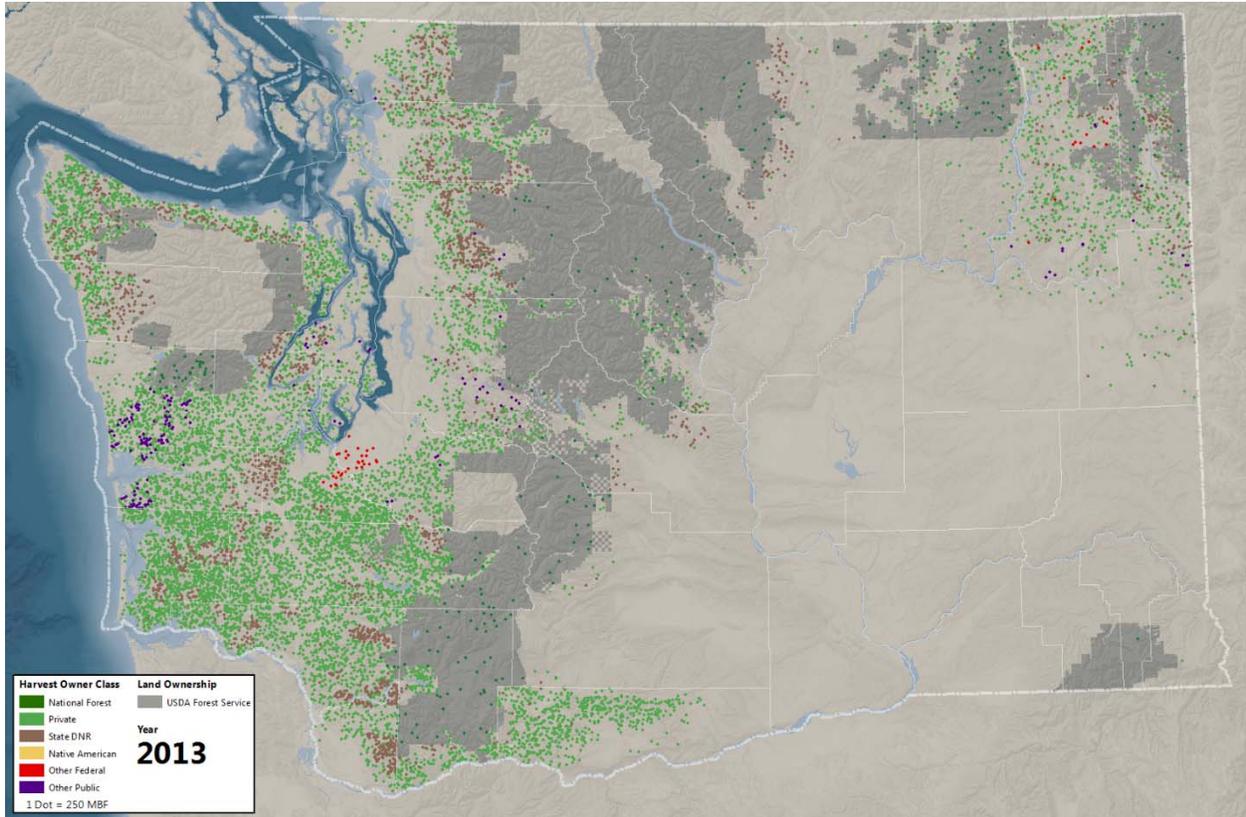
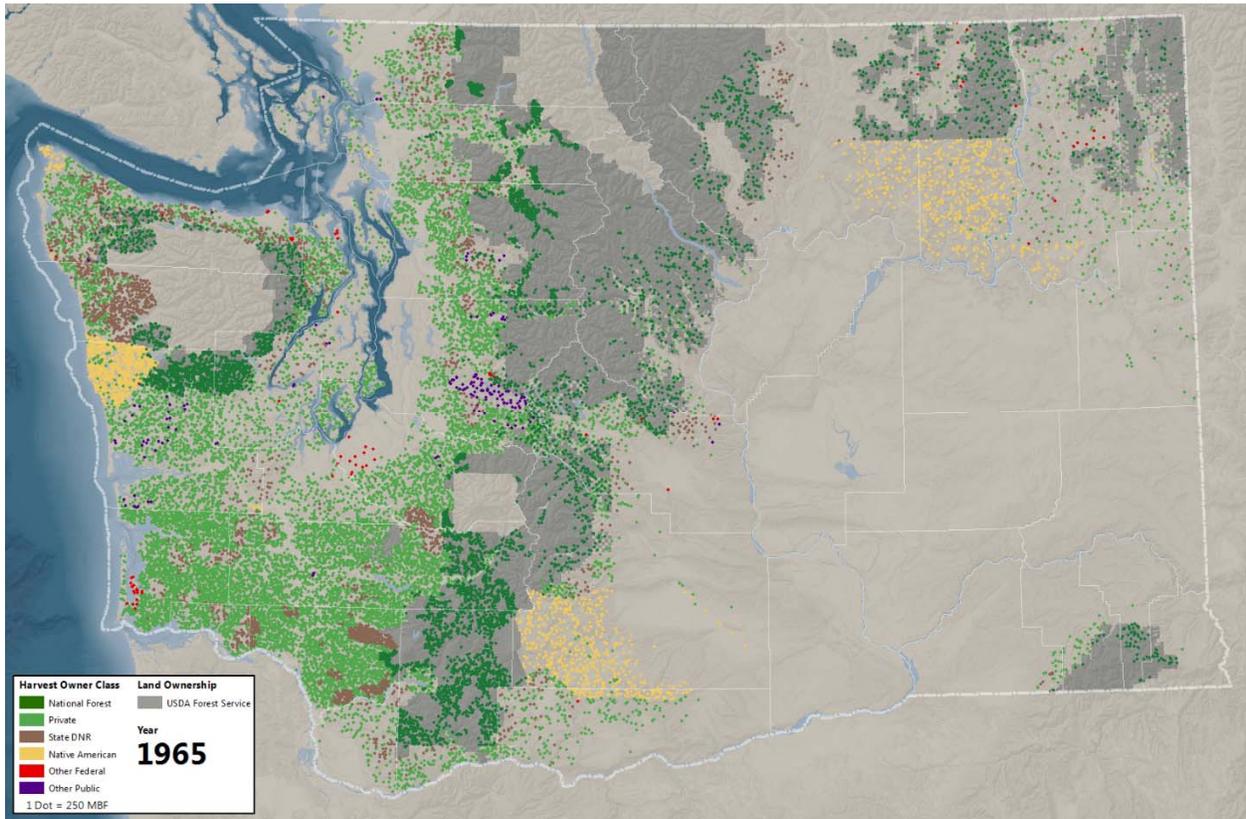
Products

The two primary products are a summarized Excel Spreadsheet with harvest volumes by county, owner class and year from 1965 to 2013, and a series of maps that give a visual representation of the intensity and extent of timber harvest activity over the same period. Using a 'Dot Density' symbology, the combined owner class/county polygons were filled with dots based on the timber harvest volume for each owner class in each county in each year. Fewer dots represent less volume, more dots represent more volume.

¹ <http://publiclandsinventory.wa.gov/#Map>

² <http://wabiomass.cfr.washington.edu/docs/WashingtonForestBiomassSupplyAssessment.pdf>

³ <http://lemma.forestry.oregonstate.edu/data/structure-maps>



Data and a web mapping application can be found at: <http://nrsig.org/projects/wa-timber-harvest-history>