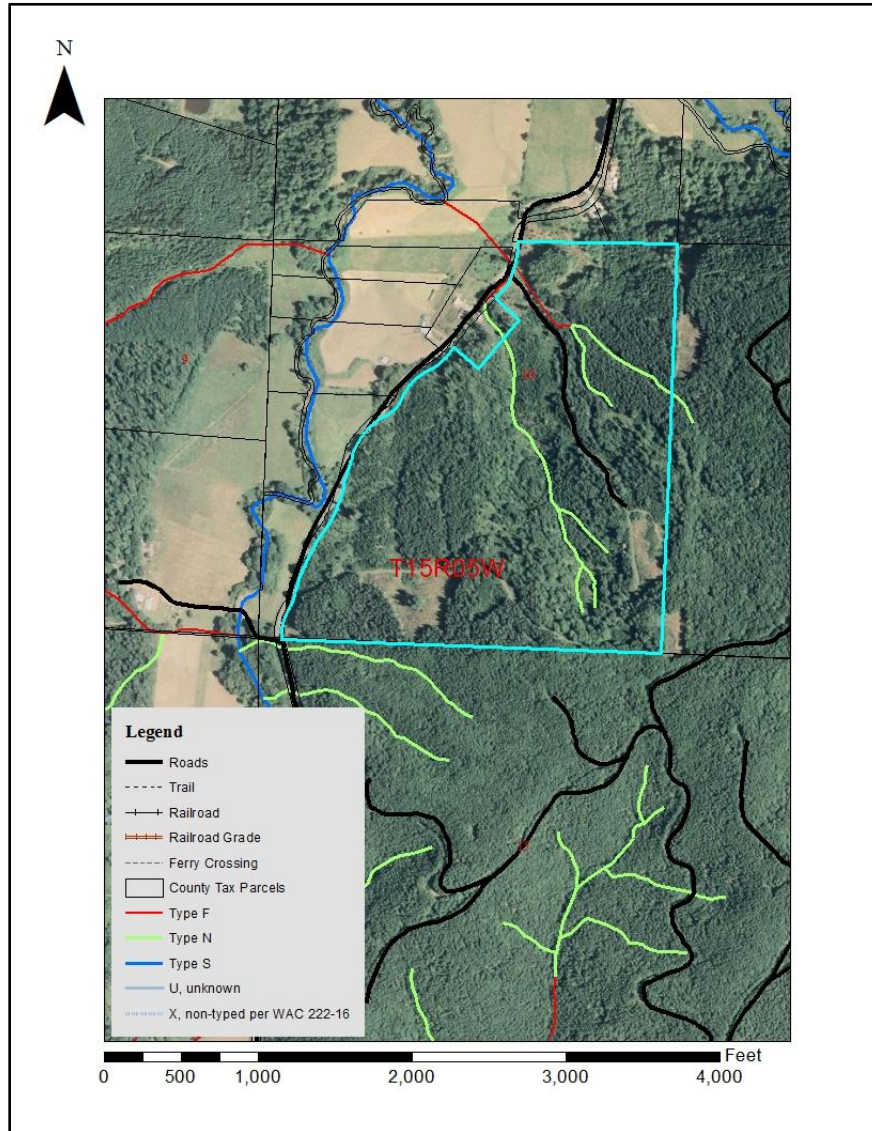# Mapping & Aerial Photography:
Tools You Can Use on Your Tree Farm

2015 WFFA Annual Meeting

Online Mapping & Spatial Resources for the
Small Forest Landowner in Washington State

Data compiled by WADNR Small Forest Landowner's Office – April 2015

Archeological & Historic Preservation, *WA Department of*

The Department of Archaeology and Historic Preservation is Washington State's primary agency with knowledge and expertise in historic preservation. They advocate for the preservation of Washington's irreplaceable historic and cultural resources—significant buildings, structures, sites, objects, and districts—as assets for the future.

The Washington Information System for Architectural and Archaeological Records Data (WISAARD) is an online GIS map tool for locating designated historical sites which are listed on the state and national register. Information includes images of the property, a short summary description about the significance of each resource and a link to the nomination and/or inventory form. Go to https://fortress.wa.gov/dahp/wisaard/ to access this site.

For more information on DAHP visit their website at http://www.dahp.wa.gov/ or call (360)586-3065.

Bureau of Land Management

Oregon/Washington BLM is responsible for managing the Lands and Mineral estate for about 16 million acres of public lands as well as another 24.7 million acres of mineral estate where the surface is managed by the USFS. Go to BLM's Land Status & Cadastral Survey Records (no fee) to access historical survey records/maps http://www.blm.gov/or/landrecords/survey/ySrvy1.php.

For more information on BLM visit their website at http://www.blm.gov/or/about/index.php.

County Parcel Data

Type in your respective county name, include 'Washington' and 'parcel search'. You can access property information by entering a parcel number or site address. Some counties allow search by property owner name. Date includes information on the property parcel, ortho imagery and limited resource information for the parcel/surrounding area.

Many counties also allow you to download data that you could use in ArcView or QGIS.

Fish & Wildlife, *WA Department of*

The Washington Department of Fish and Wildlife (WDFW) is dedicated to preserving, protecting and perpetuating the state's fish and wildlife resources. The department operates under a dual mandate from the Washington Legislature to:

- Protect and enhance fish and wildlife and their habitats.

Online Mapping & Spatial Resources for the Small Forest Landowner in Washington State

- Provide sustainable, fish- and wildlife-related recreational and commercial opportunities.

PHS (Priority Habitat Species) is a web-based, interactive map for citizens, landowners, cities and counties, tribal governments, other agencies, developers, conservation groups, and interested parties to find basic information about the known location of Priority Habitats and Species (PHS) in Washington State. PHS is a source of best available science that can inform local planning activities, development projects, conservation strategies, incentive programs, and numerous other land use applications. Go to http://apps.wdfw.wa.gov/phsontheweb/ to access this site.

For more information on WDFW visit their website at http://wdfw.wa.gov/ or call (360) 902-2200.

Google Earth Pro (free; requires download onto your computer) Google Earth provides aerial photography and map making capabilities. You can also compute distances and areas using measurement tools.
Go to http://www.google.com/earth/explore/products/desktop.html. Go to https://support.google.com/earth/answer/176576?hl=en for a tutorial on how to use Google Earth.

Historic Aerials
This is a fee based resource. The products available on this website are digital copies of images, some dating back to the early 1900's. Your final purchased image will be approximately 1800x1800 pixels. You can obtain current and historical photos as well as topographic maps. Go to http://www.historicaerials.com/aerials.php?op=home.

National Agroforestry Center, *USDA*
The USDA National Agroforestry Center (NAC) accelerates the application of agroforestry through a national network of partners. Together, we conduct research, develop technologies and tools, coordinate demonstrations and training, and provide useful information to natural resource professionals.

➢ **CanVis Visual Simulation Kit**
The CanVis image editing software is an entry-level program that allows resource professionals and landowners to create photo-realistic simulations with minimal computer skills. It runs on a Windows based computer and requires a Pentium 166mhz or faster processor with 32 MB of RAM or higher. The software allows you to edit a scanned photograph or an image from a digital camera. Visual simulations are created by duplicating elements from within the image and by adding elements from

other images or from CanVis' object library. Objects can be resized, their color adjusted, and shadows added to create realistic looking simulations. The software contains tutorial videos that show how to use each editing tool. Go to http://nac.unl.edu/simulation/order/index.php to order the software (no fee).

For more information on CanVis go to http://nac.unl.edu/simulation/products.htm#canvis.

For more information on NAC go to http://nac.unl.edu/.

Natural Resources, *WA Department of*

The Department of Natural Resources manages 5.6 million acres of forest, range, agricultural, aquatic, and commercial lands for the people of Washington. The agency implements several regulatory programs – forest practices, silvicultural burning and geological resources such as mining, oil and gas. The agency provides forest fire response as well as monitors forest health conditions statewide. Additionally, the agency administers the Forest Stewardship Program, a nationwide program which provides advice and assistance to help family forest owners manage their lands.

➢ **Forest Health Program** (includes animal damage, disease and insect outbreak locations).

The Forest Health Program monitors forest health conditions on approximately 12.5 million acres of state and private lands. Go to https://fortress.wa.gov/dnr/adminsa/DataWeb/dmmatrix.html (requires Geographic Information Systems (GIS) software) to download spatial data for forest health issue areas. For additional information on the Forest Health Program and available resources go to http://www.dnr.wa.gov/ResearchScience/Topics/ForestHealthEcology/Pages/rp_foresthealth.aspx.

Go to https://fortress.wa.gov/dnr/fmanfire/index.html for recent information on forest health issue areas (2010-2014).

For more information on WADNR's Forest Health Program visit their website at http://www.dnr.wa.gov/ResearchScience/Topics/ForestHealthEcology/Pages/rp_foresthealth.aspx or call (360) 902-1691.

➢ **Forest Practices Program**

The Forest Practices Rules establish standards for forest practices such as timber harvest, pre-commercial thinning, road construction, fertilization, and forest chemical application (Title 222 WAC). They give direction on how to implement the Forest Practices Act (chapter 76.09 RCW) and Stewardship of Non-industrial Forests and Woodlands (chapter 76.13 RCW). The rules are designed to protect public resources such as water quality and fish habitat while maintaining a viable

timber industry. They are under constant review through the adaptive management program. The Forest Practices Program oversees implementation of the rules on approximately 12.5 million acres of private and state-owned forest lands.

 Go to http://fortress.wa.gov/dnr/app1/fpars/viewer.htm to obtain
- Forest practices activity map (required with FPA/N)
- Water type map (includes stream and wetland typing information; also water type verification information if stream has been reviewed and form submitted)
- Resource map (includes hydric soil, slope stability, stream, wetland and rain on snow information)
- Site class map (compliance with forest practices rules requires use of this site class information)

For more information on WADNR's Forest Practices Program visit their website at http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_rules.aspx or call (360) 902-1400.

> **Natural Heritage Program**

In 1981, the Washington Legislature amended the Natural Area Preserves Act (Ch. 79.70 RCW) and established the Washington Natural Heritage Program (WNHP) within the Department of Natural Resources.
The WNHP manages site-specific and species/ecosystem-specific information on priority species and ecosystems; those that are rare or have very limited distribution. Specifically, the WNHPs mandate is to:
- Identify which species and ecosystems are priorities for conservation effort
- Build and maintain a database for priority species and ecosystems
- Share the information with others so that it can be used for environmental assessments and conservation planning purposes.

The Washington Natural Heritage Program (WNHP) GIS Data Set includes information on rare plants and ecological communities. WNHP GIS represents the results of ongoing and incomplete survey statewide. These data are made available for authorized licensed use. Go to http://www1.dnr.wa.gov/nhp/refdesk/plants.html for additional information and go to https://fortress.wa.gov/dnr/adminsa/DataWeb/dmmatrix.html (requires Geographic Information Systems (GIS) software) to download the data.

For more information on the Natural Heritage Program go to http://www.dnr.wa.gov/ResearchScience/Topics/NaturalHeritage/Pages/amp_nh.aspx.

Online Mapping & Spatial Resources for the Small Forest Landowner in Washington State

➢ **Resource Aerial Photography**
To obtain aerial photography, go to
http://www.dnr.wa.gov/BusinessPermits/Topics/Maps/Pages/resource_aerial_pho
tography.aspx. If there are prints in the archive and the request is not too large, they
can scan or copy the photos for you. If the request is extensive and will require many
photos then there may be a charge for their time in completing the request. If prints
are not available or you need better quality scans they will need to scan from the
original negatives. There is a charge for that service at a rate of $67 per image. If
you have a large amount of negatives the job may qualify for a discounted rate if
there are many photos needed in a single flight line.

➢ **Resource Protection**
State of Washington's largest on-call fire department. There are 1,200 permanent
and temporary employees who fight fires on approximately 12.5 million acres of
private and state-owned forest lands. The program's fire protection and safety
equipment requirements help your local fire district respond to wildfires. The
program also works with the National Weather Service to provide fire weather
forecasts and fire precaution levels that firefighters, forest landowners and the forest
industry need.

- Go to https://fortress.wa.gov/dnr/fmanfire/index.html to access Fire
  Prevention & Fuel Management Mapping System (includes information on
  forest health, smoke management and forest vegetation).
- Go to https://fortress.wa.gov/dnr/firedanger/BurnRisk.aspx to view fire
  danger and outdoor burning restrictions.
- Go to https://fortress.wa.gov/dnr/ifpl/IFPL.aspx to view Industrial Fire
  Precaution Levels.

For more information on fire and prevention go to
http://www.dnr.wa.gov/RecreationEducation/FirePreventionAssistance/Pages/hom
e.aspx or call (360)-902-1300.

Natural Resource Conservation Service, *USDA*
On April 27, 1935 Congress passed Public Law 74-46, in which it recognized that "the
wastage of soil and moisture resources on farm, grazing, and forest lands . . . is a
menace to the national welfare" and established the Soil Conservation Service (SCS) as a
permanent agency in the USDA. In 1994, SCS's name was changed to the Natural
Resources Conservation Service to better reflect the broadened scope of the agency's
concerns. In doing so, Congress reaffirmed the federal commitment to the conservation
of the nation's soil and water resources, first made 75 years ago, that continues to this
day.

Online Mapping & Spatial Resources for the Small Forest Landowner in Washington State

➢ **Geospatial Data Gateway** (GDG) is the One Stop Source for environmental and natural resources data. The Gateway allows you to choose your area of interest, browse and select data from their catalog, customize the format, and have it downloaded (no fee) or shipped on CD or DVD (fee charged). The following data can be obtained on this site:

- Ortho and aerial imagery
- Topographic maps
- Elevation maps
- Land use and cover
- Geology
- Climate
- Soil

Go to https://gdg.sc.egov.usda.gov/ (requires Geographic Information Systems (GIS) software) to download data or request a CD or DVD.

➢ **Web Soil Survey** (WSS) provides soil data and information produced by the National Cooperative Soil Survey. The site is updated and maintained online as the single authoritative source of soil survey information. This site does not require use of GIS software to view information and download a report. Go to http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Refer to WSU Extension's *Forest Soil Data for your Forest Stewardship Plan* for step by step guidance on how to create a report – this document can be found by going to http://cru.cahe.wsu.edu/CEPublications/EM064/EM064.pdf.

For more information on WSS go to http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Additional On-line Mapping Sources

- **University of Washington** – access maps and cartographic information; coverage is spotty. Go to http://guides.lib.washington.edu/content.php?pid=123049&sid=1057526.

- **Zee Maps** – this site has great photo clarity. Go to http://www.zeemaps.com/.

GIS Software on the Internet

Below are Internet addresses for some of the free GIS software packages capable of viewing GIS data sets. This listing does not imply endorsement by WADNR.

Online Mapping & Spatial Resources for the Small Forest Landowner in Washington State

DIVA-GIS This program is for mapping and geographic data analysis. With DIVA-GIS you can make maps of the world, or of a very small area, using, for example, state boundaries, rivers, a satellite image, and the locations of sites where an animal species was observed. They also provide free spatial data for the whole world that you can use in DIVA-GIS or other programs. Go to http://www.diva-gis.org/.

ESRI Allows you to organize and analyze geographic information to help make well-informed environmental decisions. The following are offered for free:
- ArcGIS App
- ArcGIS Explorer Desktop
- ArcGIS for AutoCAD
- ArcGIS Online Free Public Account

Go to http://www.esri.com/products.

Geographic Resources Analysis Support System Commonly referred to as GRASS, this Geographic Information System (GIS) software is used for geospatial data management and analysis, image processing, graphics/maps production, spatial modeling, and visualization. GRASS GIS is currently used in academic and commercial settings around the world, as well as by many governmental agencies and environmental consulting companies. Go to http://grass.osgeo.org/.

Mapnik This program is for developing mapping applications. It can comfortably be used for both desktop and web development. It can read ESRI shapefiles, PostGIS, TIFF rasters, .osm files, and any GDAL or OGR supported formats. Go to http://mapnik.org/.

MapWindow This application is a ready-to-use spatial data viewer, it can also be modified into a new custom application. Go to http://www.mapwindow.org/apps/wiki/doku.php?id=mapwindow4.

Quantum GIS This is a user friendly Open Source Geographic Information System (GIS) licensed under the GNU General Public License. QGIS is an official project of the Open Source Geospatial Foundation (OSGeo). It runs on Linux, Unix, Mac OSX, Windows and Android and supports numerous vector, raster, and database formats and functionalities. Go to http://qgis.org/en/site/.

Online Mapping & Spatial Resources for the Small Forest Landowner in Washington State