Part IV.
Appendices

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STATEWIDE ASSESSMENT PRIORITY LANDSCAPE EVALUATION SPATIAL DATA LAYERS & ANALYSIS PROCESS

Appendix A

Statewide Assessment Priority Landscape Evaluation
Spatial Data Layers and Analysis Process

INTRODUCTION

This document describes the rationale, data and analysis processes used to produce priority landscape maps for all-lands opportunities in the Statewide Assessment. The assessment is organized around a set of six issues designed to bridge the National Goals and Objectives of State & Private Forestry Redesign, as codified in the 2008 Farm Bill, with specific focal areas for forest management in Washington State. These issues include: Working Forestlands & Conversion; Biodiversity & Habitat Conservation; Wildfire Hazard Reduction; Forest Health Restoration; Upland Water Quality, Quantity & Puget Sound Restoration; and Urban & Community Forestry.

PURPOSE

The purpose of evaluating priority landscapes is to identify where shared priorities are likely to exist in an all-lands context, so that opportunities to leverage multiple landowner efforts and investments are realized with the help of State & Private Forestry funded activities. "Priority" is therefore defined as the intersection of mutual interests, irrespective of land ownership. For this analysis, the greater the magnitude of intersection, the greater the priority assigned.

Watershed Resource Inventory Areas (WRIAs) were selected as the boundaries to differentiate among landscapes. There are 62 WRIAs in Washington, similar in size to HUC-8 subbasins, but the basin groupings differ in some cases. The watershed boundaries were drawn in accordance with state statute and administrative code, many data resources are readily available and aggregated by WRIA, and the physical size of the watersheds lends itself readily to mid-scale prioritization (as opposed to something as large as a County, or as small as a Watershed Administrative Unit).

The analysis process for the statewide assessment has some similarities to the Spatial Assessment Project (SAP) that was performed for the Forest Stewardship Program in 2009, and uses many of the same spatial data layers, but also has significant analytical differences. At the most basic level, data layers are being aggregated at a larger, landscape scale in this analysis as opposed to at the 30-meter pixel resolution in the SAP. With a few exceptions, there is no weighting applied to the data in the statewide assessment analysis as there was with SAP. Rather, the "weight" is assigned in the up-front selection of spatial data layers and selection of issues for analysis. Finally, the state assessment analysis of priority landscapes is required to adhere to an all-lands approach, whereas the SAP focused exclusively on small private forestland and tribal forestland.

Incorporating urban and community forests within a landscape analysis is challenging because of the inherent difference in scale between geographically-confined developed areas and the broader forested environment. There are also significant data gaps in quantifying the extent of former and current urban forest tree canopy, as well as aggregated inventory information about urban forest conditions. The vast

majority of the implementation actions for urban and community forest improvement are undertaken and funded by local governments. For these reasons, "priority" opportunities for urban and community forests are defined as the intersection of community implementation actions within landscapes where the urban environment can contribute effectively to upland forest issues.

DATA SELECTION

Data selected for use in the statewide assessment's priority landscape analysis were required to meet several criteria. First, all data were required to be geospatially based. Second, to the maximum extent practicable, data for this analysis were selected that included strategic components in addition to resource information components. For instance, Community Wildfire Protection Plan data not only describe the location of wildfire hazard conditions, but also the strategic priorities for where treatments should be implemented based on the density of structures, prevailing winds and fire behavior, and other factors that Communities' considered in consultation with land and fire management agencies. Third, and finally, data were preferentially identified that expressed the strategic priorities of others, albeit modified or narrowed in some cases to fit the forested environment. This is in recognition that an overriding objective of the state assessment and strategy process was to deploy State & Private Forestry programs in a way that is coordinated and leveraged with the actions and investments of other land management agencies and entities. An explanation of specific source data for each issue and its use in their analyses is described in detail below. Maps and tabular data from the geospatial layers are located at the end of this Appendix.

BASIC ANALYSIS PROCESS

For each issue, a set of three to four data layers were selected for analysis. In most cases, a subset of the full data layer was identified in order to display its highest priority strategic value. Most data layers with statewide coverage were clipped to forestland cover using the USGS National Land Cover Dataset (the non-forestland portion of the data was not used). The values and attributes for each data layer were then summarized by WRIA in order to be able to compare among landscapes.

The following table displays an example methodology for how the WRIAs were compared based on the attribute data. For each data layer, WRIAs were ranked based on the magnitude of the parameter of interest (e.g., acres, miles) relative to the amount in the other WRIAs (e.g., most acres, second-most acres, third-most acres…). A rating was assigned on the basis of the WRIA rank; if it was in the top-third, a rating of "3" was assigned, middle-third = "2", bottom-third = "1". The ratings were summed to create a composite rating, and WRIAs were re-ranked into thirds based on this value; top-20 = high priority, middle-20 = moderate priority, bottom-20 = low priority.

Table 1. Illustration of the methodology for WRIA priority landscape rating process

WRIA #	WRIA Name	Data Layer #1		Data Layer #2		Data Layer #3		Composite Rating (sum of data layer ratings)
		Rank (1-62)	Rating (based on rank)	*Rank (1-62)*	Rating (based on rank)	*Rank (1-62)*	Rating (based on rank)	
22	Lower Chehalis	*1*	3	*59*	1	*2*	3	7
3	Lower Skagit/Samish	*5*	3	*47*	1	*58*	1	5
19	Lyre-Hoko	*27*	2	*29*	2	*4*	3	7
39	Upper Yakima	*38*	2	*24*	2	*60*	1	5
60	Kettle	*43*	1	*4*	3	*21*	2	6
49	Okanogan	*54*	1	*1*	3	*20*	2	6

Where feasible and logical, additional weights or coefficients were applied to refine the composite rating (explained in the individual issue discussions below). These included refinements like comparing the data layer values to the total forested acres in the WRIA (normalizing among WRIAs of varying overall size), and adjusting for the proportion of private forestland in a WRIA.

While not particularly complex, this analysis process was selected in order to be able to compare landscapes of varying geographic size, based on data of varying geographic extent, format and units of measure. Re-prioritizing based on different assignments of strategic priority for a particular issue (weighting), adding new or changing data layers, and re-prioritizing the outcome can all be accomplished with a few simple spreadsheet formula changes.

ISSUE ANALYSES

Working Forestlands & Conversion

Narrative: The purpose of this analysis was to identify a subset of WRIA-scale landscapes where strategic conservation of working forestlands would contribute to maintaining significant economic and environmental benefits. This differs from other analyses that have identified landscapes where the greatest *amount* of conversion is projected to take place, or where conversion *pressures* are highest. In many such analyses, conversion pressure is greatest where the "Highest & Best Use" (HBU) property values greatly exceed the forestland asset value, typically in direct proximity to urban growth areas. This analysis sought to identify landscapes where a substantial component of forestland ownership is relatively stable (DNR "working forest landscapes"), where population growth pressures exist but do not drive property values to the point of being too expensive (Forest Legacy Area), and where at least one ecosystem service co-benefit of maintaining working forestland has been quantified in concert with conversion risk (Biodiversity Conservation Opportunity Framework).

Data Layers

I. **Data Subset Map 1.** ***Forest Legacy Program Assessment of Need (AON)*** – The Washington State AON guides deployment of the U.S. Forest Service Forest Legacy program. The most current (2004) AON designates Priority A and B proposed acquisition areas based on forestlands lying outside the designated urban growth areas, but within Watershed Administrative Units that contain lands populated with at least one household unit per 40 acres. Additional adjustments were made to

exclude low conversion risk areas. The AON priority designation was based on the number of households per unit area: Priority A lands contain less than one household per 40 acres, where Priority B lands contain more than one household per 40 acres. Priority areas are established to focus acquisitions on forestlands in transition, not on rural lands in transition. Acquisitions in Priority A areas will create a buffer against development, while acquisitions in Priority B areas will support a transition to those buffers. For the statewide assessment priority landscape analysis, both Priority A and B were used.

What these data tell us: Areas of priority for the Forest Legacy Program where forestland conservation actions can be positioned as a barrier between developing areas.

Metric: Forested acres by WRIA.

II. **Data Subset Map 2.** ***DNR Asset Management Strategy ("Working forest landscapes")*** – Built upon the 1998 DNR Asset Stewardship Plan and the 2003 Asset Allocation Strategy for Washington's Upland Trust Lands, DNR recently conducted a process to evaluate region-by-region forestland conversion pressures and the ability to continue effectively generating trust land revenue. A set of Asset Designations was developed that included long-term forests, interim "hold and manage" forests, and conservation areas. From these, long-term "working forest landscape" boundaries were developed around blocks of forested state trust land. Forestland within asset inventory classes Hold & Consolidate and Hold & Expand for state trust lands (DNR "working forest landscapes") were used for the statewide assessment priority landscape analysis. By many analyses, maintaining continuity of like-uses in larger blocks of landscapes (an "anchor" concept) is a strategic approach that has promise. State trust lands are intended to persist as working forest landscapes and can provide such an "anchor."

What these data tell us: Location and size of one significant and stable category of working forestlands, around which conservation efforts could potentially be focused.

Metric: forested acres by WRIA.

III. **Data Subset Map 3.** ***Biodiversity Conservation Opportunity Framework*** – Ecoregional assessments – completed as part of a multi-year collaboration between the Washington Department of Fish and Wildlife, Washington State Department of Natural Resources (DNR), The Nature Conservancy, and The Nature Conservancy of Canada – are the best and most recent statewide analysis of Washington's biodiversity. This information includes state agency and conservation data for terrestrial wildlife and plant species (aquatic species are not included) on three commonly accepted measures of biodiversity significance: richness, rarity, and representation. Together these data were used to create a biodiversity significance score on a scale of 1 to 3. Using projections of population growth and land-use change from the Western Futures Growth Model, a biodiversity "risk" score was also developed on the same three-point scale. Together, these two measures provide a composite score that represents "conservation opportunity," where areas with both high significance and risk of changes in land use rate highest. High opportunity ratings (indicative of both

significance and risk) were used for this part of the statewide assessment priority landscape analysis. At a policy and strategic level, evaluating working forestlands' importance for biodiversity is in keeping with the concept that these lands provide significant ecosystem services value alongside commodity production. Furthermore, it is recognized that population growth and corresponding property value increases for developed uses are a primary driving force behind landowner motivations for forestland conversion. The COF offers a measure of both factors. The three highest COF opportunity values (high significance and high risk, or high in one measure and moderate in the other; equating to values 4, 7, and 8 in the value matrix) were selected and clipped to NLCD forestland.

What these data tell us: Location and magnitude of working forestlands' contribution to biodiversity significance where risks from population growth pressure are also present.

Metric: Forested acres in the top three opportunity values by WRIA.

Technical Calculation Process: Using the tabulated metrics for each spatial data layer (Table 2), a rating was established for each WRIA. The rating process begins with ranking the WRIAs – 1st through 62nd – on the basis of the greatest amount of the metric in each data layer compared to all other WRIAs. The WRIA with the greatest acreage ranks first, next-most ranks second, and so on. WRIA ranks were broken into three strata: Top-20, Middle-20, and Bottom-22 for each data layer. Top-20 earns a rating value of "3", middle a "2", bottom a "1". For each rating value, an additional coefficient was calculated to account for (normalize) WRIAs of varying geographic size and with varying proportions of forestland. Otherwise, a WRIA that had a small amount of forestland, but 100 percent of it was within the desired data layer, would artificially fall to a lower priority. The WRIA acreage of each data layer was divided by the total WRIA forestland acreage to produce the percent of forestland occupied by the data layer of interest; the resulting normalization coefficients were multiplied by each rating value. The normalized rating values were summed to produce a final composite rating value. WRIAs were re-ranked based on the final composite rating to establish a final "priority" value: top 20 is "high" priority, middle 20 is "moderate", bottom 22 is "low".

Notes: One weakness of the COF is that data from the Blue Mountains and Canadian Rocky Mountain ecoregions are incomplete. These include all or portions of the Pend Oreille, Colville, Upper Lake Roosevelt, Hangman, Middle Spokane, Little Spokane, Lower Snake, and Middle Snake WRIAs. For this reason, these WRIAs are displayed with an annotated cross-hatch on the priority landscape maps.

Biodiversity & Habitat Conservation

Narrative: The purpose of this analysis was to identify a subset of WRIA scale landscapes where forestlands of all ownerships can contribute to maintaining multiple, intersecting terrestrial and aquatic biodiversity priorities. The COF, as in the Working Forestlands & Conversion analysis, provides a baseline of spatially explicit ecoregional assessments of biodiversity using quantitative data on rare or declining species, natural communities, and ecological systems. Whereas the combined "conservation opportunity" data were used for the Working Forestlands analysis, only the "significance" portion of the

data was used for this issue. “Risk” data in the COF are a corollary for population growth and land-use change, which brings the focus away from public lands because there is no threat of residential or other development. In order for the assessment to serve as an all-lands approach, removing this inherent de-emphasis for public lands was necessary. Washington Department of Fish and Wildlife data on Priority Habitats and Species (PHS), and Salmonid Stock Inventory, and eastern Washington bull trout distribution data were used to augment and overlay the biodiversity information. Including PHS data permits an additional weight for state and federal species of conservation concern, and represents a tie to the Comprehensive Wildlife Conservation Strategy. The COF does not include data on aquatic species or their habitats, and because the protection of salmonids is focal to natural resource management in Washington, it was essential to include these in the Biodiversity & Habitat Conservation issue analysis.

Data Layers

I. **Data Subset Map 4. *Biodiversity Significance*** – Whereas the combined COF “Significance” and “Risk” (“conservation opportunity”) values within the COF were used in the Working Forestlands & Conversion analysis, the statewide assessment priority landscape analysis for the Biodiversity & Habitat Conservation issue uses “Significance” only. There are three measures of significance – high, moderate, and low. High and moderate significance polygons were clipped to NLCD forestland.

What these data tell us: Location of high and moderate biodiversity significance on forestland.

Metric: Forested acres in the high and moderate significance categories by WRIA.

II. **Data Subset Map 5: *Priority Habitats & Species (PHS)*** – PHS data are generated and maintained by the Washington Department of Fish & Wildlife. They contain WDFW's knowledge of fish and wildlife resources and occurrences based on research and field surveys conducted over the past 30 + years. Principally, data include species site observations in the Wildlife Survey Data Management subset, and an inventory of priority species use areas and habitats based on WDFW biologist knowledge. These data include state- and federally-listed terrestrial wildlife species, state species of conservation concern, and state game species. The type of data entry varies among point observations and habitat area polygons, but each have been aggregated into a common hexagonal geographic pixel format. From among the attributes of these data, state- and federally-listed species in the endangered, threatened, and candidate categories were selected for use in the statewide assessment priority landscape analysis for the Biodiversity & Habitat Conservation issue. Resulting hexagons were clipped to NLCD forestland. To some degree, this duplicates the use of the COF data because PHS information is a component of the COF ecoregional assessments. However, this has the desirable effect of adding weight to state and federally listed species and their habitats in the forested environment.

What these data tell us: Location and amount of forested habitat and occurrence of state- and federally-listed endangered, threatened and candidate species.

Metric: Forested acres by WRIA.

III. **Data Subset Map 6: *Salmonid Stock Inventory (SaSI)*** – SaSI data are collected and maintained jointly by the Washington Department of Fish & Wildlife and native Indian Tribes of western Washington. They inventory and assess the health of salmon, steelhead, sea-run cutthroat, and bull trout runs and resident populations in freshwater aquatic ecosystems of Washington. Stocks may be categorized as Healthy, Depressed, Critical, Extinct, Not Rated, or Unknown. For the statewide assessment analysis of priority landscapes in Biodiversity & Habitat Conservation issue, river and stream reaches containing Candidate, Threatened and Endangered runs were selected. From among these, stocks classed as "healthy" were removed from the analysis. Although "healthy" stocks may still be high priorities for habitat restoration work, the foremost forest management-related project priority for this analysis would be repairing fish passage barriers and chronic sediment contributions from forest roads. Therefore, comparing opportunities where Healthy and unhealthy stocks both have passage barrier and chronic sediment issues, one reasonably prioritizes the unhealthy stocks. The river and stream reaches with Depressed, Critical, Extinct, Not Rated or Unknown stocks were not clipped to NLCD forestland as with other layers, because a substantial number of rivers in the Puget Sound basin run through developed areas and removing non-forest adjacent reaches would have under-represented these WRIAs. Total reach and stock miles were aggregated by WRIA. The mileage attributed to an individual reach of stream includes data from multiple species, because several runs may exist in the same reach. A 0.5-mile long reach with, for example, three stocks that are classed as other than healthy, is represented as 1.5 miles in the compiled WRIA data for this analysis. In this way, reaches with multiple species are prioritized over others. A substantial portion of salmonid stocks are of Unknown status: 35% in the Coast region, 28% in the Puget Sound region, and 33% in the Columbia River drainage. It was decided that including listed stocks, even if their status was Unknown, was more beneficial to the analysis than excluding them. By virtue of a stock's listing, a certain priority and general assumption of less-than-healthy status is appropriate.

What these data tell us: Location and intensity of non-healthy salmonid stocks on all lands.

Metric: Miles of stream by WRIA.

IV. **Data Subset Map 6: *Bull Trout Distribution*** – Fish distribution data are collected and maintained by the Washington Department of Fish & Wildlife. These data were added to the statewide assessment priority landscape analysis for Biodiversity & Habitat Conservation to fill a data gap in the SaSI dataset. The construction of dams and other impassable barriers along fish migration routes has extirpated anadromous species from their former range, and consequently, there is no SaSI data for the uppermost reaches of the Columbia River. Native bull trout, however, are a federally listed species and deserve conservation consideration alongside other salmonids. Although the fish distribution data set does not contain population status information, by virtue of the species' listing status it is assumed that these stocks merit restoration attention for actions like fish barrier removal and forest road maintenance wherever they are present. From the fish distribution data set, bull trout runs in eastern Washington (WRIAs) that have only partial or no SaSI data coverage were selected. From the attributes of distribution type, stocks with artificially-enabled distribution (by

constructed access to previously inaccessible habitat), and undetected or undocumented distribution were removed.

What these data tell us: Location and length of listed bull trout distribution on all lands.

Metric: Miles of stream in forested reaches by WRIA.

Technical Calculation Process: Using the tabulated metrics for each spatial data layer (Table 3), a rating was established for each WRIA for the PHS, COF-High Significance, COF-Moderate Significance, and SaSI datalayers using the procedure described in the Working Forestlands issue's technical calculation process. The rating of the COF-Moderate Significance ranking was reduced by half to reflect a lower weight than the High Significance acres. SaSI data are in miles, whereas COF and PHS data are in acres. Therefore, the calculation of a normalization value was not applied. Consideration was given to applying a similar coefficient to SaSI by comparing the total length of stream adjacent to forestland within a WRIA to the length of the SaSI reaches. However, this is infeasible because of water typing data discrepancies, and overlapping SaSI segments that reflect multiple species and multiple runs. Normalizing ratings for PHS and COF data would have had the effect of weighting the SaSI and bull trout rating values higher than the COF and PHS values, because the normalization calculation results in some fraction of the original rating whereas the unaltered ratings are whole numbers. WRIAs were ranked based on the simple rating scores: top 20 is "high" priority, middle 20 is "moderate", bottom 22 is "low".

Notes: As with the Working Forestlands & Conversion issue analysis, the COF data are incomplete and are so designated with an annotated cross-hatch on the priority landscape map.

Water Quality, Quantity & Puget Sound Restoration

Narrative: The purpose of this analysis was to identify a subset of WRIA scale landscapes where upland forest conditions of all ownerships are linked with and can contribute to remedying known water quality issues and improving salmonid habitat. In particular, there was a desire to recognize and leverage the investments that many land managers, governments and citizens are making in restoring Puget Sound. The core of the analysis is formed by water quality concerns that are both potentially related to forest management activities, and have identified impaired status that is proximate to forest land. SaSI and bull trout distribution data are used to weight water quality issues that can affect salmonids, which is a key Puget Sound and overall watershed restoration priority. USFS priority watersheds are used to identify opportunities where multiple forest landowners can be working on shared priorities. Although the quantity, timing and duration of surface water runoff can be affected by the condition of upland forests, no quantitative spatial data were identified that could contribute to the analysis at a statewide scale. The aggregation of locations where water quality, salmonid habitat and restoration priorities exist will serve as a surrogate for water quantity until more specific data can be aggregated.

Data Layers

I. **Data Subset Map 7: *Impaired Forested Water Segments*** – Impaired water quality data are compiled from monitoring and reporting conducted by the Washington Department of Ecology under the federal Clean Water Act. This includes the following categories of impairment: Category 1: Meets tested standards; Category 2: Waters of concern, some evidence of a water quality problem but not enough to require production of a Total Maximum Daily Load (TMDL) plan; Category 3: Insufficient or No data; Category 4a: Have an approved TMDL in place and are actively being implemented; Category 4b: have a pollution control plan in place that is expected to solve the pollution problems; Category 4c is for waterbody segments impaired by causes that cannot be addressed through a TMDL (not due to a pollutant) – these impairments include low water flow, stream channelization, and dams; Category 5: Polluted waters that require a TMDL. Category 5 represents the 303(d) list, the traditional list of impaired water bodies. For the statewide assessment analysis of priority landscapes, impaired water segments (excluding lakes, impoundments) that have an approved TMDL (Category 4a) or that require the development of a TMDL (Category 5) were selected. From among these, those with impairment due to one of the following were included: fine sediment, coarse sediment, temperature, dissolved oxygen, fish habitat, large woody debris, in-stream flow and turbidity. The preceding list of impairment factors are recognized in the Forest Practices HCP as potentially resulting from forest management actions and related roads. The resulting data were clipped to NLCD forestland in an attempt to filter out impairments that are likely attributable to adjacent non-forestry land uses.

What these data tell us: Length of known impaired water segments that are directly adjacent to forestland, could potentially be associated with forest management practices, and where a TMDL plan is either actively being implemented or can be anticipated to be developed in the near future.

Metric: Miles of impaired forest-adjacent segments by WRIA.

II. **Data Subset Map 6: *Salmonid Stock Inventory (SaSI)*** – The same data were utilized for this issue analysis as with the Biodiversity & Habitat Conservation analysis.

III. **Data Subset Map 8: *US Forest Service Focal Watersheds*** – The U.S. Forest Service, Pacific Northwest Region has developed an Aquatic Restoration Strategy, initially under the direction of the Northwest Forest Plan and subsequently broadened to include all National Forests in the Region. Individual National Forests have subsequently developed a set of "focal watersheds" within which their restoration actions will be concentrated. These data are included because the Forest Service is the single largest forestland manager in Washington State, and the one generally responsible for the upper forested watershed reaches. Additionally, recent years' increased federal appropriations to the Legacy Roads Program have permitted the Forest Service to be more active in restoring watershed function and repairing damaged or unneeded portions of their roads system.

What these data tell us: Location and size of watersheds in which the Forest Service intends to invest in restoration activities, and opportunities for downstream landowners to coordinate and leverage with these actions.

Metric: Acres by WRIA.

IV. **Data Subset Map 6: *Bull Trout Distribution*** – The same data were utilized for this issue analysis as with the Biodiversity & Habitat Conservation analysis.

Technical Calculation Process: Using the tabulated metrics for each spatial data layer (Table 4), a rating was established for each WRIA for the Impaired water, SaSI, Bull trout distribution and USFS Focal Watersheds datalayers initially using the procedure described in the Working Forestlands Issue's technical calculation process. However, there was not enough differentiation among the data when broken into the top-20, middle-20, and bottom-22, so ratings were broken into sixths; top-10 earns a value of "5", 11-20 earns "4", 21-30 earns "3", 31-40 earns "2", 41-50 earns "1", 50+ earns "0". Owing to the priority that DNR and other state and federal agencies have placed upon restoring Puget Sound, WRIAs that drain the Sound earned a supplemental rating of "3". No normalization coefficient was developed for SaSI or Impaired water segments for the same reasons cited under the Biodiversity & Habitat Conservation issue analysis. The most important information gleaned from the U.S. Forest Service focal watersheds and the supplemental Puget Sound rating was their simple presence or absence, so a normalization coefficient was not applied to these data either. Simple ratings were summed across the data layers to create a composite rating (highest possible score = 18, lowest = 0). Because the composite ratings were whole numbers (as opposed to fractional numbers to which a normalization coefficient has been applied), a natural break in the groups of ratings was assigned: rating value > 11 (top 19) is "high" priority, rating value > 6 (middle 22) is "moderate", rating value < 6 (bottom 21) is "low".

Notes: Impaired water data are not complete for all water segments because statewide standards have not yet been developed for all parameters, such as sediment. Most listed segments are as a result of temperature. However, these represent the best available data on forest-adjacent water quality concerns. Also, because the NLCD forestland layer to which water-related data were clipped is fairly generous, stream reaches are included that appear to be well outside the general forestland environment. These are the result of narrow riparian tree cover and other scattered or sparse forest land cover.

Forest Health Restoration

Narrative: The purpose of this analysis was to identify a subset of WRIA scale landscapes where forest insect and disease mortality is predicted, has actually occurred, and where the USFS – as the largest landowner in eastern Washington and the location of a disproportionately large share of at-risk conditions – plans to conduct forest management actions that can be leveraged toward broader outcomes. For the purposes of identifying high opportunity landscapes, western Washington WRIAs

were omitted although it is recognized that forest health priorities do exist, and that responses to natural disasters like wind storms will continue to be necessary.

Data Layers

I. **Data Subset Map 9: *1989-2008 Cumulative Tree Mortality*** – These data display the intensity of tree mortality caused by biotic and abiotic agents (primarily bark beetles, excludes defoliators and wildfires) aggregated over 20 years' (1989-2008) forest health aerial survey data, expressed as trees-per-acre killed. Data were aggregated by the U.S. Forest Service Pacific Northwest Region's Cooperative Forest Health Program. The intensity of tree mortality in trees-per-acre is recorded with the annual aerial survey information. For the purpose of the statewide assessment issue analysis of the Forest Health Restoration issue, acres with mortality greater than 10 trees per acre (TPA) were selected. This is based on the assumption that mortality levels less than 10 TPA represent endemic insect or disease populations. In addition, nearly all eastern Washington forested acres have had some amount of mortality over the last 20 years, so including all mortality levels would have effectively rendered these data to merely a map of forestland acres.

   What these data tell us: Location and amount of higher-than-normal insect and disease mortality on all ownerships.

   Metric: Forested acres with > 10 TPA mortality by WRIA.

II. **Data Subset Map 10: *NIDRM Predicted Tree Mortality Risk*** – The U.S. Forest Service's Cooperative Forest Health program has produced a National Insect & Disease Risk Map (NIDRM) based on data from the Forest Inventory & Analysis (FIA) system to predict stand mortality and damage over the next 15 years. Predictions are expressed as a percentage of total forest stand basal area estimated that is to be killed. Damage classes greater than 20% of the stand basal area were selected for use in the statewide assessment priority landscape analysis.

   What these data tell us: Predicted location and amount of elevated future insect and disease mortality on all ownerships.

   Metric: Acres with > 20% predicted mortality by WRIA

III. ***Coexistence of predicted and actual mortality*** – Intersect of Maps 9 and 10. There is considerable difference in the spatial refinement of actual mortality data in Map 9 and the very coarse nature of FIA-based projections at a thousand-meter pixel resolution. There is value in adding a supplemental rating for areas where mortality has actually happened and where it has been predicted to continue happening.

   What these data tell us: Location and amount of intersection among predicted and actual mortality.

Metric: Acres by WRIA.

IV. **Data Subset Map 8: *US Forest Service Planning Areas*** – (US Forest Service "focal watersheds" and planning areas are displayed on the same map) Washington State law, strategic plans, and federal policies acknowledge the need to take coordinated actions across landscapes of diverse ownership categories in order to make a meaningful and integrated improvement to forest health. As the largest forestland manager in eastern Washington, the U.S. Forest Service's intentions to conduct land management actions are critical to identifying timely all-lands opportunities. The best available representation of where the Forest Service intends to perform management actions are individual National Forests' and Districts' five-year vegetation planning areas. These are overall project areas for which National Environmental Policy Act planning has been or will soon be initiated. Planning areas represent the boundaries of project analysis, and not necessarily specific treatment areas. However, these are the closest available representation of the location for intended actions. Not all treatments are intended specifically to address forest health issues, as these prescriptions may vary by the specific objective of the project. However, most U.S. Forest Service projects in eastern Washington count forest health restoration among at least one of several principal objectives.

What these data tell us: Location of opportunities to leverage against Forest Service actions that will be designed, at least in part, to improve forest health.

Metric: Acres by WRIA.

Technical Calculation Process: Using the tabulated metrics for each spatial data layer (Table 5), a rating was established for each WRIA for the Cumulative mortality, NIDRM, intersected mortality/NIDRM, and USFS Planning Areas datalayers using the procedure described in the Working Forestlands Issue's technical calculation process. However, in an effort to prioritize among the highest-risk landscapes, the analysis was performed for the 34 eastern Washington WRIAs only. Although insect and disease damage agents, as well as abiotic agents like wind storms, are a source of forest health concern in western Washington, the focus of all-lands opportunities for forest health restoration is more acute on the eastside. Because many eastern Washington WRIAs are dominated by federal land, a minimum amount of non-federal land must be present in order for cross-ownership opportunities to exist. Therefore, WRIAs that have less than 10% private forestland earned a punitive rating of "-1", those with greater than 10% were not penalized. A normalization coefficient was applied initially, but did not yield significant adjustments in relative rating values. Therefore, uncorrected WRIA ratings were summed across the data layers to create a composite rating (highest possible score = 13, lowest = 4). A natural break in the composite ratings was identified among the 34 eastern Washington WRIAs: rating value > 9 (top 11) is "high" priority, value > 5 (middle 11) is "moderate", value < 5 and western Washington WRIAs (bottom 40) is "low".

Wildfire Hazard Reduction

Narrative: The purpose of this analysis was to identify a subset of WRIA scale landscapes where wildfire hazard is predicted to exist on forestland, has been identified by local knowledge and quantitative data as posing a risk to communities, and where the USFS – as the largest landowner in eastern Washington and the location of a disproportionate amount of at-risk conditions – plans to conduct forest management actions that can be leveraged toward broader outcomes.

Completed private lands fuel treatments offer both a proxy for past assignment of priority, and an indication of where previous work can be leveraged. Priority CWPP-identified treatments provide both an estimation of the amount of work necessary, and serve as a proxy for the location of wildland-urban interface lands. For the purposes of identifying focal landscapes, western Washington WRIAs were omitted from the calculation of priority landscapes based on the data layers. However, a strategic emphasis is necessary and warranted in areas of western Washington that have a history of large, severe wind driven fires. These WRIAs are assigned a default moderate priority, although it is acknowledged that treatment and fire prevention opportunities are largely at the community scale as opposed to the landscape scale.

Data Layers

I. **Data Subset Map 11: *Fire Regime Condition Class (FRCC)*** – The U.S. Forest Service and other agencies contribute to and maintain a database of wildfire-related data called LANDFIRE. FRCC is among the available LANDFIRE data products, and combines measures of historical fire regimes along with the degree of departure from historical vegetation reference conditions. FRCC is a two-dimensional metric. There are five categories of Fire Regime, and three categories of Condition Class that are combined to represent a departure condition that is fire regime-specific. High-departure categories are at significant risk of losing ecosystem components from unnaturally severe wildfire. For the statewide assessment analysis of priority landscapes for Wildfire Hazard Reduction, acres with FRCC 2 (moderate departure from historical conditions) and FRCC 3 (high departure from historical conditions) were selected, and clipped to NLCD forestland. FRCC data for western Washington were omitted from the analysis because they display an artificially high amount of significantly departed forestland. This is a result of changes from historical vegetation composition and structure (departure) and a very infrequent but high-severity fire regime.

   What these data tell us: Location and amount of forestland likely to sustain undesirable damage from wildfire.

   Metric: Forested acres of FRCC 2 and 3 by WRIA.

II. **Data Subset Map 12: *Completed Private Lands Fuels Treatments*** – DNR Northeast and Southeast Region fire staff have digitized the location of hazardous fuel reduction treatments that have been completed on private land. This includes completed projects, as well as projects for which funding has been allocated and whose completion is imminent. These data represent a measure

of past investment and priority, as well as leverage points for additional treatments that could help achieve a more integrated, landscape-scale outcome. These treatments are also conducted only in areas of the "wildland-urban interface" (WUI). A Washington State map of overall WUI delineation has not been completed, and the location of these treatments contributes as an interim surrogate for identifying the extent of WUI. These data do not include treatments that have been conducted with the sponsorship or funding of other agencies.

What these data tell us: Location and amount of completed treatments, leverage points for future treatments, a reflection of existing priority, and a partial surrogate for WUI.

Metric: Completed acres by WRIA.

III. **Data Subset Map 12: *Priority Community Wildfire Protection Plan (CWPP) Fuels Treatments*** – These data were digitized by DNR Northeast and Southeast Region fire staff from areas identified as treatment priorities in individual CWPPs. CWPP coverage is nearly 100 percent complete in eastern Washington, and all plans were completed in consultation with DNR, local government jurisdictions and the Forest Service. Priority fuels projects are located on a combination of private, state and federal land that the community has categorized as important to protecting structures in the wildland urban interface. These data therefore serve as a second surrogate for WUI location. For the most part, CWPP-identified priority treatments are in the forested environment, but in some cases they include extensive shrub steppe, grassland or cropland treatments. Priority treatment polygons were clipped to NLCD forestland to remove non-forest proposed treatments.

What these data tell us: Location of community-identified treatment priorities, and another partial surrogate for WUI.

Metric: Priority forested acres by WRIA.

IV. **Data Subset Map 8: *US Forest Service Planning Areas*** – The same data were utilized for this issue analysis as for the Forest Health Restoration analysis.

Technical Calculation Process: Using the tabulated metrics for each spatial data layer (Table 6), a rating was established for each WRIA for the FRCC, completed private lands fuel treatments, CWPP priority treatment, and USFS Planning Area data layers using the procedure described in the Working Forestlands Issue's technical calculation process. However, in an effort to prioritize the highest-risk landscapes, the analysis was conducted for the 34 eastern Washington WRIAs only. A normalization coefficient was not applied. Some WRIAs contain an extraordinarily small amount of forestland, 100 percent of which had both highly departed FRCC and priority CWPP treatments, artificially creating a high priority rating. Uncorrected ratings were summed across data layers to create a composite rating (highest possible score = 12, lowest = 4). A natural break in the composite ratings was identified: value > 8 (top 12) is "high" priority, value > 4 (middle 12) is "medium", value < 4 and western Washington WRIAs

(bottom 38) is “low”. Subsequently, a moderate priority rating was assigned to western Washington WRIAs that have a history of wind-driven fire, and/or have established FireWise Communities.

Urban & Community Forestry

Narrative: The purpose of this analysis was to identify specific communities at a stage of readiness to implement projects in the urban environment that can contribute to key upland priorities identified in the priority landscape analysis for the Water Quality, Quantity & Puget Sound Restoration and Biodiversity & Habitat Conservation issues. The analysis compiled information from the CARS reporting system on the status of urban and community forestry programs, along with the two issues’ opportunity landscape maps, to create an rough intersect and opportunities for continuity in ecosystem services. This is based on the number of opportunities identified in the threat analysis of the Assessment that were related to biodiversity and water considerations.

Technical Calculation Process: A very coarse, two-variable calculation was applied. The first variable was related to CARS status within a landscape. WRIAs with communities in the “Managing” stage of CARS received a rating of “2”; those in the “Developing” stage with a Tree City, U.S.A. designation received a rating of “1”; those in the “Developing” stage without a Tree City designation received a rating of “0.5”; those not participating received a zero rating.

The second variable was based on forest landscapes’ opportunity rating for Water and Biodiversity. For each issue, those with a high opportunity designation received a “1” rating; moderate opportunities received a “0.5” rating. The two issue opportunity ratings were combined (maximum score of “2”).

The two variables were then summed to create a combined rating (maximum score of “4”). Landscapes with a combined score greater than “3” were rated as high opportunities for project implementation. Spokane-area landscapes are under-represented in the Biodiversity issue analysis due to a data gap, have significant water quality concerns that are not directly related to forestry, and also have extremely active urban and community forestry programs. Therefore, these landscapes (Lower Spokane, Middle Spokane, Little Spokane, Hangman WRIAs) were added as high opportunities. Landscapes with combined ratings less than “3” were initially assessed as moderate priorities. From among these, landscapes where communities either had no participation in CARS, or had participation but lacked uplands opportunities, were established as low priorities for project implementation.

Table 2. Tabulated metrics for spatial data utilized in the Working Forestlands & Conversion all-lands priority landscape analysis

WRIA #	WRIA Name	Total WRIA Ac.	Forested Ac.	Legacy Priority Ac.	DNR Working Forest Ac.	COF Opportunity Ac.	Composite Rank[1]	Opportunity
23	Upper Chehalis	830,821	526,232	439,199	287,383	248,330	5.56	High
5	Stillaguamish	461,076	340,684	291,502	151,620	157,053	5.29	High
24	Willapa	815,132	464,926	309,813	172,189	287,972	4.97	High
11	Nisqually	491,310	306,896	196,940	107,533	187,719	4.81	High
15	Kitsap	631,208	288,433	222,158	76,284	173,124	4.64	High
59	Colville[2]	652,184	481,989	350,426	317,149	96,558	4.56	High
3	Lower Skagit / Samish	472,969	200,124	187,037	103,868	109,664	4.52	High
29	Wind-White Salmon	576,989	428,577	284,891	90,892	257,220	4.22	High
25	Grays/Elochoman	323,113	220,123	127,726	142,825	119,223	4.19	High
39	Upper Yakima	1,368,960	512,780	267,539	118,081	328,402	4.18	High
10	Puyallup-White	673,208	387,322	201,248	145,642	144,847	3.81	High
7	Snohomish	1,222,292	830,667	416,848	253,988	369,422	3.76	High
28	Salmon-Washougal	316,929	131,143	114,010	64,562	67,240	3.75	High
1	Nooksack	1,036,824	486,435	236,612	169,764	180,883	3.62	High
17	Quilcene-Snow	400,924	191,395	185,427	47,726	97,919	3.46	High
26	Cowlitz	1,594,944	1,065,522	481,542	258,009	446,816	3.34	High
55	Little Spokane[2]	433,390	242,167	217,550	26,742	42,946	3.27	High
16	Skokomish-Dosewallips	409,036	295,403	232,615	36,715	79,889	3.15	High
22	Lower Chehalis	939,459	603,332	373,075	55,756	223,319	3.15	High
27	Lewis	837,420	572,061	215,026	218,720	154,887	3.09	Moderate
14	Kennedy-Goldsborough	244,177	149,903	140,149	10,828	77,365	3.05	Moderate
20	Soleduc	960,477	655,346	193,023	294,378	183,827	2.78	Moderate
19	Lyre-Hoko	503,283	194,861	61,961	114,071	49,769	2.58	Moderate
2	San Juan	398,416	74,455	70,563	0	39,954	2.43	Moderate
62	Pend Oreille[2]	789,832	676,717	232,677	289,494	0	2.31	Moderate
45	Wenatchee	878,426	539,514	189,820	24	283,496	2.28	Moderate
9	Duwamish-Green	372,395	166,025	62,207	71,592	53,660	2.26	Moderate
49	Okanogan	1,342,539	470,004	130,612	164,185	137,546	2.19	Moderate
21	Queets-Quinault	863,605	631,053	229,800	146,083	107,451	2.13	Moderate
38	Naches	707,014	470,802	115,832	52,117	207,727	2.04	Moderate
54	Lower Spokane	566,258	249,470	131,946	36,076	76,705	1.96	Moderate
57	Middle Spokane[2]	183,440	88,539	81,874	0	1,769	1.87	Moderate
40	Alkali-Squilchuck	539,191	41,425	18,806	21,333	11,693	1.77	Moderate
8	Cedar-Sammamish	439,225	156,359	67,462	15,168	41,647	1.59	Moderate
61	Upper Lake Roosevelt[2]	368,844	297,390	142,090	87,952	8,079	1.57	Moderate
30	Klickitat	922,916	493,974	178,324	48,140	129,812	1.44	Moderate
60	Kettle	656,462	467,734	50,209	41,511	179,771	1.44	Moderate

4	Upper Skagit	1,567,159	1,075,881	241,599	97,813	175,574	1.44	Moderate
18	Elwha-Dungeness	651,084	323,286	113,482	46,968	62,771	1.38	Moderate
6	Island	332,542	73,171	61,225	0	37,073	1.34	Low
52	Sanpoil	628,490	437,548	132,001	31,301	97,334	1.19	Low
13	Deschutes	186,927	87,328	52,916	4,347	34,144	1.05	Low
46	Entiat	305,766	153,800	37,466	0	61,654	1.05	Low
58	Middle Lake Roosevelt	707,479	489,037	144,115	45,178	60,333	1.02	Low
48	Methow	1,359,203	832,781	79,851	4,576	219,179	0.99	Low
12	Chambers-Clover	114,930	24,853	13,046	0	9,135	0.89	Low
37	Lower Yakima	1,862,452	201,594	56,770	32,848	36,248	0.79	Low
34	Palouse	1,765,563	57,644	152	0	36,134	0.63	Low
56	Hangman[2]	291,005	54,001	14,059	0	17,758	0.59	Low
41	Lower Crab	1,621,427	7,943	0	0	4,103	0.52	Low
44	Moses Coulee	730,158	14,503	1,469	0	5,607	0.49	Low
43	Upper Crab-Wilson	1,185,646	11,643	0	0	5,261	0.45	Low
51	Nespelem	144,379	74,448	32,727	0	825	0.45	Low
47	Chelan	668,154	282,910	27,924	0	44,724	0.41	Low
42	Grand Coulee	484,502	861	0	0	305	0.35	Low
36	Esquatzel Coulee	1,058,784	4,750	0	0	1,262	0.27	Low
53	Lower Lake Roosevelt	326,299	42,520	2	0	8,376	0.20	Low
50	Foster	577,332	20,901	1,138	0	1,874	0.14	Low
35	Middle Snake[2]	1,440,131	269,550	21,974	0	12,662	0.13	Low
31	Rock-Glade	1,058,822	25,883	1	0	2,966	0.11	Low
32	Walla Walla[2]	907,838	114,128	8,443	0	4,482	0.11	Low
33	Lower Snake	462,600	452	0	0	10	0.02	Low

[1] As calculated using the ranking and rating method described in the Technical Calculation Process for this issue.

[2] Incomplete COF data.

Table 3. Tabulated metrics for spatial data utilized in the Biodiversity & Habitat Conservation all-lands priority landscape analysis

WRIA #	WRIA Name	Total WRIA Ac.	Forested Ac.	SaSI/Bull Trout Mi.	PHS Ac.	COF High Sig. Ac.	COF Mod. Sig. Ac.	Composite Rank[1]	Oppor-tunity
4	Upper Skagit	1,567,159	1,075,881	307	689,847	88,602	657,709	10.5	High
7	Snohomish	1,222,292	830,667	326	475,398	80,622	382,624	10.5	High
24	Willapa	815,132	464,926	1,028	326,729	149,245	213,625	10.5	High
26	Cowlitz	1,594,944	1,065,522	958	611,394	437,142	135,382	10.5	High
48	Methow	1,359,203	832,781	293	544,123	178,070	381,717	10.5	High
10	Puyallup-White	673,208	387,322	267	224,353	172,665	33,528	10	High
27	Lewis	837,420	572,061	602	377,079	134,034	91,887	10	High
30	Klickitat	922,916	493,974	236	370,940	123,921	106,625	10	High
38	Naches	707,014	470,802	240	428,806	208,761	88,164	10	High

39	Upper Yakima	1,368,960	512,780	318	404,245	265,877	135,159	10	High
45	Wenatchee	878,426	539,514	284	402,242	311,036	79,641	10	High
1	Nooksack	1,036,824	486,435	587	290,263	41,565	228,739	9.5	High
20	Soleduc	960,477	655,346	116	591,606	220,113	169,437	9.5	High
11	Nisqually	491,310	306,896	75	175,651	127,847	69,154	9	High
22	Lower Chehalis	939,459	603,332	1,400	299,743	207,718	66,515	9	High
23	Upper Chehalis	830,821	526,232	814	174,956	138,793	135,245	9	High
29	Wind-White Salmon	576,989	428,577	107	399,025	229,682	84,250	9	High
5	Stillaguamish	461,076	340,684	190	252,554	35,982	157,510	8.5	Moderate
8	Cedar-Sammamish	439,225	156,359	336	45,646	23,821	23,610	8.5	Moderate
15	Kitsap	631,208	288,433	29	53,636	22,053	151,665	8.5	Moderate
21	Queets-Quinault	863,605	631,053	81	437,869	95,657	136,938	8.5	Moderate
32	Walla Walla[2]	907,838	114,128	381	4,809	2,305	14,835	8.5	Moderate
35	Middle Snake[2]	1,440,131	269,550	485	23,750	2,630	21,166	8.5	Moderate
49	Okanogan	1,342,539	470,004	114/6	249,659	90,926	149,534	8.5	Moderate
58	Middle Lake Roosevelt	707,479	489,037	0/69	134,992	46,658	182,734	8.5	Moderate
60	Kettle	656,462	467,734	0/43	218,189	100,563	208,874	8.5	Moderate
62	Pend Oreille[2]	789,832	676,717	0/153	454,014	0	0	8.5	Moderate
3	Lower Skagit / Samish	472,969	200,124	152	50,348	15,205	94,683	8	Moderate
16	Skokomish-Dosewallips	409,036	295,403	112	262,979	52,181	41,673	8	Moderate
17	Quilcene-Snow	400,924	191,395	54	129,196	35,012	75,958	8	Moderate
18	Elwha-Dungeness	651,084	323,286	180	306,337	106,238	47,189	8	Moderate
25	Grays/Elochoman	323,113	220,123	362	140,017	93,667	104,144	8	Moderate
37	Lower Yakima	1,862,452	201,594	550	78,408	25,890	56,368	8	Moderate
9	Duwamish-Green	372,395	166,025	43	86,424	51,856	11,264	7.5	Moderate
28	Salmon-Washougal	316,929	131,143	377	49,538	49,703	29,753	7.5	Moderate
52	Sanpoil	628,490	437,548	0/9	77,866	52,823	226,920	7.5	Moderate
14	Kennedy-Goldsborough	244,177	149,903	12	33,169	23,924	53,682	7	Moderate
46	Entiat	305,766	153,800	48	74,307	46,145	31,625	7	Moderate
13	Deschutes	186,927	87,328	91	36,913	18,333	15,892	6.5	Moderate
50	Foster	577,332	20,901	45/69	4,751	1,819	12,590	6.5	Moderate
61	Upper Lake Roosevelt[2]	368,844	297,390	0/55	104,135	5,371	9,411	6.5	Moderate
47	Chelan	668,154	282,910	8	118,408	80,158	45,457	6	Low
54	Lower Spokane	566,258	249,470	0/34	13,032	1,618	123,378	6	Low
59	Colville	652,184	481,989	0	128,505	27,273	81,764	6	Low
2	San Juan	398,416	74,455	1	17,360	29,061	11,027	5.5	Low
12	Chambers-Clover	114,930	24,853	29	14,445	3,381	5,759	5.5	Low
44	Moses Coulee	730,158	14,503	0/27	1,373	1,513	5,963	5.5	Low
53	Lower Lake Roosevelt	326,299	42,520	2/52	3,666	1,180	18,319	5.5	Low
19	Lyre-Hoko	503,283	194,861	0	147,821	14,094	53,194	5	Low
34	Palouse	1,765,563	57,644	0/7	11,480	1,523	39,111	5	Low
6	Island	332,542	73,171	6	15,830	9,261	27,930	4.5	Low
31	Rock-Glade	1,058,822	25,883	113	9,062	103	14,513	4.5	Low
33	Lower Snake	462,600	452	58	157	0	69	4.5	Low

36	Esquatzel Coulee	1,058,784	4,750	41	1,096	542	1,320	4.5	Low
51	Nespelem	144,379	74,448	0	4,176	825	33,694	4	Low
55	Little Spokane[2]	433,390	242,167	0	15,937	4,693	38,381	4	Low
40	Alkali-Squilchuck	539,191	41,425	0	25,271	12,222	6,024	3.5	Low
41	Lower Crab	1,621,427	7,943	0	3,786	814	3,539	3.5	Low
42	Grand Coulee	484,502	861	0	598	121	215	3.5	Low
43	Upper Crab-Wilson	1,185,646	11,643	0	1,192	474	5,756	3.5	Low
56	Hangman[2]	291,005	54,001	0	1,979	94	17,628	3.5	Low
57	Middle Spokane[2]	183,440	88,539	0	5,895	646	1,135	3.5	Low

[1] As calculated using the ranking and rating method described in the Technical Calculation Process for this issue.

[2] Incomplete COF data

Table 4. Tabulated metrics for spatial data utilized in the Water Quality, Quantity & Puget Sound all-lands priority landscape analysis

WRIA #	WRIA Name	Total WRIA Ac.	Forested Ac.	Impaired Waters Mi.	SaSI/Bull Trout Mi	USFS Focal Watershed Ac.	Composite Rank[1]	Oppor-tunity
1	Nooksack	1,036,824	486,435	51	587	0	15	High
10	Puyallup-White	673,208	387,322	34	267	83	15	High
27	Lewis	837,420	572,061	31	602	221,820	15	High
7	Snohomish	1,222,292	830,667	17	326	79,614	14	High
26	Cowlitz	1,594,944	1,065,522	38	958	187	14	High
35	Middle Snake	1,440,131	269,550	25	485	140,533	14	High
5	Stillaguamish	461,076	340,684	28	190	26	13	High
8	Cedar-Sammamish	439,225	156,359	22	336	0	13	High
38	Naches	707,014	470,802	29	240	219,624	13	High
4	Upper Skagit	1,567,159	1,075,881	0	307	255,474	12	High
13	Deschutes	186,927	87,328	27	91	0	12	High
15	Kitsap	631,208	288,433	42	29	0	12	High
16	Skokomish-Dosewallips	409,036	295,403	6	112	66,112	12	High
18	Elwha-Dungeness	651,084	323,286	10	180	127,009	12	High
20	Soleduc	960,477	655,346	51	116	86,989	12	High
22	Lower Chehalis	939,459	603,332	14	1,400	117	12	High
24	Willapa	815,132	464,926	34	1,028	0	12	High
29	Wind-White Salmon	576,989	428,577	29	107	143,560	12	High
30	Klickitat	922,916	493,974	11	236	204,617	12	High
32	Walla Walla	907,838	114,128	17	381	187	12	High
45	Wenatchee	878,426	539,514	29	284	69,678	12	High
3	Lower Skagit / Samish	472,969	200,124	14	152	0	11	Moderate
9	Duwamish-Green	372,395	166,025	26	43	10	11	Moderate
14	Kennedy-Goldsborough	244,177	149,903	21	12	68	11	Moderate
23	Upper Chehalis	830,821	526,232	25	814	0	11	Moderate

25	Grays/Elochoman	323,113	220,123	33	362	0	11	Moderate
28	Salmon-Washougal	316,929	131,143	4	377	56,029	11	Moderate
39	Upper Yakima	1,368,960	512,780	28	318	35	11	Moderate
62	Pend Oreille	789,832	676,717	38	0/153	159,975	11	Moderate
11	Nisqually	491,310	306,896	13	75	0	10	Moderate
17	Quilcene-Snow	400,924	191,395	9	54	34	10	Moderate
48	Methow	1,359,203	832,781	1	293	191,531	10	Moderate
37	Lower Yakima	1,862,452	201,594	3	550	0	9	Moderate
59	Colville	652,184	481,989	11	0	274,020	9	Moderate
12	Chambers-Clover	114,930	24,853	0	29	0	8	Moderate
19	Lyre-Hoko	503,283	194,861	53	0	0	8	Moderate
6	Island	332,542	73,171	1	6	0	7	Moderate
21	Queets-Quinault	863,605	631,053	5	81	0	7	Moderate
31	Rock-Glade	1,058,822	25,883	0	113	27	7	Moderate
49	Okanogan	1,342,539	470,004	1	114	88	7	Moderate
52	Sanpoil	628,490	437,548	0	0/9	181,171	7	Moderate
55	Little Spokane	433,390	242,167	10	0	39	7	Moderate
60	Kettle	656,462	467,734	7	0/43	158	7	Moderate
2	San Juan	398,416	74,455	0	1	0	6	Low
56	Hangman	291,005	54,001	10	0	0	6	Low
58	Middle Lake Roosevelt	707,479	489,037	9	0/69	61	6	Low
34	Palouse	1,765,563	57,644	4	0/7	0	5	Low
36	Esquatzel Coulee	1,058,784	4,750	0	41	0	5	Low
54	Lower Spokane	566,258	249,470	0	0	76	5	Low
61	Upper Lake Roosevelt	368,844	297,390	3	0/34	7	5	Low
33	Lower Snake	462,600	452	0	58	0	4	Low
41	Lower Crab	1,621,427	7,943	1	0/55	0	4	Low
46	Entiat	305,766	153,800	0	48	0	4	Low
47	Chelan	668,154	282,910	1	8	0	4	Low
50	Foster	577,332	20,901	0	45/69	0	4	Low
40	Alkali-Squilchuck	539,191	41,425	0	0	0	3	Low
42	Grand Coulee	484,502	861	0	0	0	3	Low
43	Upper Crab-Wilson	1,185,646	11,643	0	0	0	3	Low
44	Moses Coulee	730,158	14,503	0	0/27	0	3	Low
51	Nespelem	144,379	74,448	0	0	0	3	Low
53	Lower Lake Roosevelt	326,299	42,520	0	2/52	0	3	Low
57	Middle Spokane	183,440	88,539	0	0	0	3	Low

[1] As calculated using the ranking and rating method described in the Technical Calculation Process for this issue.

Table 5. Tabulated metrics for spatial data utilized in the Forest Health Restoration all-lands priority landscape analysis

WRIA[1] #	WRIA Name	Total WRIA Ac.	Forested Ac.	1989-2008 Cumulative Mortality Ac.	NIDRM Risk Ac.	NIDRM-Mortality Intersect Ac.	USFS Planning Area Ac.	Composite Rating[2]	Oppor-tunity
60	Kettle	656,462	467,734	19,778	200,107	6,909	218,387	12	High
58	Middle Lake Roosevelt	707,479	489,037	25,997	186,242	10,037	75,819	12	High
59	Colville	652,184	481,989	14,705	183,441	8,531	116,359	11	High
39	Upper Yakima	1,368,960	512,780	14,048	176,892	8,470	129,149	11	High
30	Klickitat	922,916	493,974	62,611	214,239	19,033	12	11	High
29	Wind-White Salmon	576,989	428,577	2,678	209,032	1,178	179,211	10	High
52	Sanpoil	628,490	437,548	10,279	225,950	4,619	112,571	10	High
48	Methow	1,359,203	832,781	258,595	222,406	66,821	43,639	10	High
38	Naches	707,014	470,802	40,822	156,832	17,957	77,892	10	High
49	Okanogan	1,342,539	470,004	90,116	132,227	25,067	20,097	10	High
62	Pend Oreille	789,832	676,717	26,101	150,202	3,408	161,367	10	High
45	Wenatchee	878,426	539,514	9,969	188,618	3,901	68,917	9	Moderate
37	Lower Yakima	1,862,452	201,594	26,949	47,202	8,934	0	9	Moderate
61	Upper Lake Roosevelt	368,844	297,390	12,865	94,718	5,372	61,623	8	Moderate
54	Lower Spokane	566,258	249,470	6,461	99,783	5,976	0	8	Moderate
47	Chelan	668,154	282,910	29,436	40,137	6,702	14,331	8	Moderate
46	Entiat	305,766	153,800	17,152	38,005	6,518	117,718	7	Moderate
35	Middle Snake	1,440,131	269,550	799	89,317	393	21,198	7	Moderate
32	Walla Walla	907,838	114,128	292	50,550	238	0	6	Moderate
51	Nespelem	144,379	74,448	1,072	20,366	380	0	6	Moderate
55	Little Spokane	433,390	242,167	597	58,063	109	0	6	Moderate
31	Rock-Glade	1,058,822	25,883	1,051	1,635	6	0	6	Moderate
57	Middle Spokane	183,440	88,539	142	36,101	32	0	5	Low
40	Alkali-Squilchuck	539,191	41,425	810	4,000	90	0	5	Low
50	Foster	577,332	20,901	341	2,004	105	0	5	Low
53	Lower Lake Roosevelt	326,299	42,520	140	4,523	1	0	5	Low
56	Hangman	291,005	54,001	162	1,392	0	0	5	Low
34	Palouse	1,765,563	57,644	1	132	0	0	5	Low
44	Moses Coulee	730,158	14,503	4	0	0	0	5	Low
43	Upper Crab-Wilson	1,185,646	11,643	1	0	0	0	5	Low
36	Esquatzel Coulee	1,058,784	4,750	0	0	0	0	5	Low
42	Grand Coulee	484,502	861	0	0	0	0	5	Low
33	Lower Snake	462,600	452	0	0	0	0	5	Low
41	Lower Crab	1,621,427	7,943	0	0	0	0	4	Low

[1]Western Washington WRIAs (#s 1-28) are excluded from this analysis

[2] As calculated using the ranking and rating method described in the Technical Calculation Process for this issue.

Table 6. Tabulated metrics for spatial data utilized in the Wildfire Hazard Reduction all-lands priority landscape analysis

WRIA #	WRIA Name	Total WRIA Ac.	Forested Ac.	FRCC 2&3 Ac.	Completed Treatment Ac.	CWPP Priority Ac.	USFS Planning Area Ac.	Composite Rating[1]	Opportunity
39	Upper Yakima	1,368,960	512,780	450,967	1,258	36,441	129,149	12	High
60	Kettle	656,462	467,734	290,763	982	55,709	218,387	12	High
49	Okanogan	1,342,539	470,004	396,689	1,754	52,308	20,097	11	High
45	Wenatchee	878,426	539,514	460,223	1,674	29,731	68,917	11	High
30	Klickitat	922,916	493,974	376,934	945	29,574	12	11	High
59	Colville	652,184	481,989	186,615	753	36,947	116,359	11	High
62	Pend Oreille	789,832	676,717	558,942	1,034	5,909	161,367	10	High
48	Methow	1,359,203	832,781	640,849	116	54,182	43,639	10	High
38	Naches	707,014	470,802	446,446	18	16,847	77,892	9	Moderate
58	Middle Lake Roosevelt	707,479	489,037	152,047	500	23,104	75,819	9	Moderate
54	Lower Spokane	566,258	249,470	111,477	1,041	33,981	0	9	Moderate
61	Upper Lake Roosevelt	368,844	297,390	147,135	523	26,445	61,623	9	Moderate
35	Middle Snake	1,440,131	269,550	254,327	206	18,192	21,198	8	Moderate
52	Sanpoil	628,490	437,548	195,821	113	23,857	112,571	8	Moderate
29	Wind-White Salmon	576,989	428,577	405,543	0	6,863	179,211	8	Moderate
47	Chelan	668,154	282,910	250,555	471	17,522	14,331	8	Moderate
55	Little Spokane	433,390	242,167	153,134	3,395	18,796	0	8	Moderate
46	Entiat	305,766	153,800	143,644	222	1,814	117,718	8	Moderate
32	Walla Walla	907,838	114,128	106,239	364	19,393	0	6	Moderate
56	Hangman	291,005	54,001	41,425	513	15,409	0	6	Moderate
57	Middle Spokane	183,440	88,539	52,969	509	16,344	0	6	Moderate
8	Cedar-Sammamish	439,225	156,359	--	--	--	--	MGW	Moderate
9	Duwamish-Green	372,395	166,025	--	--	--	--	MGW	Moderate
18	Elwha-Dungeness	651,084	323,286	--	--	--	--	MGW	Moderate
6	Island	332,542	73,171	--	--	--	--	MGW	Moderate
27	Lewis	837,420	572,061	--	--	--	--	MGW	Moderate
3	Lower Skagit / Samish	472,969	200,124	--	--	--	--	MGW	Moderate
19	Lyre-Hoko	503,283	194,861	--	--	--	--	MGW	Moderate
10	Puyallup-White	673,208	387,322	--	--	--	--	MGW	Moderate
28	Salmon-Washougal	316,929	131,143	--	--	--	--	MGW	Moderate
2	San Juan	398,416	74,455	--	--	--	--	MGW	Moderate
16	Skokomish-Dosewallips	409,036	295,403	--	--	--	--	MGW	Moderate
44	Moses Coulee	730,158	14,503	13,671	139	3,763	0	5	Low
37	Lower Yakima	1,862,452	201,594	154,979	105	0	0	5	Low

34	Palouse	1,765,563	57,644	45,661	86	0	0	5	Low
51	Nespelem	144,379	74,448	48,880	0	0	0	4	Low
31	Rock-Glade	1,058,822	25,883	20,127	86	0	0	4	Low
43	Upper Crab-Wilson	1,185,646	11,643	9,572	10	0	0	4	Low
40	Alkali-Squilchuck	539,191	41,425	27,245	99	0	0	4	Low
36	Esquatzel Coulee	1,058,784	4,750	3,209	0	0	0	4	Low
50	Foster	577,332	20,901	18,369	0	0	0	4	Low
42	Grand Coulee	484,502	861	639	0	0	0	4	Low
41	Lower Crab	1,621,427	7,943	6,338	0	0	0	4	Low
53	Lower Lake Roosevelt	326,299	42,520	35,148	54	0	0	4	Low
33	Lower Snake	462,600	452	220	0	0	0	4	Low
12	Chambers-Clover	114,930	24,853	--	--	--	--	NR	Low
26	Cowlitz	1,594,944	1,065,522	--	--	--	--	NR	Low
13	Deschutes	186,927	87,328	--	--	--	--	NR	Low
25	Grays/Elochoman	323,113	220,123	--	--	--	--	NR	Low
14	Kennedy-Goldsborough	244,177	149,903	--	--	--	--	NR	Low
15	Kitsap	631,208	288,433	--	--	--	--	NR	Low
22	Lower Chehalis	939,459	603,332	--	--	--	--	NR	Low
11	Nisqually	491,310	306,896	--	--	--	--	NR	Low
1	Nooksack	1,036,824	486,435	--	--	--	--	NR	Low
21	Queets-Quinault	863,605	631,053	--	--	--	--	NR	Low
17	Quilcene-Snow	400,924	191,395	--	--	--	--	NR	Low
7	Snohomish	1,222,292	830,667	--	--	--	--	NR	Low
20	Soleduc	960,477	655,346	--	--	--	--	NR	Low
5	Stillaguamish	461,076	340,684	--	--	--	--	NR	Low
23	Upper Chehalis	830,821	526,232	--	--	--	--	NR	Low
4	Upper Skagit	1,567,159	1,075,881	--	--	--	--	NR	Low
24	Willapa	815,132	464,926	--	--	--	--	NR	Low

[1] As calculated using the ranking and rating method described in the Technical Calculation Process for this issue.

MGW = western Washington mountain gap wind zone, or existing CWPP or FireWise community priority.

NR = not rated.

Table 7. CWPP priority treatment areas by forestland ownership.

WRIA #	WRIA Name[3]	CWPP-Identified Priority Treatment Areas (Acres)[1,2]							
		DNR Trust Lands	Other State	Tribal	Small Private	Industry Private	USFS	BLM	Other Federal
29	Wind-White Salmon	744			1,305	1,917	1,566		
30	Klickitat	7,910	376	4,839	4,740	11,621		131	1,062
31	Rock-Glade	249			1,417	1,105			

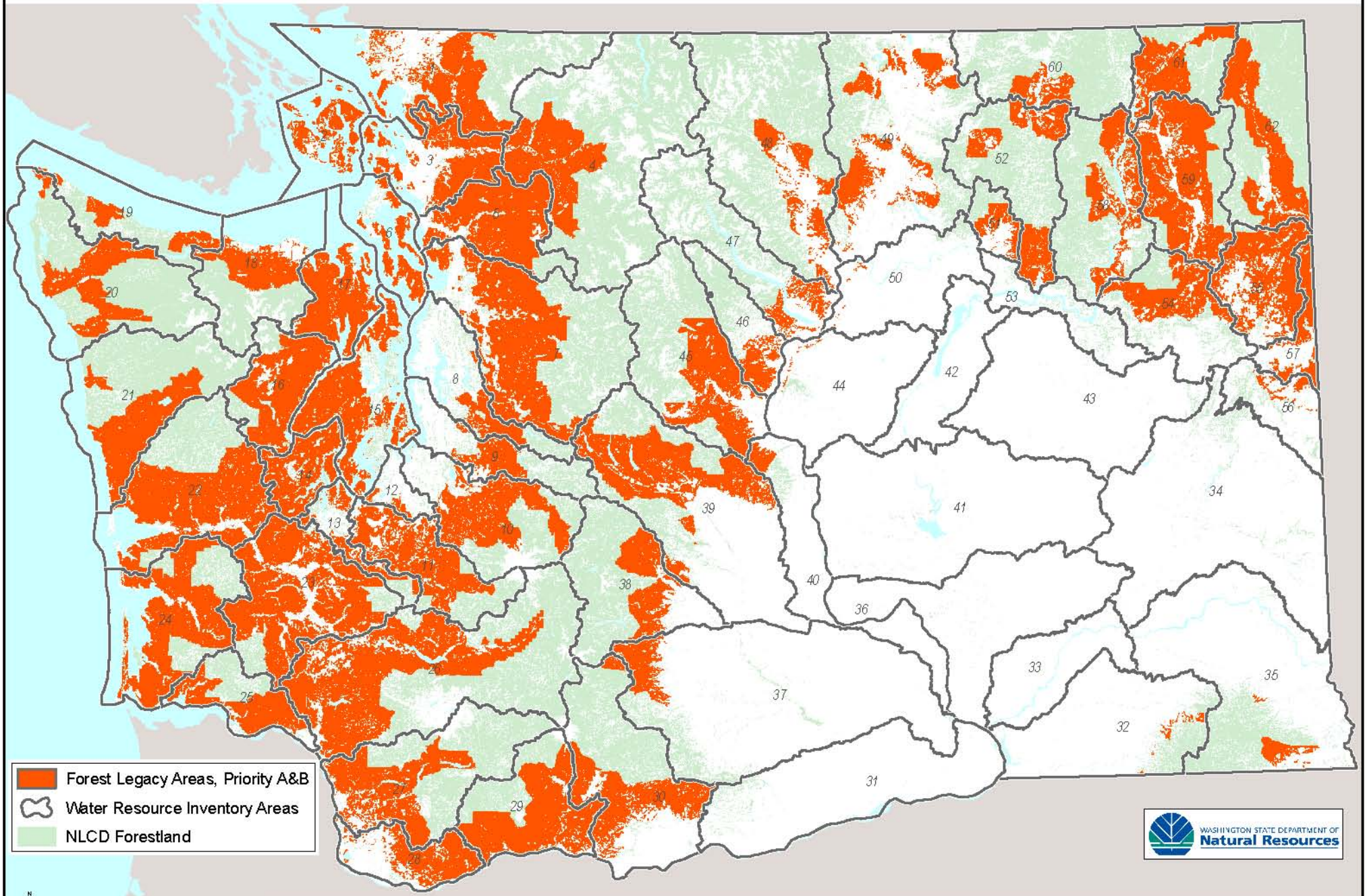
32	Walla Walla			1,811	1,287	308	4,416		
34	Palouse				7,366				
35	Middle Snake		2,960		8,453	103	5,731		
37	Lower Yakima	298			450	142			
38	Naches	6,447	4,463		732	458	4,191		
39	Upper Yakima	1,704	561		13,290	6,226	11,505		133
40	Alkali-Squilchuck				204				
43	Upper Crab-Wilson				2,626				
44	Moses Coulee	339			2,680				435
45	Wenatchee	678	198		8,370	3,737	16,888		210
46	Entiat				1,046		510		
47	Chelan	201			5,173	250	2,768	461	8,868
48	Methow	2,147	608		9,581		39,886		
49	Okanogan	13,127	1,132	522	25,259	344	9,814	1,460	
52	Sanpoil	4,786		1,472	12,152	632	4,876		
53	Lower Lake Roosevelt	199				2,467			127
54	Lower Spokane	2,858	1,532	5,519	21,857	1,093			877
55	Little Spokane	519	1,853		14,279	236			
56	Hangman		197		13,623				
57	Middle Spokane	243	1,613		12,679	619			
58	Middle Lake Roosevelt	1,085			17,929	3,647		182	512
59	Colville	2,743	247		27,292	6,031	2,411	176	746
60	Kettle	15,402			21,540	3,938	14,734	385	
61	Upper Lake Roosevelt	1,089			21,872	7,437	304	647	350
62	Pend Oreille	23	38		1,922	76	221		

[1] As calculated using a National Land Cover Data forestland clip of CWPP priority polygons, followed by an intersect of the Washington Forestland Parcel Database. Parcel database accuracy depended on individual County Assessor participation, and some were more willing to supply specific information than others. Consequently, data for the Pend Oreille, Middle Snake, and Wind-White Salmon WRIAs is not completely accurate.

[2] Acreages lower than 100 are not displayed.

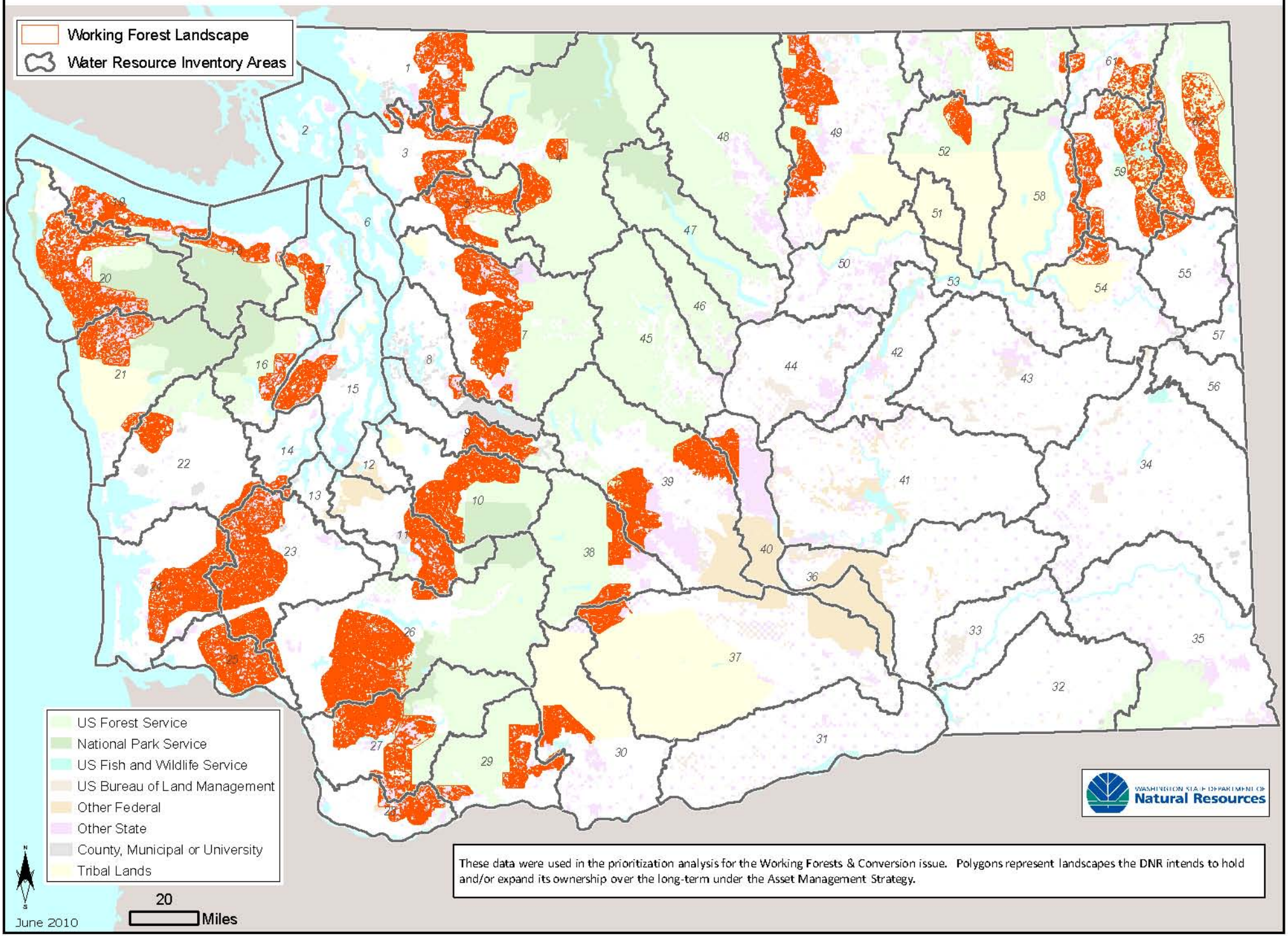
[3] WRIAs without CWPP-identified treatment areas are not displayed.

Data Subset Map 1: Forest Legacy Program Assessment of Need

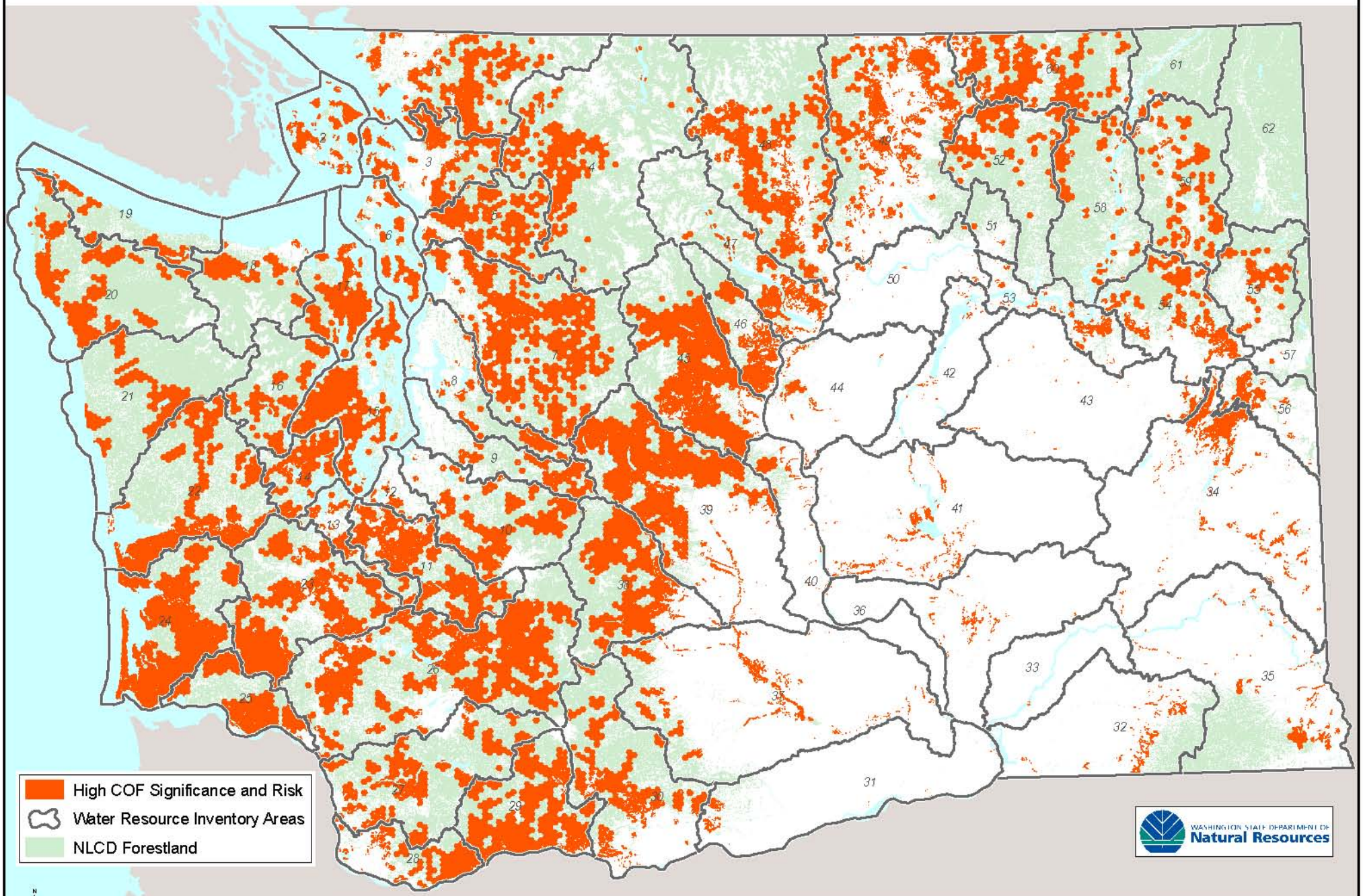


These data were used in the prioritization analysis for the Working Forestlands & Conversion issue. The Forest Legacy Program assessed forest conversion risk and program priorities in its 2004 Assessment of Need. Priority A and B areas were selected and are displayed in red.

Data Subset Map 2: DNR Asset Management Strategy ("Working forest landscapes")

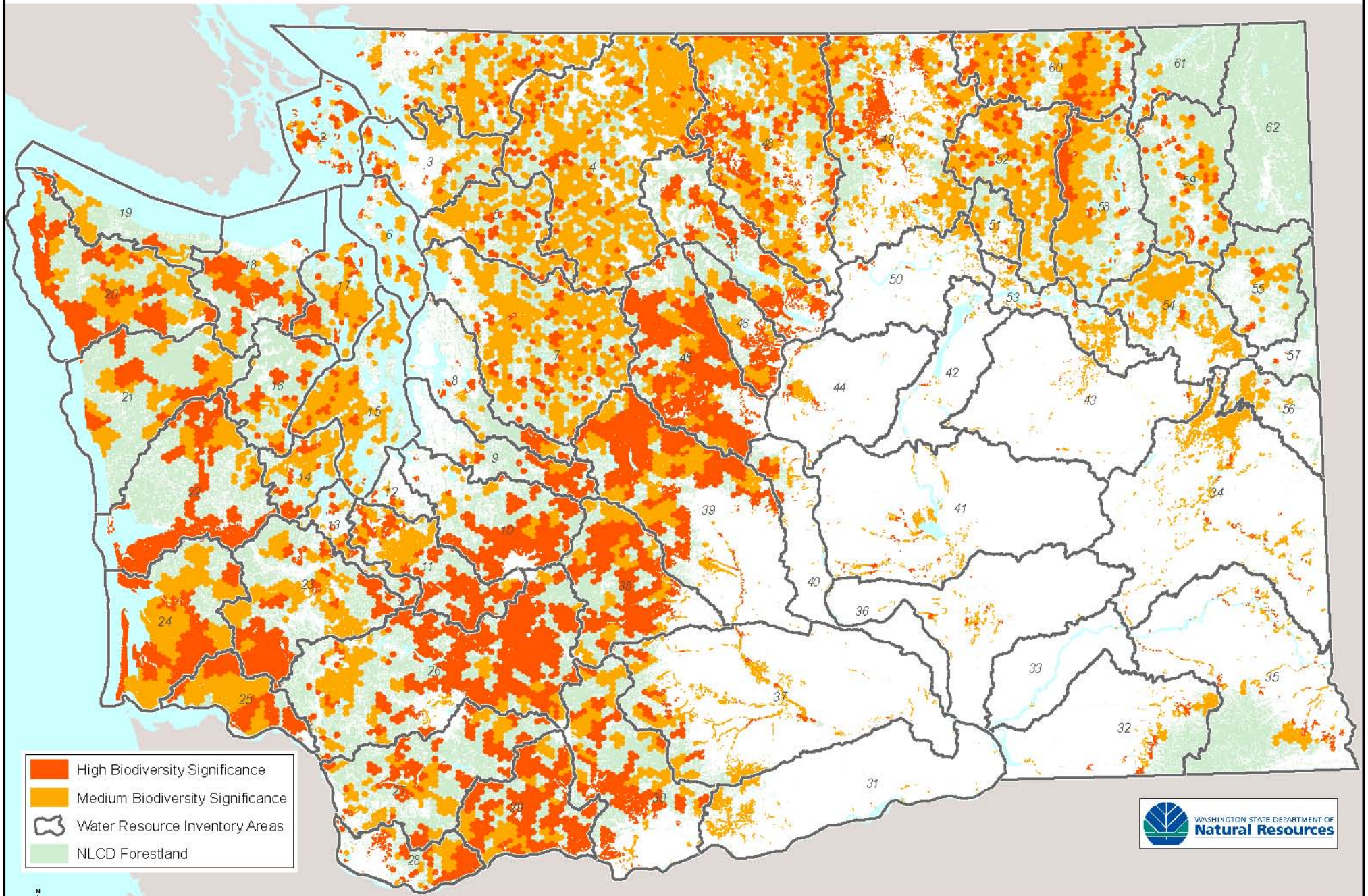


Data Subset Map 3: Biodiversity Conservation Opportunity Framework



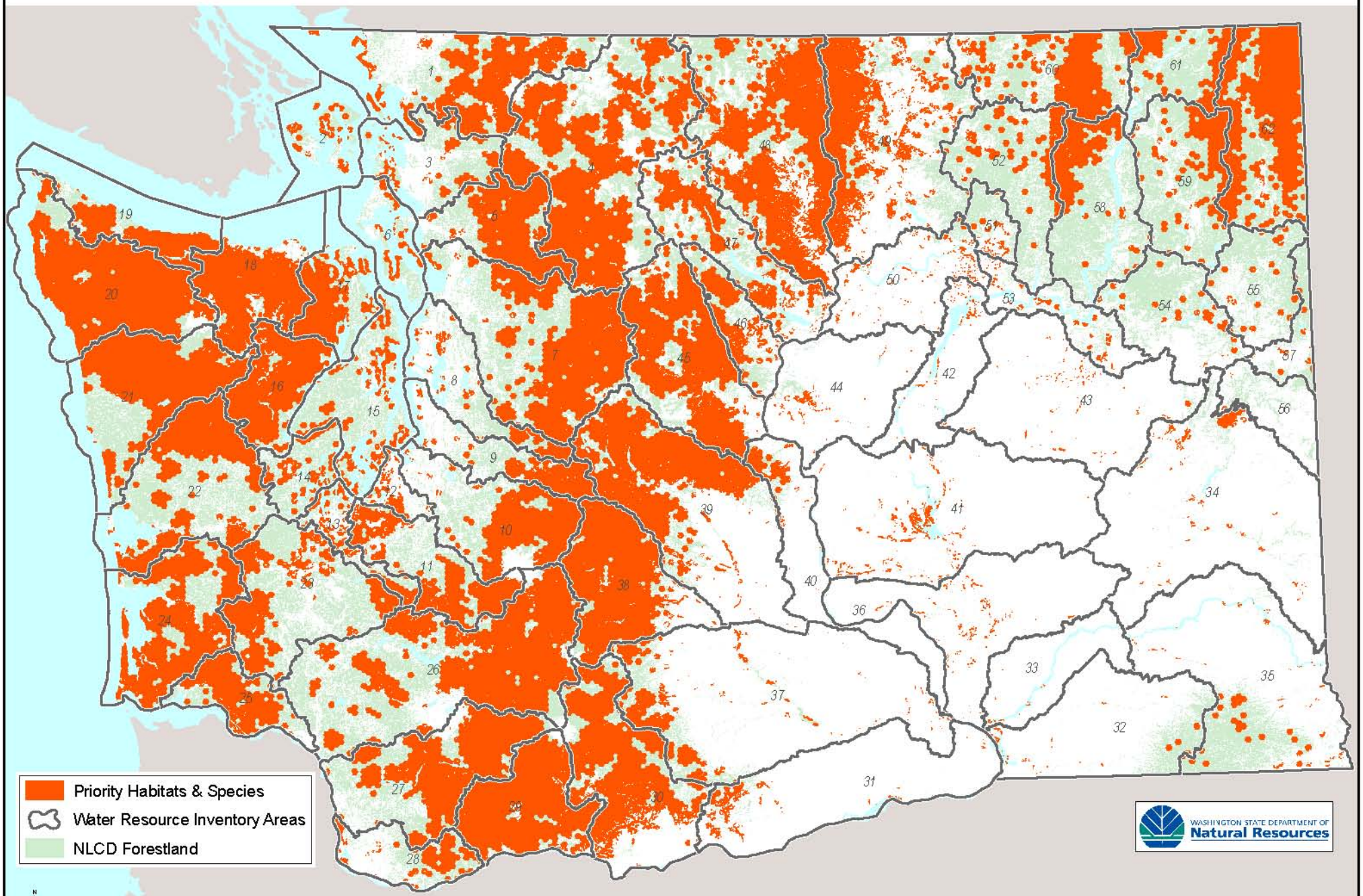
These data were used in the prioritization analysis for the Biodiversity & Habitat Conservation issue. From the combined biodiversity significance and risk data in the COF, hexagons with the highest three opportunity values (high in both, or high in one and moderate in the other) were selected. The resulting data were clipped to NLCD forested land to produce the hexagons shown in red and orange. Ecoregional assessments are not complete for WRIAs 32, 35, 61, 62, 59, 55, 57.

Data Subset Map 4: Biodiversity Significance



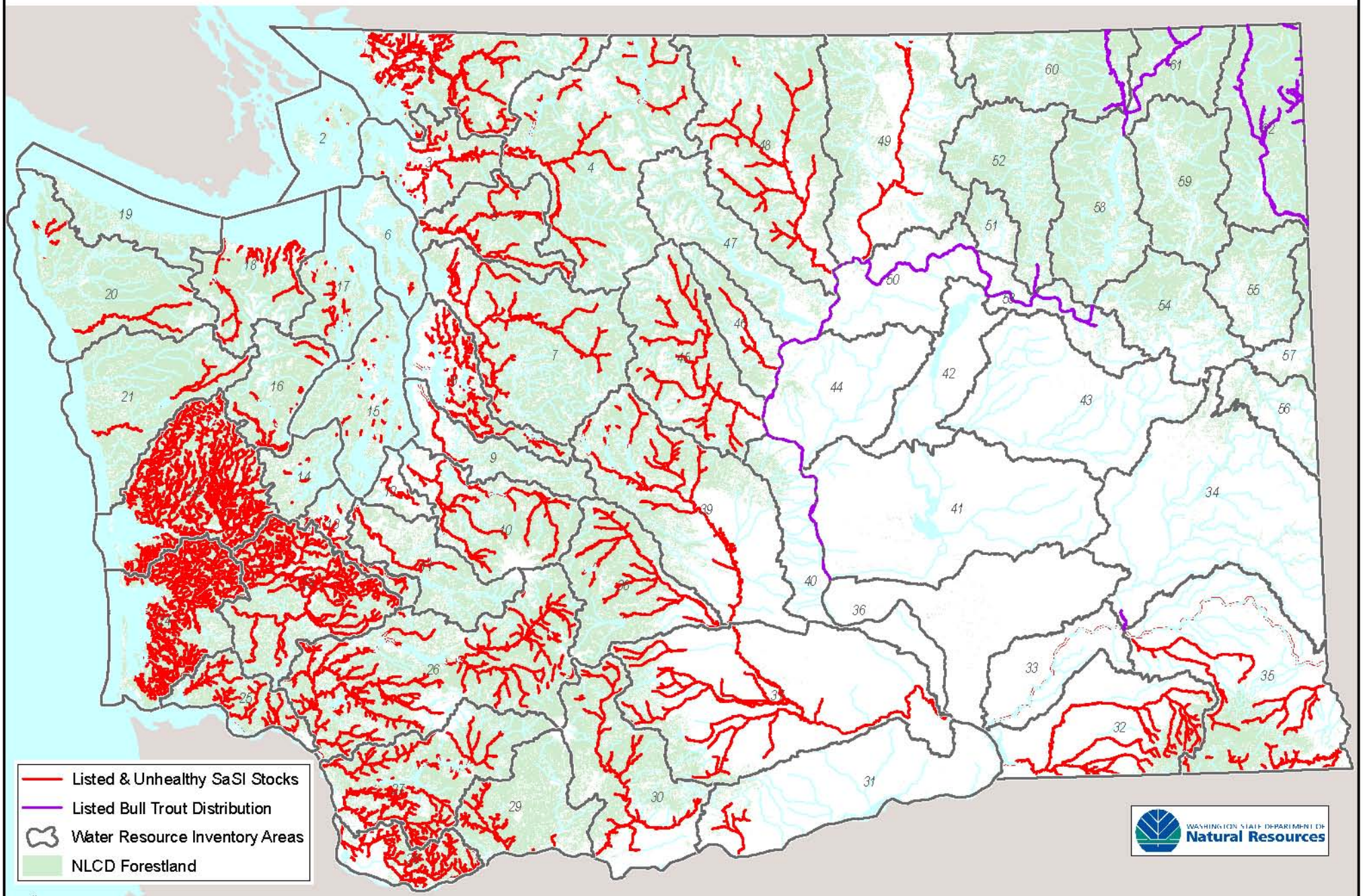
These data were used in the prioritization analysis for the Biodiversity & Habitat Conservation issue. From the Conservation Opportunity Framework significance and risk values, only the high and moderate significance hexagons were selected. The resulting data were clipped to NLCD forested land to produce the hexagons shown in red and orange. Ecoregional assessments are not complete for WRIAs 32, 35, 61, 62, 59, 55, 57.

Data Subset Map 5: Priority Habitats & Species



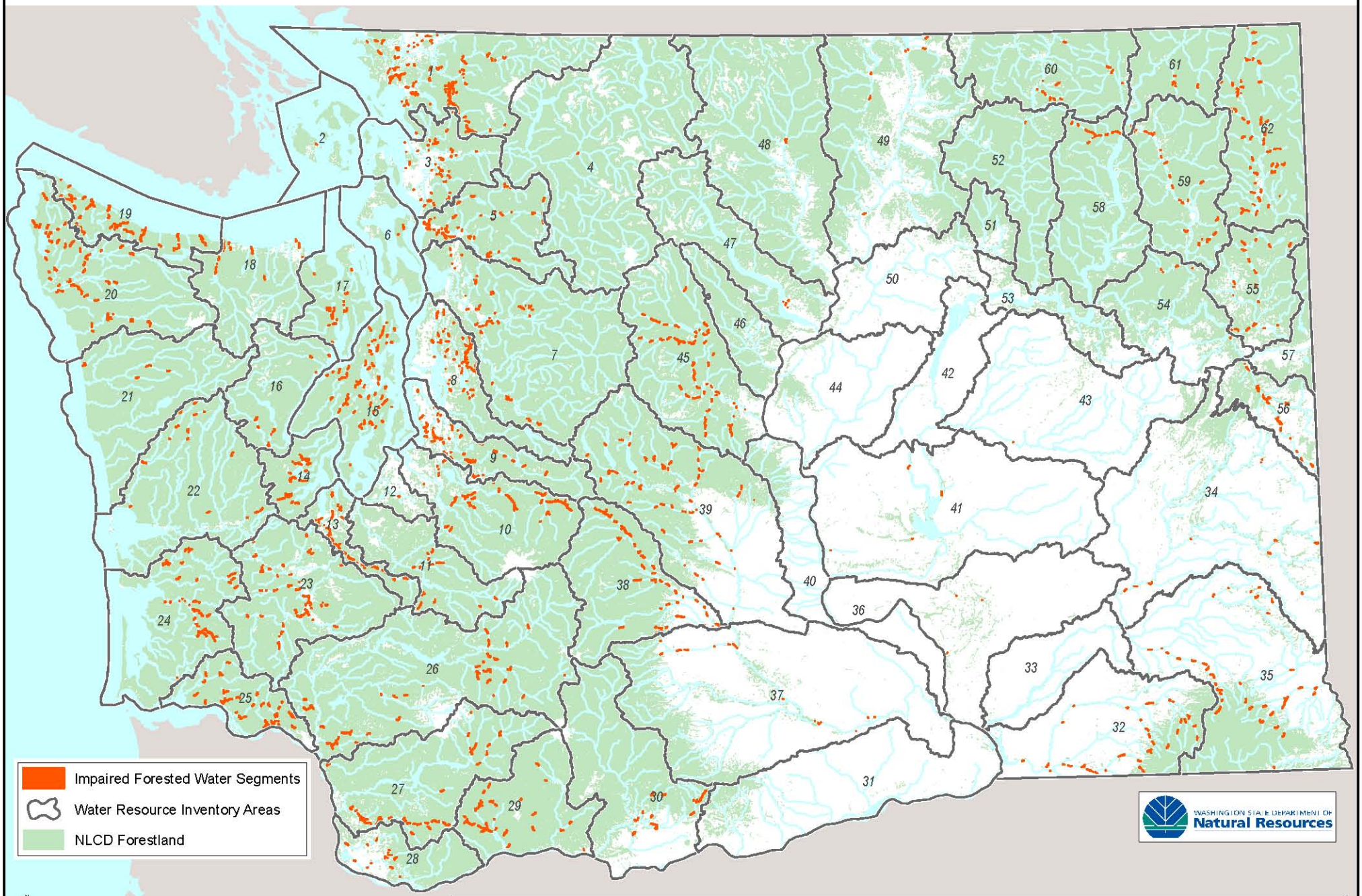
These data were used in the prioritization analysis for the Biodiversity & Habitat Conservation issue. Multiple PHS data components have been aggregated and standardized into hexagon format. Candidate, Threatened and Endangered entries for state and federally listed species were selected. The resulting data were clipped to NLCD forested land to produce the hexagons shown in red.

Data Subset Map 6: Salmonid Stock Inventory & Bull Trout Distribution



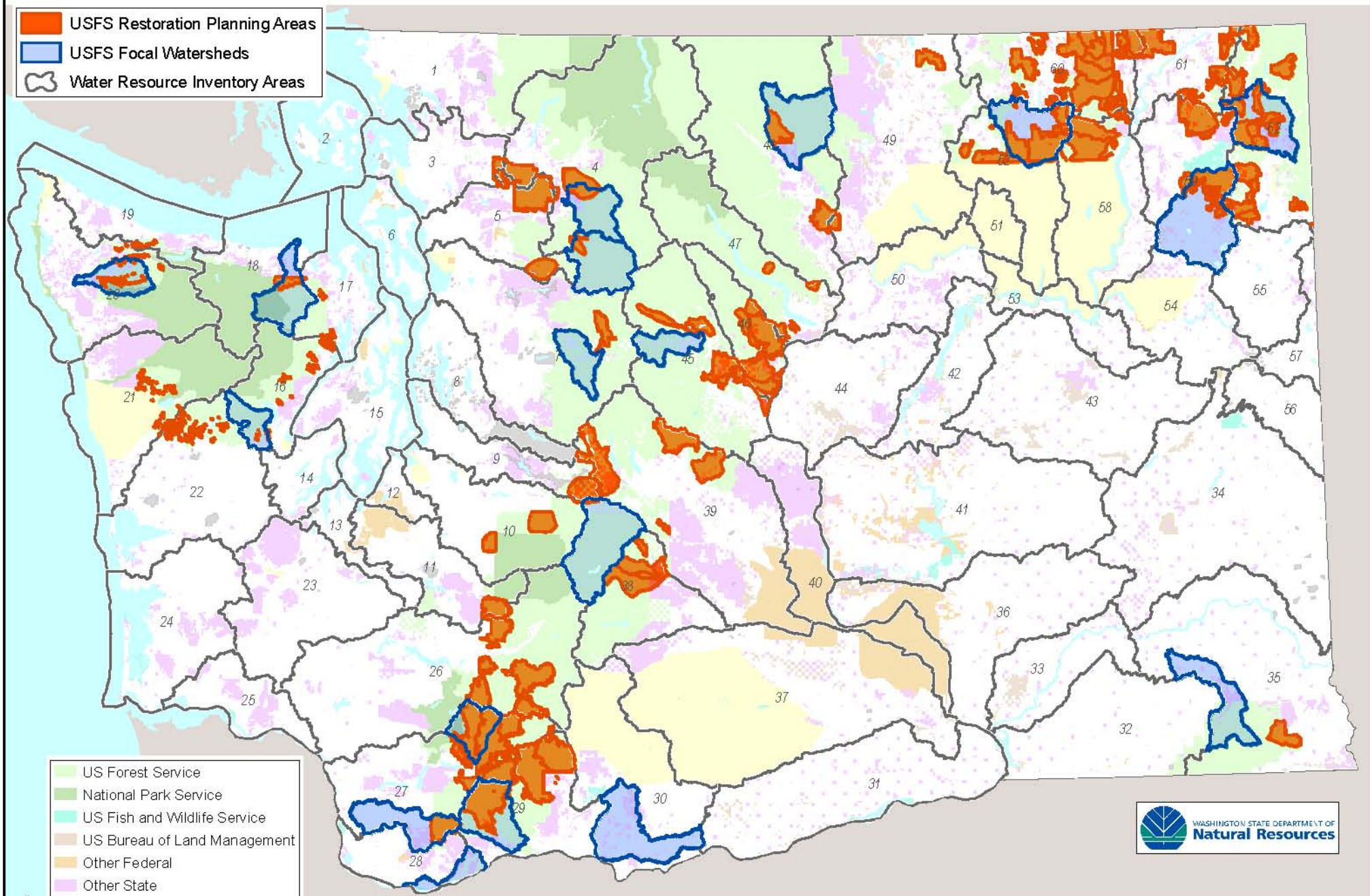
These data were used in the prioritization analysis for the Biodiversity & Habitat Conservation and the Water Quality, Quanity & Puget Sound Restoration issues. Candidate, Threatened and Endangered stocks were selected from the SaSI data. From these Records, the "healthy" stock status entries were removed to produce the records shown in red. Listed bull trout distribution data were compiled from WRIAs with partial or no SaSI data coverage.

Data Subset Map 7: Impaired Forested Water Segments



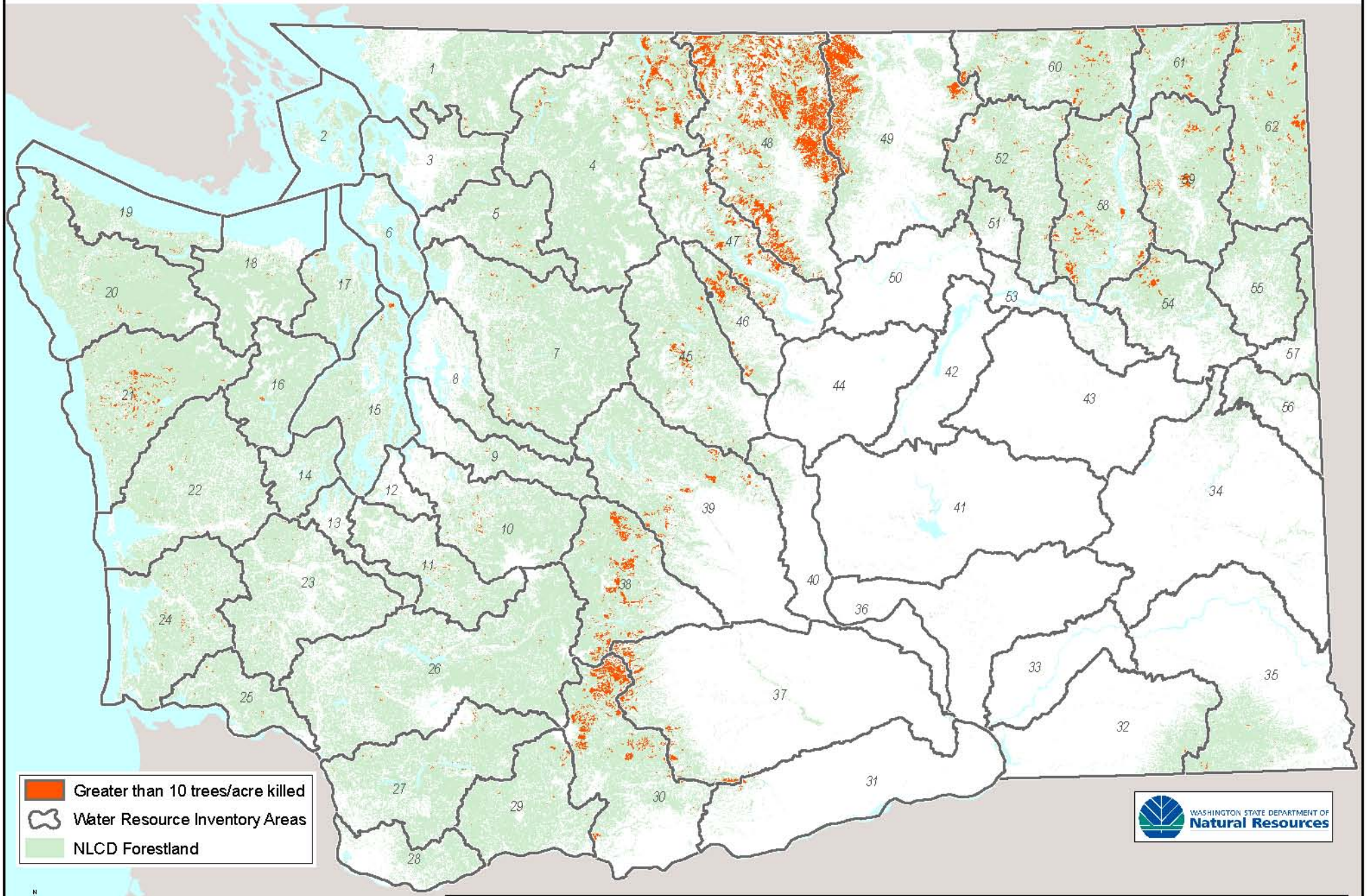
These data were used in the prioritization analysis for the Upland Water Quality, Quantity & Puget Sound Restoration issue. Water bodies (ie, lakes, bays, inlets etc) were removed from the data set. Remaining water segments with an approved TMDL (Cat. 4a), or that require the development of a TMDL (Cat. 5, 303d list) were selected, and further narrowed to those listed based on the parameters: fine sediment, coarse sediment, temperature, dissolved oxygen, fish habitat, large woody debris, instream flow and turbidity. The resulting data were clipped to NLCD forested land to produce the segments shown in red.

Data Subset Map 8: US Forest Service Focal Watersheds & Project Planning Areas



These data were used in the prioritization analysis for the Upland Water Quality, Quantity & Puget Sound Restoration issue (focal watersheds), Forest Health Restoration issue (planning areas), and Wildfire Hazard Reduction issue (planning areas).

Data Subset Map 9: 1989-2008 Cumulative Tree Mortality



These data were used in the prioritization analysis for the Forest Health Restoration issue. Cumulative tree-kill from biotic and abiotic factors, excluding defoliators and wildfire mortality, were compiled from annual aerial survey data. Polygons with greater than 10 trees-per-acre killed were selected and are displayed in red.

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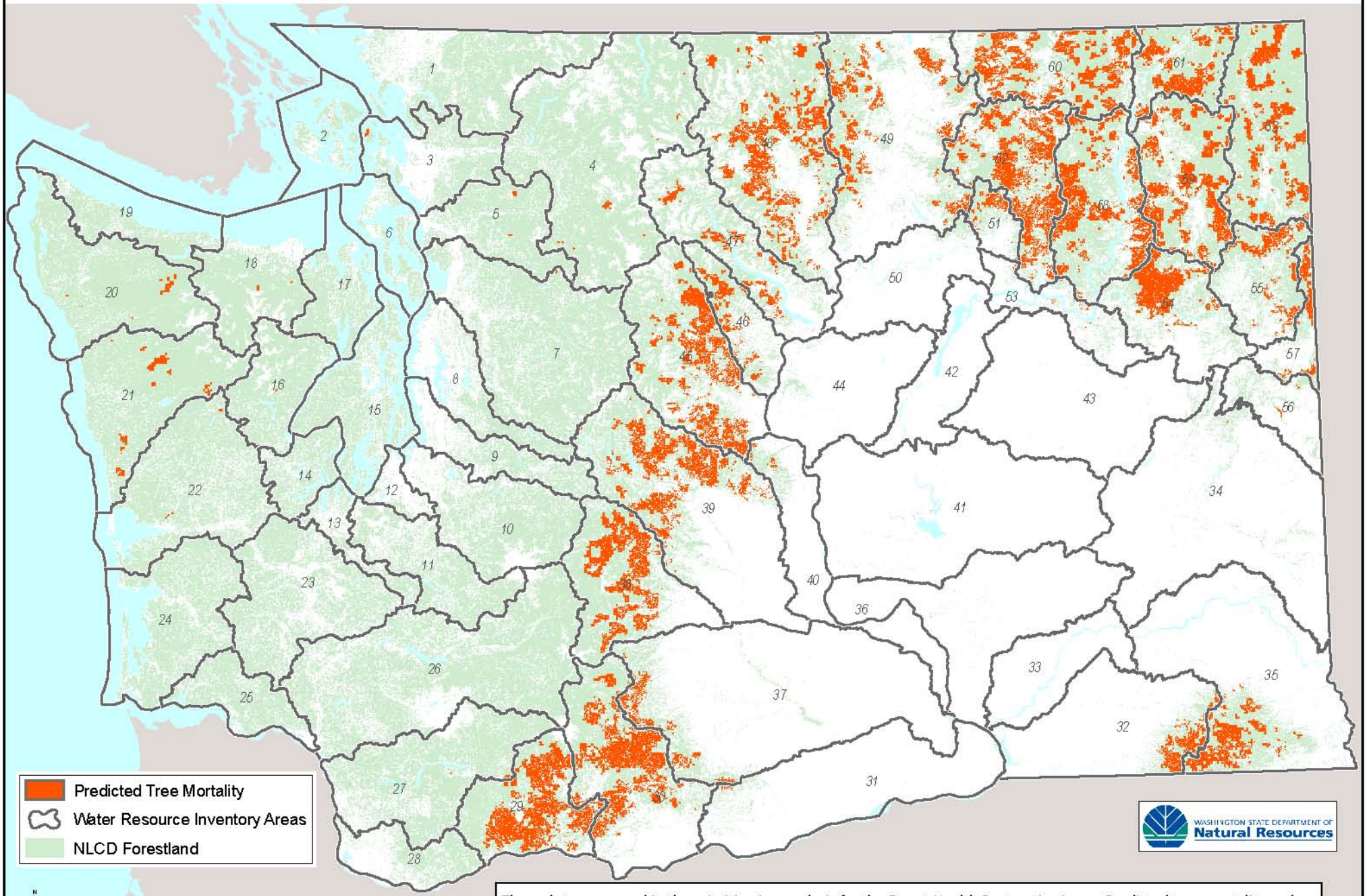
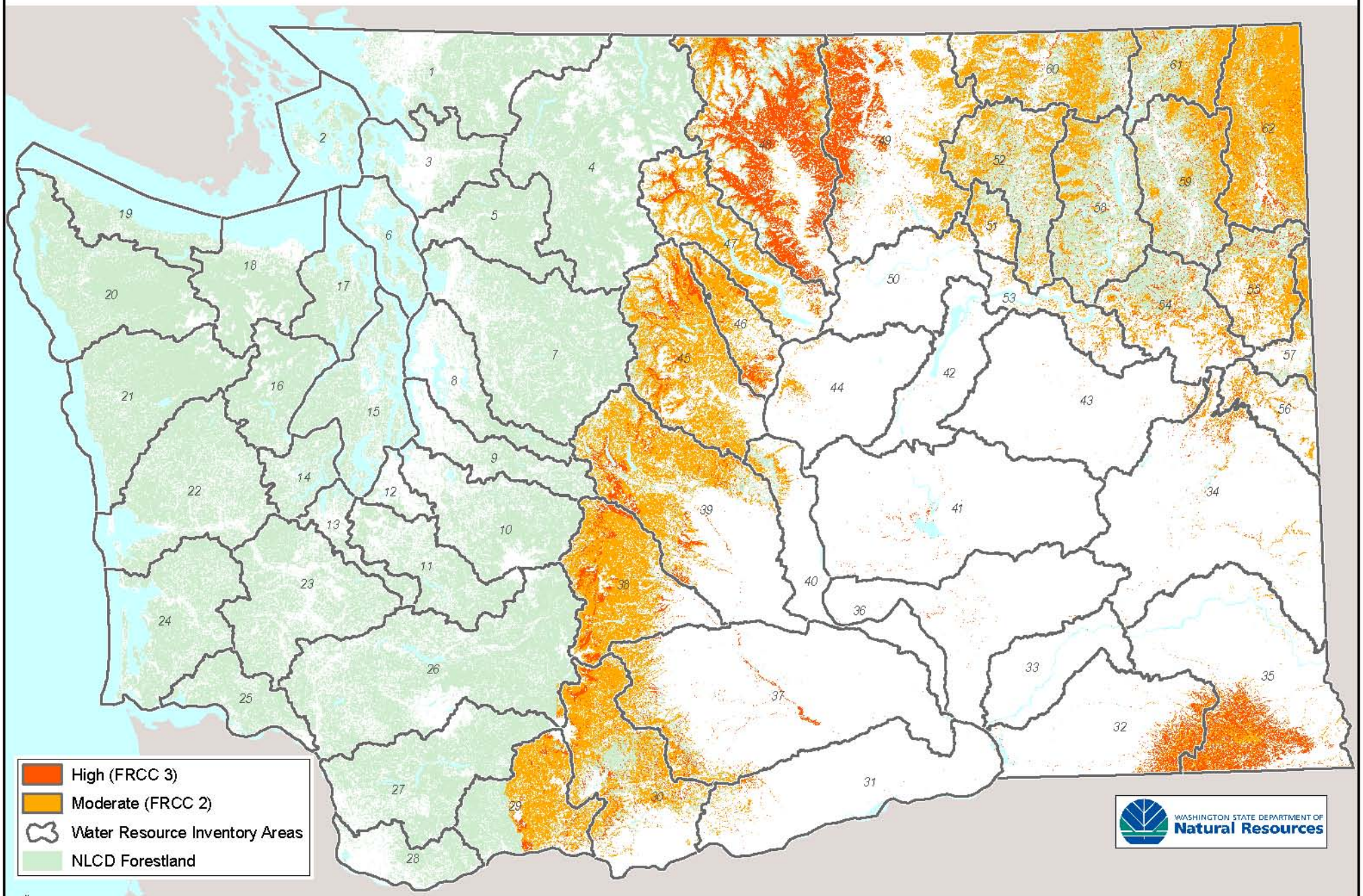
Data Subset Map 10: NIDRM Predicted Tree Mortality Risk



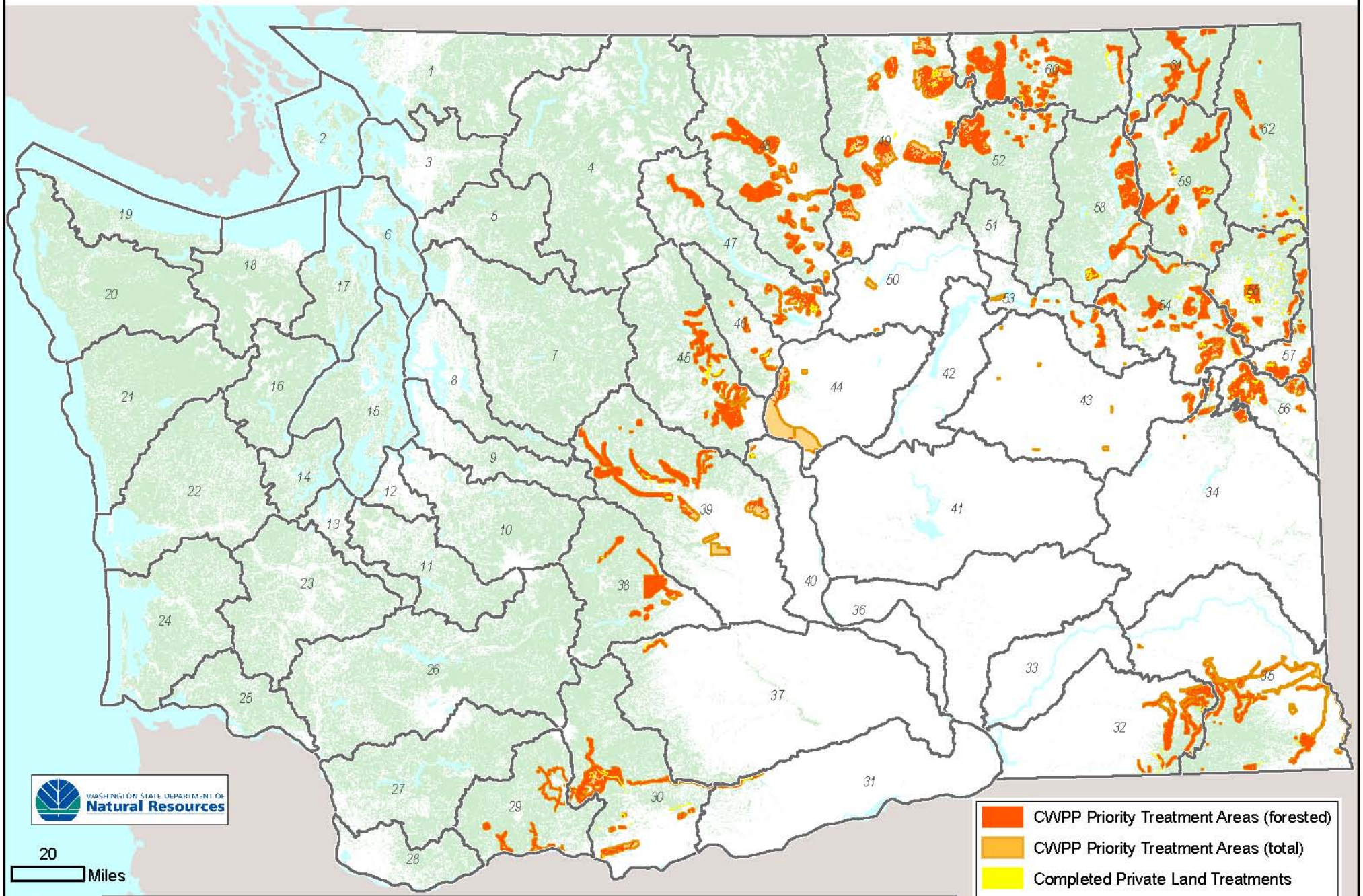
These data were used in the prioritization analysis for the Forest Health Restoration issue. Predicted tree mortality and damage within 15 years based on FIA stand condition data, expressed as a percentage of total basal area estimated to be affected. Areas with greater than 20 percent predicted mortality were selected and are displayed in red US Forest Service PNW Region Forest Health program staff updated the National Insect & Disease Risk Map (NIDRM) to provide these data.

Data Subset Map 11: Fire Regime Condition Class



These data were used in the prioritization analysis for the Wildfire Hazard Reduction issue. Moderate (FRCC2) and High (FRCC3) departure from historic fire regime and reference conditions were selected. The resulting data were clipped to NLCD forested land to produce the areas shown in orange and red.

Data Subset Map 12: Completed & CWPP-Identified Priority Fuels Treatments



appendix B

Forestland Ownerships & Management Acreage by Watershed Resources Inventory Area — A Chart

FOR WASHINGTON'S STATEWIDE ASSESSMENT

APPENDIX B

Forestland Ownership & Management Acreage by Watershed Resource Inventory Area — A Chart

LIST OF ABBREVIATIONS

DNR Trust Land	Forested state trust lands managed by the Washington State Department of Natural Resources for sustainable revenue generation from timber harvest for trust beneficiaries
Other DNR	Forestland managed by the Washington State Department of Natural Resources
DNR NAP	Forestland managed by the Washington State Department of Natural Resources as a Natural Area Preserve
DNR NRCA	Forestland managed by the Washington State Department of Natural Resources as a Natural Resources Conservation Area
WDFW	Forestland managed by the Washington State Department of Fish and Wildlife as state wildlife areas
State Parks	Forestland managed by the Washington State Parks
Other State	Forestland managed by other state agencies
USFS Wilderness	Forestland managed by the U.S. Forest Service that has been designated as federal Wilderness by U.S. statute
USFS Non-Wilderness	Forestland managed by the U.S. Forest Service that is not otherwise withdrawn by Congress
USFWS	Forestland managed by the U.S. Fish and Wildlife Service as National Wildlife Refuges
Tribal	Forestland managed by sovereign native tribes of Indians
BLM	Forestland managed by the U.S. Department of Interior Bureau of Land Management
NPS	Forestland managed by the National Park Service
Other Federal	Forestland managed by other federal agencies, such as the Department of Defense
County	Forestland managed by County governments
City	Forestland managed by City governments, including municipal watersheds
Private Industrial	Forestland managed by corporate industrial companies
Small Private	Forestland managed by non-industrial small private landowners
WRIA	Watershed Resource Inventory Area

WRIA #	WRIA Name	DNR Trust Land	Other DNR	DNR NAP	DNR NRCA	WDFW	State Parks	Other State	USFS Wilderness	USFS Non-Wilderness	USFWS	TRIBAL	BLM	NPS	Other Federal	County	City	Private Industrial	Small Private	Total Forestland
1	Nooksack	89,176	63	253	772	1,486	2,544	63	51,055	92,078	0	7,773	42	39,364	0	3,165	1,607	83,046	75,995	448,482
		19.9%	*0.0%*	*0.1%*	*0.2%*	*0.3%*	*0.6%*	*0.0%*	*11.4%*	*20.5%*	*0.0%*	*1.7%*	*0.0%*	*8.8%*	*0.0%*	*0.7%*	*0.4%*	*18.5%*	*16.9%*	
2	San Juan	1,244	12	47	59	42	6,205	1,174	0	0	209	0	693	724	0	108	490	0	54,900	65,906
		1.9%	*0.0%*	*0.1%*	*0.1%*	*0.1%*	*9.4%*	*1.8%*	*0.0%*	*0.0%*	*0.3%*	*0.0%*	*1.1%*	*1.1%*	*0.0%*	*0.2%*	*0.7%*	*0.0%*	*83.3%*	
3	Lower Skagit / Samish	43,104	222	955	3,845	881	1,836	124	0	7,835	0	5,040	0	0	4	359	2,586	58,583	56,468	181,843
		23.7%	*0.1%*	*0.5%*	*2.1%*	*0.5%*	*1.0%*	*0.1%*	*0.0%*	*4.3%*	*0.0%*	*2.8%*	*0.0%*	*0.0%*	*0.0%*	*0.2%*	*1.4%*	*32.2%*	*31.1%*	
4	Upper Skagit	35,337	35	1,306	682	1,005	390	0	312,336	367,376	0	0	299	262,694	0	172	0	55,420	19,641	1,056,693
		3.3%	*0.0%*	*0.1%*	*0.1%*	*0.1%*	*0.0%*	*0.0%*	*29.6%*	*34.8%*	*0.0%*	*0.0%*	*0.0%*	*24.9%*	*0.0%*	*0.0%*	*0.0%*	*5.2%*	*1.9%*	
5	Stillaguamish	63,880	60	0	3,107	109	356	0	34,055	115,525	0	87	0	0	3,624	1,901	0	58,495	48,090	329,289
		19.4%	*0.0%*	*0.0%*	*0.9%*	*0.0%*	*0.1%*	*0.0%*	*10.3%*	*35.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*1.1%*	*0.6%*	*0.0%*	*17.8%*	*14.6%*	
6	Island	319	9	0	0	7	3,814	0	0	0	0	0	0	0	1,500	440	0	200	52,041	58,330
		0.5%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*6.5%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*2.6%*	*0.8%*	*0.0%*	*0.3%*	*89.2%*	
7	Snohomish	96,311	7,285	335	32,214	999	5,242	41	142,279	237,193	0	13,685	247	0	1,574	8,714	13,390	113,516	127,772	800,797
		12.0%	*0.9%*	*0.0%*	*4.0%*	*0.1%*	*0.7%*	*0.0%*	*17.8%*	*29.6%*	*0.0%*	*1.7%*	*0.0%*	*0.0%*	*0.2%*	*1.1%*	*1.7%*	*14.2%*	*16.0%*	
8	Cedar-Sammamish	6,312	0	0	3,818	0	2,626	4	0	73	0	0	0	0	16	10,773	71,188	569	31,088	126,467
		5.0%	*0.0%*	*0.0%*	*3.0%*	*0.0%*	*2.1%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*8.5%*	*56.3%*	*0.4%*	*24.6%*	
9	Duwamish-Green	30,737	1,629	1,956	0	52	1,908	0	0	28,583	0	116	0	0	0	67	16,397	50,845	24,596	156,886
		19.6%	*1.0%*	*1.2%*	*0.0%*	*0.0%*	*1.2%*	*0.0%*	*0.0%*	*18.2%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*10.5%*	*32.4%*	*15.7%*	
10	Puyallup-White	444	159	0	0	96	952	684	29,706	89,278	0	3,574	0	81,916	0	0	139	130,026	30,500	367,475
		0.1%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.3%*	*0.2%*	*8.1%*	*24.3%*	*0.0%*	*1.0%*	*0.0%*	*22.3%*	*0.0%*	*0.0%*	*0.0%*	*35.4%*	*8.3%*	
11	Nisqually	46,610	665	259	214	86	1,084	3,104	998	38,563	197	1,368	0	21,637	40,049	965	0	66,360	67,643	289,802
		16.1%	*0.2%*	*0.1%*	*0.1%*	*0.0%*	*0.4%*	*1.1%*	*0.3%*	*13.3%*	*0.1%*	*0.5%*	*0.0%*	*7.5%*	*13.8%*	*0.3%*	*0.0%*	*22.9%*	*23.3%*	
12	Chambers-Clover	0	0	0	0	0	0	16	0	0	0	0	0	0	13,738	91	469	496	5,644	20,454
		0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*67.2%*	*0.4%*	*2.3%*	*2.4%*	*27.6%*	
13	Deschutes	3,040	1	7	523	22	95	660	0	460	0	0	0	0	3,853	64	223	36,167	30,872	75,989
		4.0%	*0.0%*	*0.0%*	*0.7%*	*0.0%*	*0.1%*	*0.9%*	*0.0%*	*0.6%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*5.1%*	*0.1%*	*0.3%*	*47.6%*	*40.6%*	
14	Kennedy-Goldsborough	10,745	280	670	0	0	682	159	0	0	0	1,031	0	0	0	41	0	65,760	49,509	128,877
		8.3%	*0.2%*	*0.5%*	*0.0%*	*0.0%*	*0.5%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.8%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*51.0%*	*38.4%*	
15	Kitsap	33,187	17	574	1,392	3,036	1,509	371	0	0	0	6,315	0	0	5,064	608	7,279	37,047	150,018	246,418
		13.5%	*0.0%*	*0.2%*	*0.6%*	*1.2%*	*0.6%*	*0.2%*	*0.0%*	*0.0%*	*0.0%*	*2.6%*	*0.0%*	*0.0%*	*2.1%*	*0.2%*	*3.0%*	*15.0%*	*60.9%*	
16	Skokomish-Dosewallips	25,960	268	919	0	162	450	0	26,610	109,398	0	3,268	0	78,083	0	75	516	26,829	12,634	285,173
		9.1%	*0.1%*	*0.3%*	*0.0%*	*0.1%*	*0.2%*	*0.0%*	*9.3%*	*38.4%*	*0.0%*	*1.1%*	*0.0%*	*27.4%*	*0.0%*	*0.0%*	*0.2%*	*9.4%*	*4.4%*	
17	Quilcene-Snow	27,043	36	308	272	227	4,202	0	10,339	50,033	17	1	0	8	2,705	0	0	38,889	39,290	173,372
		15.6%	*0.0%*	*0.2%*	*0.2%*	*0.1%*	*2.4%*	*0.0%*	*6.0%*	*28.9%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*1.6%*	*0.0%*	*0.0%*	*22.4%*	*22.7%*	
18	Elwha-Dungeness	24,439	5	0	0	347	0	0	20,997	37,210	42	298	0	205,493	0	156	590	4,465	23,458	317,500
		7.7%	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*6.6%*	*11.7%*	*0.0%*	*0.1%*	*0.0%*	*64.7%*	*0.0%*	*0.0%*	*0.2%*	*1.4%*	*7.4%*	
19	Lyre-Hoko	48,817	89	0	465	0	716	15	0	20,703	0	7,713	38	24,291	14	126	0	74,213	12,342	189,542
		25.8%	*0.0%*	*0.0%*	*0.2%*	*0.0%*	*0.4%*	*0.0%*	*0.0%*	*10.9%*	*0.0%*	*4.1%*	*0.0%*	*12.8%*	*0.0%*	*0.1%*	*0.0%*	*39.2%*	*6.5%*	

WRIA #	WRIA Name	DNR Trust Land	Other DNR	DNR NAP	DNR NRCA	WDFW	State Parks	Other State	USFS Wilderness	USFS Non-Wilderness	USFWS	TRIBAL	BLM	NPS	Other Federal	County	City	Private Industrial	Small Private	Total Forestland
20	Soleduc	120,008	14	0	212	95	548	0	0	94,065	64	18,259	68	225,278	0	0	371	167,905	12,027	638,913
		18.8%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*14.7%*	*0.0%*	*2.9%*	*0.0%*	*35.3%*	*0.0%*	*0.0%*	*0.1%*	*26.3%*	*1.9%*	
21	Queets-Quinault	97,519	4	701	2,241	12	522	0	7,934	70,446	60	164,335	12	204,239	6	7,089	0	66,176	23,205	644,502
		15.1%	*0.0%*	*0.1%*	*0.3%*	*0.0%*	*0.1%*	*0.0%*	*1.2%*	*10.9%*	*0.0%*	*25.5%*	*0.0%*	*31.7%*	*0.0%*	*1.1%*	*0.0%*	*10.3%*	*3.6%*	
22	Lower Chehalis	12,151	0	2,869	3,676	2,639	836	55	3,280	105,013	0	0	0	1,232	0	24,309	9,547	338,624	45,076	549,306
		2.2%	*0.0%*	*0.5%*	*0.7%*	*0.5%*	*0.2%*	*0.0%*	*0.6%*	*19.1%*	*0.0%*	*0.0%*	*0.0%*	*0.2%*	*0.0%*	*4.4%*	*1.7%*	*61.6%*	*8.2%*	
23	Upper Chehalis	131,985	370	142	0	544	844	1	0	474	0	2,156	0	0	0	447	51	253,940	105,856	496,809
		26.6%	*0.1%*	*0.0%*	*0.0%*	*0.1%*	*0.2%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.4%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*51.1%*	*21.3%*	
24	Willapa	57,493	185	2,958	2,947	430	3,197	0	0	0	7,066	234	877	0	38	1,376	0	321,812	34,538	433,151
		13.3%	*0.0%*	*0.7%*	*0.7%*	*0.1%*	*0.7%*	*0.0%*	*0.0%*	*0.0%*	*1.6%*	*0.1%*	*0.2%*	*0.0%*	*0.0%*	*0.3%*	*0.0%*	*74.3%*	*8.0%*	
25	Grays/Elochoman	49,098	230	426	157	401	0	0	0	0	1,114	0	0	0	0	0	0	130,309	32,265	213,999
		22.9%	*0.1%*	*0.2%*	*0.1%*	*0.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.5%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*60.9%*	*15.1%*	
26	Cowlitz	51,610	53	0	0	846	1,422	0	93,992	351,120	0	37	286	65,571	0	4	32	366,939	101,687	1,033,598
		5.0%	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.0%*	*9.1%*	*34.0%*	*0.0%*	*0.0%*	*0.0%*	*6.3%*	*0.0%*	*0.0%*	*0.0%*	*35.5%*	*9.8%*	
27	Lewis	76,662	377	0	96	480	134	0	14,273	245,711	400	0	22	17,786	0	632	0	128,371	64,876	549,819
		13.9%	*0.1%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*2.6%*	*44.7%*	*0.1%*	*0.0%*	*0.0%*	*3.2%*	*0.0%*	*0.1%*	*0.0%*	*23.3%*	*11.8%*	
28	Salmon-Washougal	41,695	21	446	1,458	482	4,396	0	0	11,532	1,656	0	0	0	2,847	1,018	1,667	10,565	32,294	110,076
		37.9%	*0.0%*	*0.4%*	*1.3%*	*0.4%*	*4.0%*	*0.0%*	*0.0%*	*10.5%*	*1.5%*	*0.0%*	*0.0%*	*0.0%*	*2.6%*	*0.9%*	*1.5%*	*9.6%*	*29.3%*	
29	Wind-White Salmon	54,955	199	2,321	1,040	91	0	0	30,178	238,009	236	13	101	0	0	0	0	56,350	32,294	415,786
		13.2%	*0.0%*	*0.6%*	*0.3%*	*0.0%*	*0.0%*	*0.0%*	*7.3%*	*57.2%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*13.6%*	*7.8%*	
30	Klickitat	38,696	145	265	418	4,262	506	0	47	45	1,840	295,742	1,121	0	2	0	0	100,590	44,568	488,246
		7.9%	*0.0%*	*0.1%*	*0.1%*	*0.9%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.4%*	*60.6%*	*0.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*20.6%*	*9.1%*	
31	Rock-Glade	808	217	56	0	0	0	0	0	0	99	60	974	0	87	0	0	7,108	13,562	22,969
		3.5%	*0.9%*	*0.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.4%*	*0.3%*	*4.2%*	*0.0%*	*0.4%*	*0.0%*	*0.0%*	*30.9%*	*59.0%*	
32	Walla Walla	1,281	0	0	0	189	17	0	4	38,804	0	6,291	454	11	464	0	799	1,801	21,694	71,810
		1.8%	*0.0%*	*0.0%*	*0.0%*	*0.3%*	*0.0%*	*0.0%*	*0.0%*	*54.0%*	*0.0%*	*8.8%*	*0.6%*	*0.0%*	*0.6%*	*0.0%*	*1.1%*	*2.5%*	*30.2%*	
33	Lower Snake	1	0	0	0	0	0	0	0	0	0	0	0	0	262	0	0	2	80	345
		0.3%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*76.1%*	*0.0%*	*0.0%*	*0.5%*	*23.1%*	
34	Palouse	2,090	100	0	0	49	23	468	0	0	7,553	0	442	0	180	299	5	107	44,132	55,448
		3.8%	*0.2%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.8%*	*0.0%*	*0.0%*	*13.6%*	*0.0%*	*0.8%*	*0.0%*	*0.3%*	*0.5%*	*0.0%*	*0.2%*	*79.6%*	
35	Middle Snake	2,739	0	0	0	9,085	708	19	94,388	116,389	0	0	2,086	0	396	16	0	9,120	71,532	306,477
		0.9%	*0.0%*	*0.0%*	*0.0%*	*3.0%*	*0.2%*	*0.0%*	*30.8%*	*38.0%*	*0.0%*	*0.0%*	*0.7%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*3.0%*	*23.3%*	
36	Esquatzel Coulee	82	0	0	0	131	0	0	0	0	0	0	0	0	1,252	0	0	43	846	2,354
		3.5%	*0.0%*	*0.0%*	*0.0%*	*5.6%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*53.2%*	*0.0%*	*0.0%*	*1.8%*	*35.9%*	
37	Lower Yakima	26,442	0	0	0	2,327	179	0	0	349	213	161,763	5	0	287	19	7	3,081	3,442	198,112
		13.3%	*0.0%*	*0.0%*	*0.0%*	*1.2%*	*0.1%*	*0.0%*	*0.0%*	*0.2%*	*0.1%*	*81.7%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*1.6%*	*1.7%*	
38	Naches	21,921	1	0	0	7,539	0	0	189,954	225,227	0	3	10	8	35	67	0	15,369	10,264	470,397
		4.7%	*0.0%*	*0.0%*	*0.0%*	*1.6%*	*0.0%*	*0.0%*	*40.4%*	*47.9%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*3.3%*	*2.2%*	

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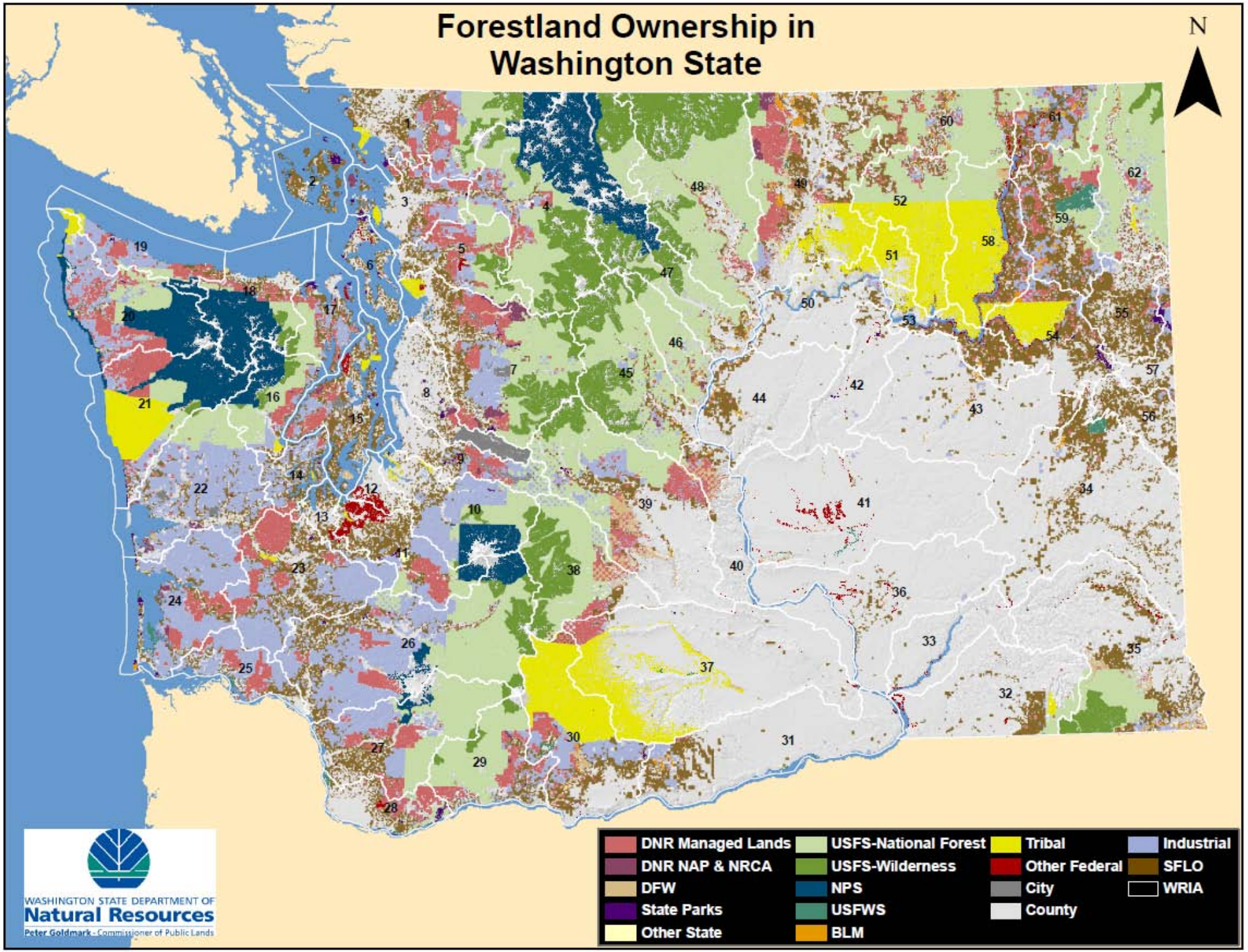
39	Upper Yakima	56,123	257	0	0	28,655	315	0	47,193	254,108	0	0	331	0	52	0	30	83,517	42,625	513,205
		10.9%	*0.1%*	*0.0%*	*0.0%*	*5.6%*	*0.1%*	*0.0%*	*9.2%*	*49.5%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*16.3%*	*8.3%*	
40	Alkali-Squilchuck	15,474	960	0	0	11,139	223	0	0	1,915	0	0	394	0	135	0	0	4,082	7,514	41,837
		37.0%	*2.3%*	*0.0%*	*0.0%*	*26.6%*	*0.5%*	*0.0%*	*0.0%*	*4.6%*	*0.0%*	*0.0%*	*0.9%*	*0.0%*	*0.3%*	*0.0%*	*0.0%*	*9.8%*	*18.0%*	
41	Lower Crab	318	6	0	0	647	0	0	0	0	527	0	7	0	2,880	0	23	20	85	4,512
		7.0%	*0.1%*	*0.0%*	*0.0%*	*14.4%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*11.7%*	*0.0%*	*0.2%*	*0.0%*	*63.8%*	*0.0%*	*0.5%*	*0.4%*	*1.9%*	
42	Grand Coulee	19	0	0	0	3	218	0	0	0	4	0	56	0	90	0	0	14	205	609
		3.1%	*0.0%*	*0.0%*	*0.0%*	*0.4%*	*35.8%*	*0.0%*	*0.0%*	*0.0%*	*0.7%*	*0.0%*	*9.2%*	*0.0%*	*14.7%*	*0.0%*	*0.0%*	*2.3%*	*33.7%*	
43	Upper Crab-Wilson	446	0	0	0	114	0	270	0	0	0	0	341	0	1	0	0	121	8,030	9,323
		4.8%	*0.0%*	*0.0%*	*0.0%*	*1.2%*	*0.0%*	*2.9%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*3.7%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*1.3%*	*86.1%*	
44	Moses Coulee	741	0	0	0	0	4	0	0	0	0	0	770	0	0	22	0	57	12,227	13,821
		5.4%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*5.6%*	*0.0%*	*0.0%*	*0.2%*	*0.0%*	*0.4%*	*88.5%*	
45	Wenatchee	4,378	0	1,376	0	721	285	0	191,252	278,409	482	0	407	0	0	0	0	26,614	30,037	533,961
		0.8%	*0.0%*	*0.3%*	*0.0%*	*0.1%*	*0.1%*	*0.0%*	*35.8%*	*52.1%*	*0.1%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*5.0%*	*5.6%*	
46	Entiat	2,852	0	549	0	1,278	0	0	13,902	125,315	0	0	769	0	0	0	0	4,917	2,907	152,488
		1.9%	*0.0%*	*0.4%*	*0.0%*	*0.8%*	*0.0%*	*0.0%*	*9.1%*	*82.2%*	*0.0%*	*0.0%*	*0.5%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*3.2%*	*1.9%*	
47	Chelan	1,252	0	0	0	251	229	0	100,590	96,942	0	0	1,689	69,229	0	0	0	148	10,634	280,964
		0.4%	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.0%*	*35.8%*	*34.5%*	*0.0%*	*0.0%*	*0.6%*	*24.6%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*3.8%*	
48	Methow	11,342	0	0	81	3,855	109	0	328,245	467,578	778	0	874	2	0	0	0	1,134	14,221	828,220
		1.4%	*0.0%*	*0.0%*	*0.0%*	*0.5%*	*0.0%*	*0.0%*	*39.6%*	*56.5%*	*0.1%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*1.7%*	
49	Okanogan	123,209	0	1,557	20,210	4,513	10	0	15,223	124,094	1,597	76,497	12,782	0	0	0	0	7,853	80,881	468,426
		26.3%	*0.0%*	*0.3%*	*4.3%*	*1.0%*	*0.0%*	*0.0%*	*3.2%*	*26.5%*	*0.3%*	*16.3%*	*2.7%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*1.7%*	*17.3%*	
50	Foster	325	0	0	0	90	0	0	0	0	0	17,593	280	0	11	53	0	362	2,553	21,267
		1.5%	*0.0%*	*0.0%*	*0.0%*	*0.4%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*82.7%*	*1.3%*	*0.0%*	*0.1%*	*0.2%*	*0.0%*	*1.7%*	*12.0%*	
51	Nespelem	0	0	0	0	0	0	0	0	0	0	74,429	0	0	0	0	0	127	4,451	79,007
		0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*94.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.2%*	*5.6%*	
52	Sanpoil	8,934	0	0	0	6	0	0	0	148,770	0	235,915	715	0	213	0	0	23,463	42,627	460,643
		1.9%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*32.3%*	*0.0%*	*51.2%*	*0.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*5.1%*	*9.3%*	
53	Lower Lake Roosevelt	1,671	41	0	0	114	0	0	0	0	0	19,378	302	4	880	0	0	2,832	20,364	45,586
		3.7%	*0.1%*	*0.0%*	*0.0%*	*0.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*42.5%*	*0.7%*	*0.0%*	*1.9%*	*0.0%*	*0.0%*	*6.2%*	*44.7%*	
54	Lower Spokane	22,546	80	169	0	0	4,590	0	0	0	0	100,309	3,075	0	1,962	435	235	23,147	95,833	252,382
		8.9%	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*1.8%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*39.7%*	*1.2%*	*0.0%*	*0.8%*	*0.2%*	*0.1%*	*9.2%*	*38.0%*	
55	Little Spokane	9,844	7	0	0	80	6,642	0	0	273	0	0	0	0	0	1,535	0	25,380	144,751	188,512
		5.2%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*3.5%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.8%*	*0.0%*	*13.5%*	*76.8%*	
56	Hangman	1,753	4	0	0	0	0	1	0	0	945	0	44	0	8	346	209	2,079	45,204	50,593
		3.5%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*1.9%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.7%*	*0.4%*	*4.1%*	*89.3%*	
57	Middle Spokane	4,985	0	69	61	0	6,063	0	0	0	0	0	0	0	0	4,234	38	22,134	41,146	78,730
		6.3%	*0.0%*	*0.1%*	*0.1%*	*0.0%*	*7.7%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*5.4%*	*0.0%*	*28.1%*	*52.3%*	

WRIA #	WRIA Name	DNR Trust Land	Other DNR	DNR NAP	DNR NRCA	WDFW	State Parks	Other State	USFS Wilderness	USFS Non-Wilderness	USFWS	TRIBAL	BLM	NPS	Other Federal	County	City	Private Industrial	Small Private	Total Forestland
58	Middle Lake Roosevelt	15,160	0	0	0	4,305	0	0	0	91,403	0	280,928	3,900	0	5,613	0	0	69,074	79,313	549,697
		2.8%	*0.0%*	*0.0%*	*0.0%*	*0.8%*	*0.0%*	*0.0%*	*0.0%*	*16.6%*	*0.0%*	*51.1%*	*0.7%*	*0.0%*	*1.0%*	*0.0%*	*0.0%*	*12.6%*	*14.4%*	
59	Colville	67,074	276	243	0	5	147	0	0	102,597	38,860	0	6,329	0	83	0	0	99,316	161,532	476,462
		14.1%	*0.1%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*21.5%*	*8.2%*	*0.0%*	*1.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*20.8%*	*33.9%*	
60	Kettle	31,025	81	0	0	508	19	0	0	322,700	0	0	7,012	0	823	0	0	24,667	89,832	476,666
		6.5%	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*67.7%*	*0.0%*	*0.0%*	*1.5%*	*0.0%*	*0.2%*	*0.0%*	*0.0%*	*5.2%*	*18.8%*	
61	Upper Lake Roosevelt	31,457	22	0	0	1	0	0	0	88,492	0	0	7,991	0	1,648	0	0	93,801	76,233	299,644
		10.5%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*29.5%*	*0.0%*	*0.0%*	*2.7%*	*0.0%*	*0.5%*	*0.0%*	*0.0%*	*31.3%*	*25.4%*	
62	Pend Oreille	23,131	115	0	0	375	189	0	39,356	451,007	68	3,031	1,366	0	0	0	0	62,885	50,697	632,218
		3.7%	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*6.2%*	*71.3%*	*0.0%*	*0.5%*	*0.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*9.9%*	*8.0%*	

Forestland Ownership in Washington State



appendix C

"Crosswalk"

NATIONAL THEMES, OBJECTIVES, AND PERFORMANCE MEASURES with ISSUES, THREATS & OPPORTUNITIES IDENTIFIED IN WASHINGTON'S STATEWIDE ASSESSMENT

'Crosswalk'

Threats and opportunities have been identified for each of the six major issues in the Statewide Assessment:

A. **Working Forestlands & Conversion**
B. **Biodiversity & Habitat Conservation**
C. **Water Quality, Quantity & Puget Sound Restoration**
D. **Wildfire Hazard Reduction**
E. **Forest Health Restoration**
F. **Urban & Community Forests**

The selected issues are correlated with the national Themes and Objectives as identified in the introductory section of the Assessment:

Washington State Issues	National Themes & Objectives	State & Private Forestry Programs
A. Working Forestlands & Conversion	1.1, 1.2, 3.1, 3.4, 3.5, 3.6, 3.7	Forest Stewardship Forest Legacy Cooperative Forest Health
B. Biodiversity & Habitat Conservation	1.1, 2.1, 2.2, 3.1, 3.5, 3.6, 3.7	Forest Stewardship Forest Legacy Fuels Cooperative Forest Health Urban & Community Forestry
C. Water Quality, Quantity & Puget Sound Restoration	1.1, 1.2, 2.1, 2.2, 3.1, 3.5, 3.6, 3.7	Forest Stewardship Forest Legacy Fuels Cooperative Forest Health Urban & Community Forestry
D. Wildfire Hazard Reduction	2.1, 2.2, 3.1, 3.3, 3.4, 3.5, 3.6, 3.7	Fuels Forest Stewardship Cooperative Forest Health Urban & Community Forestry State Fire Assistance Volunteer Fire Assistance
E. Forest Health Restoration	1.2, 2.2, 3.1, 3.4, 3.6, 3.7	Cooperative Forest Health Forest Stewardship Fuels Urban & Community Forestry
F. Urban & Community Forestry	2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	Urban & Community Forestry Cooperative Forest Health Fuels

National core performance measures have also been assigned to each theme and objective as follows:

1. **Conserve Working Forest Lands:** conserving and managing working forest landscapes for multiple values and uses.
   1.1. Identify and conserve high priority forest ecosystems and landscapes.
      1.1.1.Performance Measure: High priority forest ecosystems and landscapes are protected from conversion (acres - annual and cumulative).

   1.2. Actively and sustainably manage forests.
      1.2.1.Performance Measure: Number of acres in forest areas being managed sustainably as defined by current Forest Stewardship Management Plan (cumulative) – through a nationally consistent monitoring program.

2. **Protect Forests from Harm:** protect forests from threats, including catastrophic storms, flooding, insect or disease outbreak, and invasive species.
   2.1. Restore fire-adapted lands and reduce risk of wildfire impacts
      2.1.1. Performance Measure: Number of acres treated to restore fire-adapted ecosystems that are (1) moved toward desired conditions and (2) maintained in desired conditions (annual).
      2.1.2. Performance Measure: Total number of acres treated to reduce hazardous fuels on state and private lands through State Fire Assistance (annual, direct federal grant only).
      2.1.3. Performance Measure: Percentage of at risk communities who report increased local suppression capacity as evidenced by: (1) The increasing number of trained and/or certified fire fighters and crews or (2) Upgraded or new fire suppression equipment obtained or (3) Formation of a new fire department or expansion of an existing department involved in wildland fire fighting.

   2.2. Identify, manage and reduce threats to forest and ecosystem health
      2.2.1. Performance Measure: Number and percent of forest acres restored and/or protected from (1) invasive and (2) native insects, diseases and plants (annual).

3. **Enhance Public Benefits from Trees and Forests:** including air and water quality, soil conservation, biological diversity, carbon storage, and forest products, forestry-related jobs, production of renewable energy, and wildlife.
   3.1. Protect and enhance water quality and quantity
      3.1.1. Performance Measure: Acres and percent of priority watershed areas where S&PF activities are enhancing or protecting water quality and quantity.

   3.2. Improve air quality and conserve energy
      3.2.1. Performance Measure: Population of communities benefiting from S&PF activities designed to contribute to an improvement in air quality.
      3.2.2. Performance Measure: Population of communities benefiting from S&PF activities that result in energy conservation.

3.3. Assist communities in planning for and reducing wildfire risks.

3.3.1. *Performance Measure:* Number and percent of communities-at-risk covered by a CWPP or equivalent that are reducing their risk of wildland fire (annual).

3.3.2. *Performance Measure:* Percent of population living in communities developing or managing programs to plant, protect and maintain their urban and community trees and forests.

3.4. Maintain and enhance the economic benefits and values of trees and forests.

3.4.1. *Performance Measure:* Number of communities and percent of population served under an active urban forest management plan.

3.4.2. *Performance Measure:* Number of total jobs (direct, indirect, and induced) sustained or maintained in the economy annually due to S&PF investments.

3.4.3. *Performance Measure:* Total value of resources leveraged through partnerships with states and others partners.

3.5. Protect, conserve, and enhance wildlife and fish habitat.

3.5.1. *Performance Measure:* Acres and percent of priority habitat areas where S&PF activities are protecting, conserving, and enhancing wildlife and fish habitat.

3.5.2. *Performance Measure:* Acres of connected forest resulting from S&PF investments.

3.6. Connect people to trees and forests, and engage them in environmental stewardship activities.

3.6.1. *Performance Measure:* Number of people who annually participate in FS and state forestry agency environmental literacy programs and activities.

3.6.2. *Performance Measure:* Number of people (measured in person-days) engaged in environmental stewardship activities as part of an S&PF program.

3.7. Manage and restore trees and forests to mitigate and adapt to global climate change.

3.7.1. *Performance Measure:* Acres and percent of priority areas vulnerable to climate change where S&PF activities are contributing to resilient forests able to adapt to climate change.

3.7.2. *Performance Measure:* Potential carbon sequestered through implementation of forest management practices that result from S&PF investments on private forest lands.

Opportunities were crafted to include broad categories of actions that can be implemented to address the identified threats, many of which are shared among multiple issues. The Assessment identified 35 distinct opportunities. Appendix C compiles the opportunities, the threats and issues addressed, and their corollary to national themes, objectives and performance measures. The current roles of State & Private Forestry programs in actions to address opportunities are also compiled in Appendix C. In many cases, State & Private Forestry programs may have a shared lead role with other state and federal programs, actions, or private entities. These distinctions are not an expression of potential, but rather of current status. They are not intended to be all-inclusive, but to catch major relationships and highlights.

Please also note that the roles described are not intended to be all-inclusive, but to catch major relationships and highlights. Any omissions and oversights are simply that: omissions and oversights.

Opportunity	Threat	Issue	National Objective	National Performance Measure[1]	Current Lead Role	Supporting Role
Reduce the rate of forest conversion	Forestland Conversion Habitat Fragmentation & Loss of Legacy Features	A B	1.1, 3.4 3.5	1.1.1., 3.4.2., 3.4.3.,3.5.1.,3.5.2.	S&PF Forest Legacy Program Transfer of Development Rights Programs State Property Tax Incentives State and Federal agency land transactions DNR Natural Areas Program Non-Governmental Organization Investments Washington Wildlife & Recreation Program	S&PF Forest Stewardship Program Puget Sound Partnership (A.2.1)[2]
	Loss of Surface Water Quality	C	3.1, 3.5	3.1.1., 3.5.1.,3.5.2.		
	Increased Development in the Wildland-Urban Interface	D	3.3	None		
Assist forest landowners with meeting environmental protection requirements	Forestland Conversion Loss of Economic Viability	A	1.1, 1.2, 3.1, 3.4, 3.6, 3.7	1.1.1., 1.2.1., 3.1.1., 3.4.2., 3.6.1., 3.6.2., 3.7.1., 3.7.2.	DNR Forest Practices Program DNR Adaptive Management Program DNR Family Forest Fish Passage Program	S&PF Forest Stewardship Program Wash. State University Extension S&PF Forest Health Program Puget Sound Partnership (A.4.3.2)[2]
Compensate forest landowners for ecosystem services	Forestland Conversion Loss of Economic Viability	A	1.1, 1.2, 3.1, 3.4, 3.7	1.1.1., 1.2.1., 3.1.1., 3.4.2., 3.7.1., 3.7.2.	DNR Forest Riparian Easement Program DNR Riparian Open Space Program DNR Family Forest Fish Passage Program NRCS Conservation Programs	S&PF Forest Legacy Program Puget Sound Partnership (A.4.1)[2]
Maintain and develop forest markets and infrastructure	Loss of Economic Viability	A	1.2, 3.1	1.2.1., 3.1.1.	Land Owners & Managers Manufacturers DNR Biomass Initiative	S&PF Forest Health Program DNR Forest Health Program S&PF Fuels Reduction
	Loss of Forest Markets	D E	1.2, 2.1, 2.2, 3.4	1.2.1., 2.1.1., 2.1.2., 2.2.1., 3.4.2.		
Maintain a dependable and non-declining flow of timber from unreserved timberlands	Loss of Economic Viability	A	1.2, 3.4	1.2.1., 3.4.2.	Land Owners & Managers Manufacturers	S&PF Forest Stewardship Program NRCS Conservation Programs Wash. State University Extension S&PF Forest Legacy Program S&PF Forest Health Program DNR Forest Health Program
Restore and rebuild timber-dependent rural economies	Loss of Economic Viability	A	1.2, 3.4	1.2.1., 3.4.2.	USDA Rural Development State rural economic development programs Community Economic Revitalization Boards State Innovation Partnership Zones	DNR Biomass Initiative
Restore & maintain forest productivity & carbon sequestration value for climate change mitigation	Climate Change	A, B, C, D, E	1.1, 1.2, 2.1, 2.2, 3.1, 3.4, 3.5, 3.7	1.1.1., 1.2.1., 2.1.1., 2.1.2., 2.2.1., 3.1.1., 3.4.2.,3.5.1.,3.7.1.,3.7.2.	DNR & Wash. Dept. of Ecology Forest Carbon Workgroup Agency land management strategies Washington State integrated climate change response strategy	S&PF Forest Stewardship Program S&PF Forest Health Program DNR Forest Health Program S&PF Fuels Reduction S&PF Urban & Community Forestry Program
	Loss of Ecosystem Services of Urban Trees	F	3.2, 3.7	3.2.1.,3.2.2.,3.7.1.,3.7.2.		
Assist forest ecosystems with adapting to a changed climate	Climate Change	A, B, C, D, E	1.1, 1.2, 2.1, 2.2, 3.1, 3.4, 3.5, 3.7	1.1.1., 1.2.1., 2.1.1., 2.1.2., 2.2.1., 3.1.1.,3.4.2.,3.5.1.,3.7.1.,3.7.2	Agency land management strategies Washington State integrated climate change response strategy	S&PF Forest Stewardship Program S&PF Forest Health Program DNR Forest Health Program S&PF Fuels Reduction

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Identify and protect priority species & ecosystems	Habitat Fragmentation & Loss of Legacy Features	B	3.5	3.5.1.,3.5.2.	Dept. Fish & Wildlife – Wildlife Action Plan DNR Natural Heritage Program Governor's Recreation & Conservation Office DNR Riparian Open Space Program	Washington Biodiversity Council S&PF Forest Legacy Program S&PF Forest Stewardship Program Puget Sound Partnership (A.2.1)[2]
Identify and protect and/or restore critical landscape linkages for species movement.	Habitat Fragmentation & Loss of Legacy Features	B	3.5	3.5.1.,3.5.2.	Dept. Fish & Wildlife – Wildlife Action Plan DNR Natural Heritage Program DNR Natural Areas Program Governor's Recreation & Conservation Office Western Gov's Assoc. – Wildlife Corridors	S&PF Urban & Community Forestry Program S&PF Forest Legacy Program DNR Forest Riparian Easement Program DNR Riparian Open Space Program DNR Family Forest Fish Passage Program Puget Sound Partnership Washington Biodiversity Council Puget Sound Partnership (B.1.4, C.2.7) [2]
	Climate Change	B	3.5, 3.7	3.5.1.,3.5.2.,3.7.1.,3.7.2		
	Loss of Urban Trees & Forests to Development	F	3.5	3.5.1.,3.5.2.		
	Forestland Conversion	A	1.1, 3.5	1.1.1.,3.5.1.,3.5.2.		
Conserve westside legacy features	Habitat Fragmentation & Loss of Legacy Features	B	3.5	3.5.1.	Washington Wildlife & Recreation Program DNR Natural Areas Program Public forestland managers Non-governmental conservation investments	S&PF Forest Stewardship Program S&PF Forest Legacy Program
Restore ecological integrity, appropriate density, structure & species composition to overstocked eastern Washington forests	Altered Fire & Disturbance Regimes	B	2.1, 3.5	2.1.1.,2.1.2.,3.5.1.,3.5.2.	Land Owners & Managers S&PF Forest Health Program DNR Forest Health Program S&PF Fuels Reduction	S&PF Forest Stewardship Program
	Deteriorating Forest Health	D	2.1, 2.2, 3.5	2.1.1.,2.1.2.,2.2.1.,3.5.1.,3.5.2.		
	Overcrowded Eastern Washington Forests	E	2.1, 2.2, 3.5	2.1.1.,2.1.2.,2.2.1.,3.5.1.,3.5.2.		
Use prescribed fire to restore & maintain fire-resistant stand conditions & fire-dependent species	Altered Fire & Disturbance Regimes	B	2.1, 3.5	2.1.1.,2.1.2.,3.5.1.	Local Prescribed Fire Councils Non-Governmental Organizations Land Owners & Managers	S&PF Forest Health Program DNR Forest Health Program S&PF Fuels Reduction DNR Smoke Management Program
	Deteriorating Forest Health	D	2.1, 2.2, 3.5	2.1.1.,2.1.2.,2.2.1.,3.5.1.		
	High Fuel Loads in Eastern Washington Forests	E	2.1, 2.2, 3.5	2.1.1.,2.1.2.,2.2.1.,3.5.1.		
Maintain stocks of genetically appropriate tree species	Altered Fire & Disturbance Regimes	B	3.5, 3.7	3.5.1.,3.7.1.,3.7.2.	DNR Webster Tree Nursery & Seed Orchard Tree Seed & Genetics Cooperatives	S&PF Forest Stewardship Program
	Climate Change	B	3.7	3.7.1.,3.7.2.		
	Overcrowded Eastern Washington Forests	E	2.1, 2.2	2.1.1.,2.1.2.,2.2.1.		
Early detection and eradication of invasive non-native species	Invasive Non-native Species	B, F	3.1, 3.3, 3.4, 3.5	3.1.1.,3.3.2.,3.4.1.,3.5.1.	Wash. Dept. Agriculture S&PF Forest Health Program DNR Forest Health Program Wash. Invasive Species Council	S&PF Urban & Community Forestry Program DNR Natural Heritage Program Puget Sound Partnership (A.5.3, A.5.4)[2]
	Invasive Non-native Insects & Diseases	E	2.2	2.2.1.		
	Loss of Surface Water Quality	C	3.1	3.1.1.		

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Conserve, restore and expand the urban tree canopy	Loss of Urban Trees and Forests to Development	F	1.1, 3.1, 3.2, 3.3, 3.4	1.1.1.,3.1.1.,3.2.1.,3.2.2.,3.3.2.,3.4.1.	Community Urban Forestry Programs S&PF Urban & Community Forestry Program Puget Sound Partnership (C.2.4)[2] Washington Wildlife & Recreation Program	
	Loss of Ecosystem Services of Urban Trees	F	3.1, 3.2, 3.5, 3.7	3.1.1.,3.2.1.,3.2.2.,3.3.2.,3.5.2.,3.7.1, 3.7.2.		
	Loss of Social and Economic Benefits of Urban Trees	F	3.3.,3.4, 3.6	3.3.2.,3.4.1.,3.6.1.,3.6.2.		
	Loss of Surface Water Quality	C	3.1	3.1.1.		
Assist communities with developing & implementing urban forest conservation programs	Inadequate Urban Forest Planning & Management	F	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	3.1.1.,3.2.1.,3.2.2.,3.3.2.,3.4.1.,3.5.2., 3.6.1.,3.6.2.,3.7.1,3.7.2	Community Urban Forestry Programs S&PF Urban & Community Forestry Program	Puget Sound Partnership (C.2.3)[2]
Maintain & restore connectivity of environmental services between the developed and forested upland environments.	Loss of Urban Trees and Forests to Development	F	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	3.1.1.,3.2.1.,3.3.2.,3.4.1.,3.4.3.,3.5.2., 3.6.1.,3.6.2.,3.7.1.,3.7.2.	Non-Governmental Organization Investments Puget Sound Partnership Washington Wildlife & Recreation Program	S&PF Urban & Community Forestry Program Puget Sound Partnership (C.2.4)[2]
	Loss of Ecosystem Services of Urban Trees					
	Loss of Social and Economic Benefits of Urban Trees					
	Loss of Surface Water Quality	C	3.1	3.1.1.		
	Habitat Fragmentation & Loss of Legacy Features	B	3.5	3.5.2.		
Maintain & improve air quality & energy conservation	Loss of Ecosystem Services of Urban Trees	F	3.2	3.2.2.	Community Urban Forestry Programs S&PF Urban & Community Forestry Program	
Improve public awareness of the benefits of urban forests	Loss of Social and Economic Benefits of Urban Trees	F	3.6	3.6.1.,3.6.2.	S&PF Urban & Community Forestry Program	
Reconnect urban people, especially youths, with the forested and outdoors environments	Loss of Social and Economic Benefits of Urban Trees	F	3.6	3.6.1.,3.6.2.	S&PF Urban & Community Forestry Program Environmental Education & Curricula Programs DNR Recreation & Camps Programs	
Improve fire prevention and suppression	Human Safety & Property Loss	D	2.1, 2.2, 3.3	2.1.1.,2.1.2.,2.1.3.,2..2.1,3.3.1	S&PF State Fire Assistance DNR Fire Protection & Prevention Fire Protection Districts Federal Agencies	
Protect, assist and educate populations in the wildland-urban interface	Human Safety & Property Loss	D	2.1, 3.3	2.2.3,3.3.1.	S&PF State Fire Assistance/Fuels Reduction DNR Fire Protection & Prevention Conservation Districts Fire Protection Districts Local Government	S&PF Urban & Community Forestry Program S&PF Forest Health Program DNR Forest Health Program
	Increased Development in the Wildland-Urban Interface					

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Reduce fuel loads in eastern Washington forests	Human Safety & Property Loss	D	2.1, 2.2, 3.3	2.1.1.,2.1.2.,2.2.1.,3.3.1	S&PF Fuels Reduction DNR Fire Protection & Prevention Conservation Districts Land Owners & Managers	S&PF Forest Health Program DNR Forest Health Program S&PF Forest Stewardship Program
	Increased Development in the Wildland-Urban Interface					
	Deteriorating Forest Health					
	High Fuel Loads in eastern Washington Forests	E	2.1, 2.2	2.1.1.,2.1.2.,2.2.1.		
	Altered Fire & Disturbance Regimes	B	2.1, 2.2, 3.5	2.1.1.,2.1.2.,2.2.1.,3.5.1.		
Partner with multiple landowners & managers to achieve landscape-scale forest health restoration objectives	Deteriorating Forest Health	D	2.1, 2.2, 3.3	2.1.1.,2.1.2.,2.2.1.,3.3.1.	DNR Forest Health Program S&PF Forest Health Program DNR Fire Protection & Prevention S&PF Fuels Reduction Land Owners & Managers Local Prescribed Fire Councils	NRCS Conservation Programs S&PF Forest Stewardship Program
	Over-Crowded eastern Washington Forests	E	2.1, 2.2	2.1.1.,2.1.2.,2.2.1.		
	Altered Fire & Disturbance Regimes	B	2.1, 2.2, 3.5	2.1.1.,2.1.2.,2.2.1.,3.5.1.		
Integrate fuel load reduction activities with forest health improvement actions	High Fuel Loads in Eastern Washington Forests	E	2.1, 2.2	2.1.1.,2.1.2.,2.2.1.	DNR Forest Health Program S&PF Forest Health Program DNR Fire Protection & Prevention S&PF Fuels Reduction	NRCS Conservation Programs S&PF Forest Stewardship Program
	Deteriorating Forest Health	D	2.1, 2.2	2.1.1.,2.1.2.,2.2.1.		
Protect productivity & function in western Washington forests	Loss of Productivity & Function in Western Washington Forests	E	2.1, 2.2	2.1.1.,2.1.2.,2.2.1.	S&PF Forest Health Program DNR Forest Health Program NRCS Conservation Programs	S&PF Forest Stewardship Program
	Loss of Economic Viability	A	1.2, 2.2., 3.4	1.2.1.,2.2.1.,3.4.2.		
Reduce root disease impacts	Loss of Productivity & Function in Western Washington Forests	E	2.2	2.2.1.	S&PF Forest Health Program DNR Forest Health Program	S&PF Forest Stewardship Program
	Loss of Economic Viability	A	1.2, 3.4	1.2.1.,3.4.2.		
Conserve riparian forest vegetation & reestablish appropriate species composition	Loss of Surface Water Quality	C (B)	3.1, 3.5	3.1.1.,3.5.1.,3.5.2.	DNR Forest Practices Program DNR Forest Riparian Easement Program DNR Riparian Open Space Program Washington Wildlife & Recreation Program	NRCS Conservation Programs S&PF Forest Stewardship Program S&PF Forest Legacy Program Puget Sound Partnership (A.4.4)[2]
	Forest Conversion	A	1.1, 1.2	1.1.1.,1.2.1.		
Conserve forested wetlands	Loss of Surface Water Quality	C (B)	3.1, 3.5	3.1.1.,3.5.1.	DNR Forest Practices Program Washington Wildlife & Recreation Program NRCS Conservation Programs	S&PF Forest Stewardship Program S&PF Forest Legacy Program Puget Sound Partnership (A.4.4)[2]
Reduce the risk and hazard of large, severe wildfires	Loss of Surface Water Quality	C	3.1, 3.5	3.1.1.,3.5.1.	S&PF Fuels Reduction S&PF Forest Health Program	
	Deteriorating Forest Health	D	2.1, 3.1	2.1.1.,2.1.2.,3.1.1.		
Reduce negative effects of forest roads on the hydrology of watersheds	Improper Design, Construction & Maintenance of Forest Roads	C	3.1, 3.5	3.1.1.,3.5.2.	DNR Forest Practices Program DNR Adaptive Management Program DNR Family Forest Fish Passage Program Land Owners & Managers Puget Sound Partnership (C.2.7)[2] Washington Wildlife & Recreation Program	NRCS Conservation Programs S&PF Forest Stewardship Program

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Enhance coordination among forest landowners & managers toward integrated watershed restoration outcomes.	Improper Design, Construction & Maintenance of Forest Roads	C	3.1, 3.4	3.1.1.,3.4.2.,3.4.3.	DNR Forest Practices Program Puget Sound Partnership (C.2.7, B.3.1)[2] Washington Wildlife & Recreation Program Land Owners & Managers DNR Family Forest Fish Passage Program NRCS Conservation Programs	
	Loss of Economic Viability	A	1.2	1.2.1.		
Remove barriers to fish passage and increase aquatic habitat availability	Improper Design, Construction & Maintenance of Forest Roads	C	3.1, 3.4, 3.5	3.1.1.,3.4.2.,3.4.3.,3.5.2.	Land Owners & Managers DNR Forest Practices Program DNR Family Forest Fish Passage Program Puget Sound Partnership (C.2.7)[2] Washington Wildlife & Recreation Program Washington Salmon Recovery Funding Board	NRCS Conservation Programs S&PF Forest Stewardship Program
	Loss of Economic Viability	A	1.2	1.2.1.		

[1]The performance measures 3.4.2., 3.4.3., 3.6.1., and 3.6.2 are applicable and would be reported on all opportunities. These measures are therefore noted only where unique elements of an individual opportunity warrant it.
[2]Refer to Puget Sound Partnership Action Agenda, "Near-Term Actions". http://www.psp.wa.gov/aa_action_agenda.php

appendix D

References

Following are the references for all sections of the Washington State *Forest Assessment and Strategy*. Web links to the information are included where possible.

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Natural Resources
Peter Goldmark - Commissioner of Public Lands

1111 Washington ST SE
Olympia, WA 98504-7000
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