

YAKIMA RIVER BASIN INTEGRATED WATER RESOURCE MANAGEMENT PLAN

Structural & Operational Changes

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2. Modify Kittitas Reclamation District canals to provide efficiency savings.
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4. Decrease power generation at Roza Dam and Chandler power plant to support outmigration of juvenile fish.
5. Make efficiency improvements to the Wapatox Canal.

Reservoir Fish Passage

Provide fish passage at:

1. Clear Lake
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3. Bumping
4. Tieton (Rimrock)
5. Keechelus
6. Kachess

Enhanced Water Conservation

1. Implement an agricultural water conservation program designed to conserve up to 170,000 acre-feet of water in good water years.
2. Create a fund to promote water use efficiency basin-wide using voluntary, incentive-based programs. Focus on outdoor uses as top priority.

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1. Build a 162,500 ac-ft off-channel surface storage facility at Wymer on Lmuma Creek.
2. Access an additional 200,000 ac-ft of water by tapping into inactive storage at Lake Kachess.
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1. Protect ~70,000 acres of land by acquiring high elevation portions of the watershed and forest and shrub steppe habitat.
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The long-term program would focus on facilitating water transfers between irrigation districts. This would allow an irrigation district to fallow land within the district and lease water rights for that land outside the district.



RECLAMATION
Managing Water in the West
<http://www.usbr.gov/jn/programs/yktwesp/2011integratedplan/index.html>



**DEPARTMENT OF
ECOLOGY**
State of Washington
<http://www.ecy.wa.gov/programs/wr/cowp/YRBP.html>



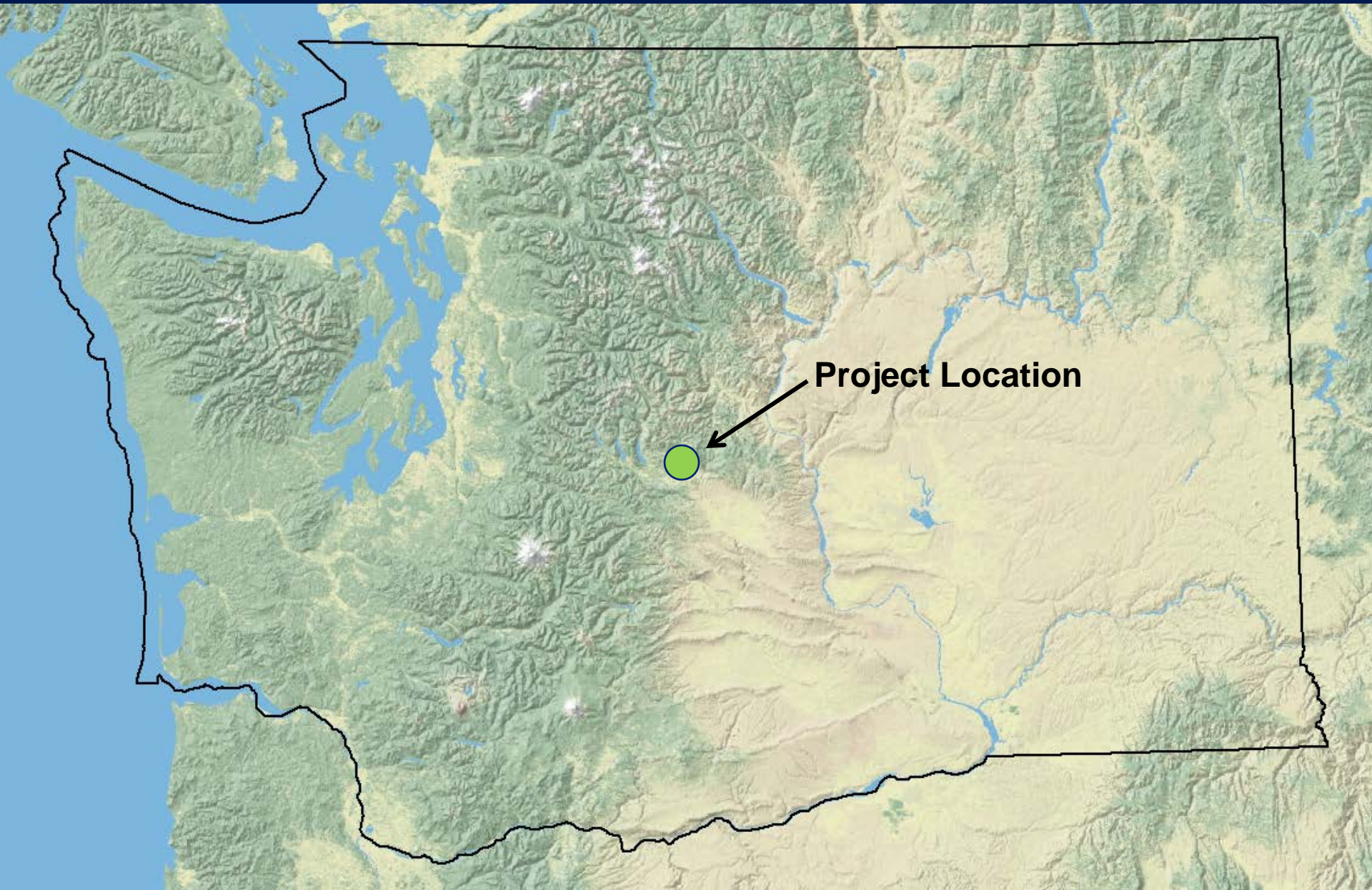
WELCOME
TO THE
Teanaway River Watershed



Enjoy It and Protect It

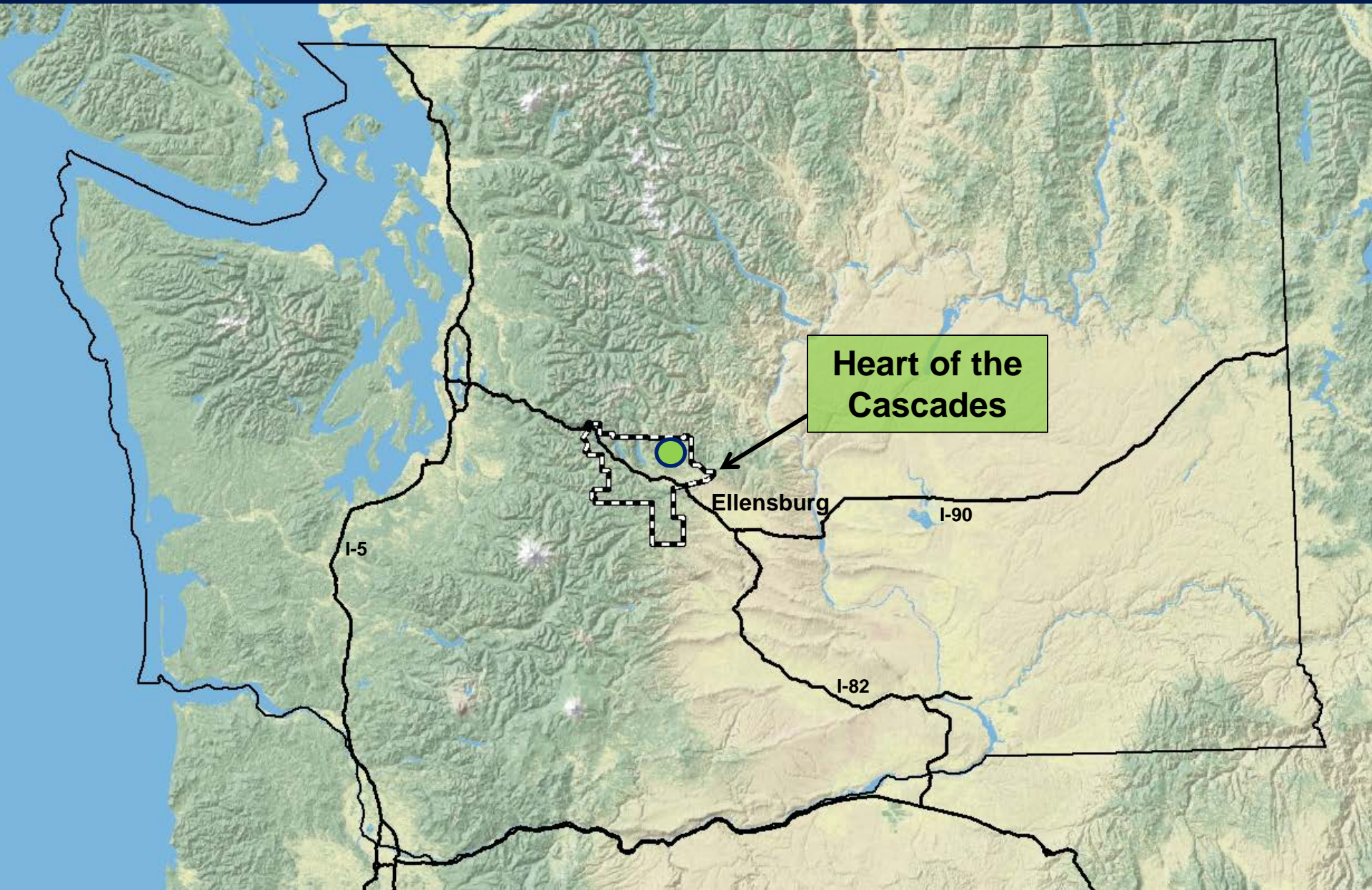
Sign sponsored by the Teanaway TFWA. Workgroup. Sign funded by the US Environmental Protection Agency.

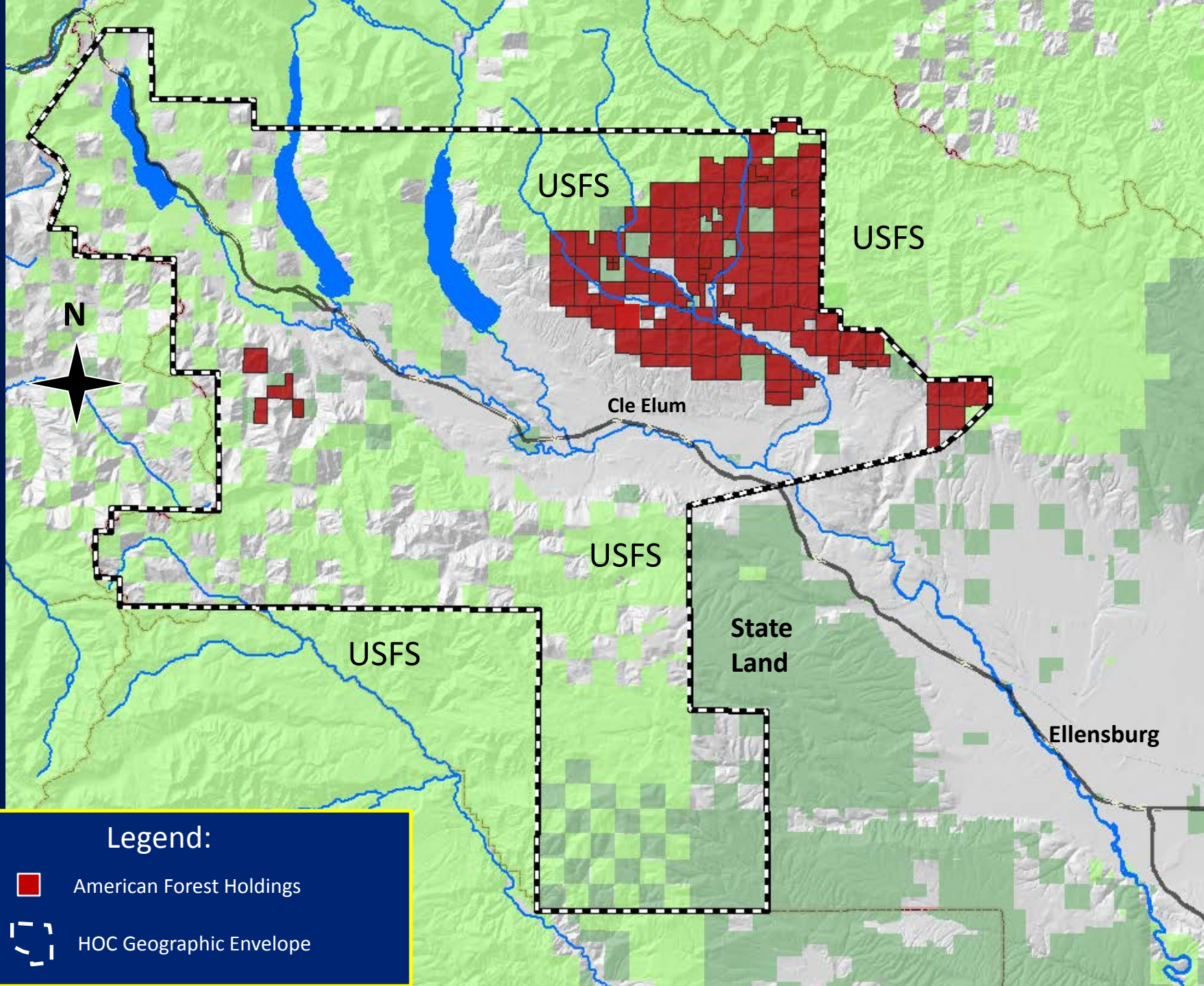
Teanaway Conservation Project



Project Location

Teanaway Conservation Project

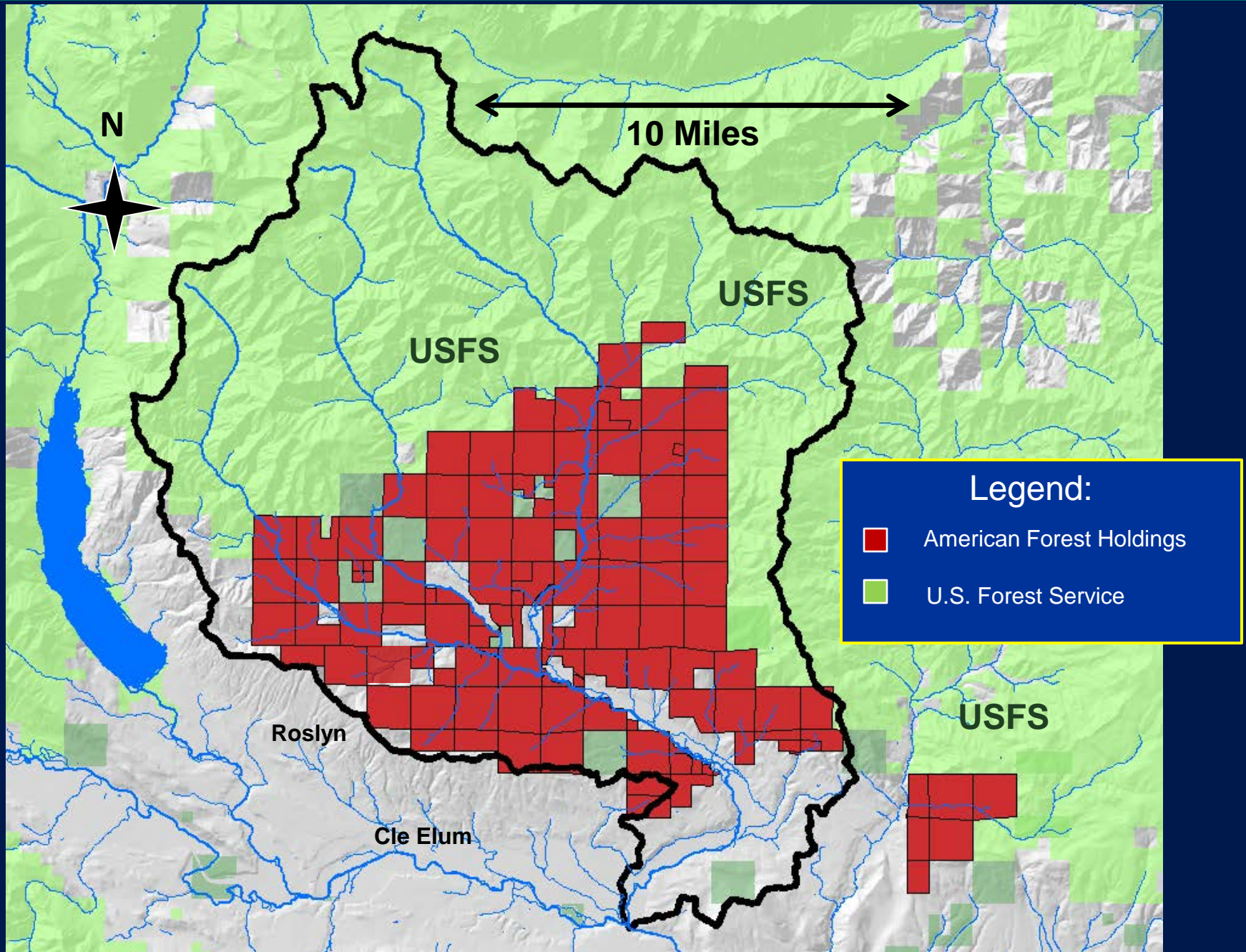




Legend:

-  American Forest Holdings
-  HOC Geographic Envelope

Teanaway Conservation Project



Teanaway











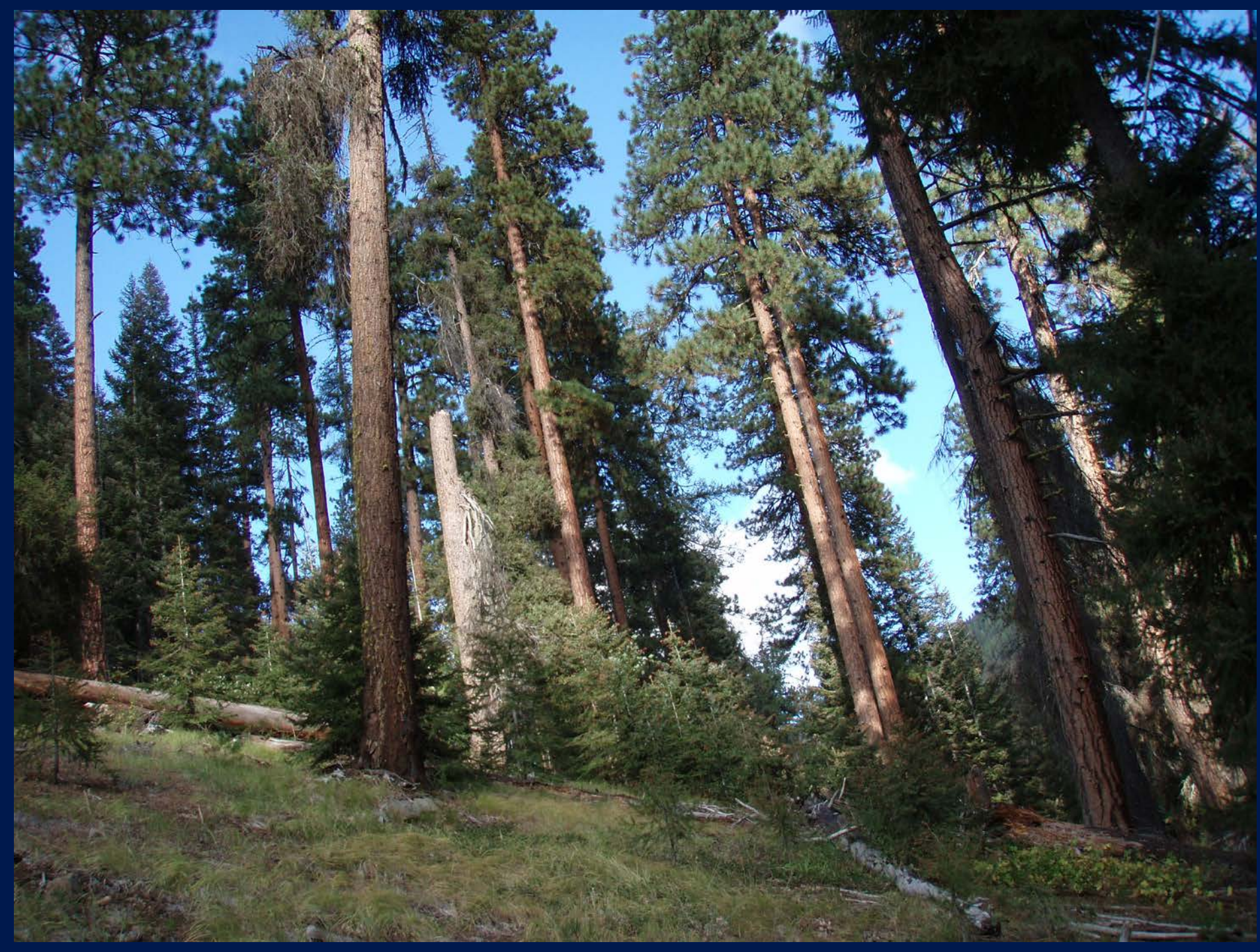
Teaway



Teaway forest with Stewart
Range in background

Teanaway







N.F. Teanaway River valley





Understory in Teanaway Ponderosa Pine/Douglas Fir Forest





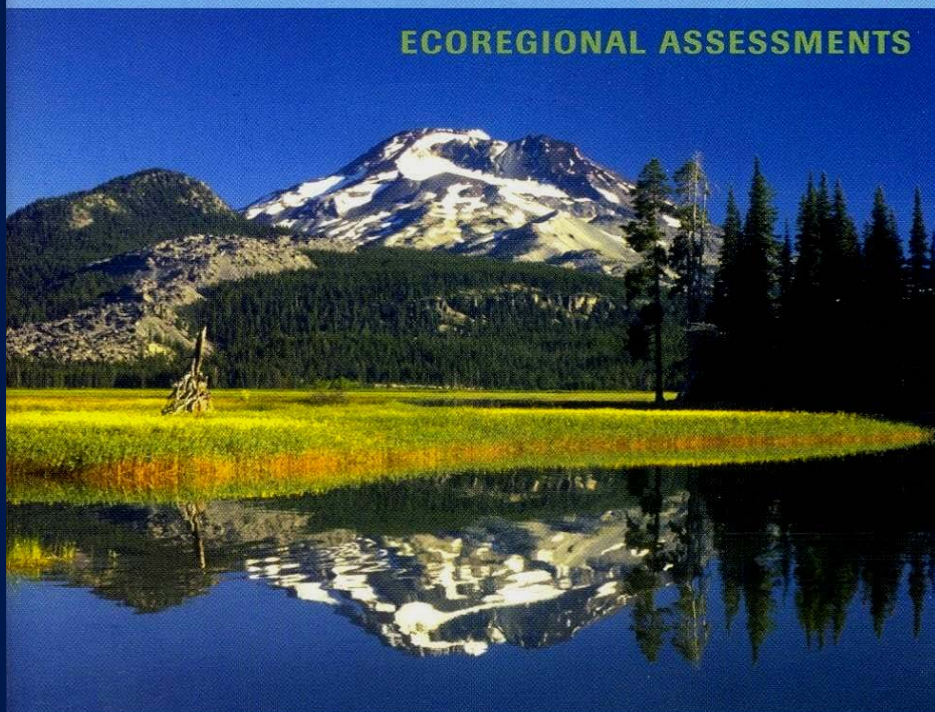


Landscape Planning



East Cascades – Modoc Plateau and West Cascades

ECOREGIONAL ASSESSMENTS



JUNE 2007

WASHINGTON CONNECTED LANDSCAPES PROJECT: STATEWIDE ANALYSIS



EXECUTIVE SUMMARY

WASHINGTON WILDLIFE HABITAT CONNECTIVITY
WORKING GROUP

DECEMBER 2010

Conservation Plans



WASHINGTON BIODIVERSITY CONSERVATION STRATEGY



Sustaining Our Natural Heritage
For Future Generations

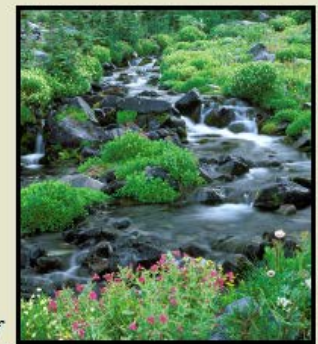
DECEMBER 2007

WASHINGTON
BIODIVERSITY COUNCIL
CONSERVATION | EDUCATION | STEWARDSHIP

STATE OF WASHINGTON

August 2008

Priority Habitats and Species List



Washington Department of
FISH AND WILDLIFE

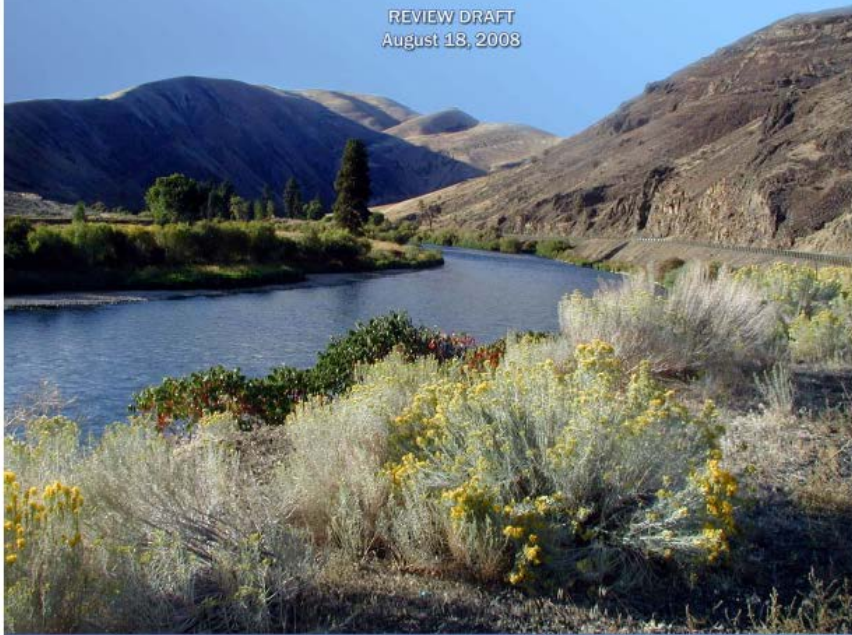
Recovery Plans

YAKIMA STEELHEAD RECOVERY PLAN

Extracted from the
2005 Yakima Subbasin Salmon Recovery Plan

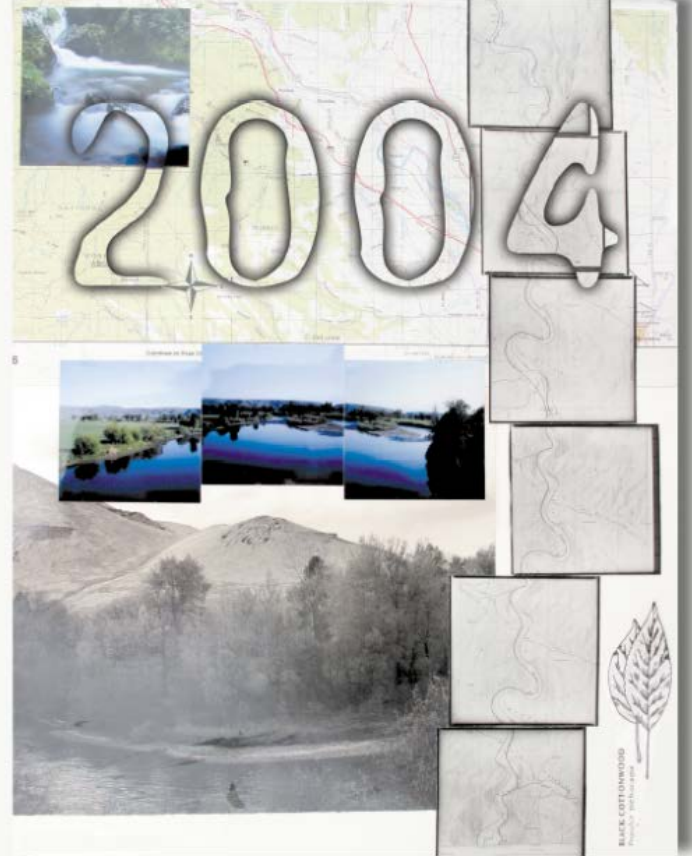
With Updates

REVIEW DRAFT
August 18, 2008



Prepared by
the Yakima Basin Fish & Wildlife Recovery Board

YAKIMA SUBBASIN PLAN



YAKIMA SUBBASIN
FISH AND WILDLIFE
PLANNING BOARD

SUPPLEMENT
NOVEMBER 26, 2004

WDFW Conservation Initiative Principles

The Conservation Initiative is an agency-wide commitment to improving how we work together — both internally across programs, and externally in cooperation with other governments, organizations and citizens — to better maintain healthy ecosystems for the benefit of all species including humans.



Principle ONE
We practice conservation by managing, protecting and restoring ecosystems for the long term benefit of people and for fish, wildlife and their habitat



Principle TWO
We are more effective when we manage fish, wildlife and their habitats by supporting healthy ecosystems.



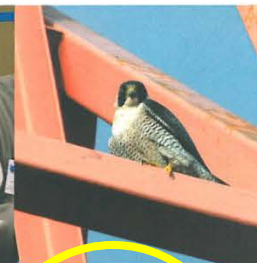
Principle THREE
We work across disciplines to solve problems because of the connections among organisms, species and habitats.



Principle FOUR
We integrate ecological, social, and institutional perspectives into our decision making.



Principle FIVE
We embrace new knowledge and apply best science to address changing conditions through adaptive management.



Principle SIX
We collaborate with our conservation and community partners to help us achieve our shared goals.

Applying Conservation Principles to Our Work

- Are we communicating about conservation in such a way that people feel their values and needs are considered as part of decision making?
- Have we adequately described conservation to our constituents?
- Are we engaging local government, the public and other stakeholders in ways that recognize their contribution to the success of our conservation efforts?
- Are we helping our partners understand how their practices are consistent with the Conservation Principles?

- What components (process, structure, or function) of the ecosystem are we addressing?
- How do we address function, structure, processes in our technical assistance?
- If it is a restoration project, what processes occur outside of our project site footprint? What will be the likely impacts from those processes?
- Have we considered how existing processes contribute to success of project?

- Are you aware of current Fish and Wildlife and Habitat program issues or initiatives in this watershed?
- Does this project (or issue) occur primarily in a terrestrial or aquatic environment? Have you considered the links between the two?
- If you are working with a single species, how does this species interact with others in your project design?
- If you are estimating fish or wildlife abundance goals, planning for rehabilitating or stocking lakes, and/or trans-locating animals, how have you considered important potential species interactions that affect other resource values?

- Start with the science - what are the ecological impacts or benefits likely to be? What is the range of variability? How is uncertainty accounted for?
- How will the project affect a particular user group, community or region?
- Are staff from other programs working in this geographic area? Have they been contacted about project?
- If the project is directed primarily at ecological goals, how have societal values and organizational needs been considered and vice versa?

- Can we characterize the scientific uncertainty and risks associated with a particular course of actions?
- Can we define where new information will immediately improve policy choices (that is, decision critical science)?
- Have we communicated the data/information in a user friendly fashion? Have we shown how the science informs our decisions and our trade-offs?
- Are we developing new tools to communicate with the public— web tools, apps, partnerships to disseminate information?
- Have we established common objectives with stakeholders? Are they clear, cost-effective and measurable? Have we reached agreement with the stakeholders on how monitoring outcomes will be incorporated into future decisions?

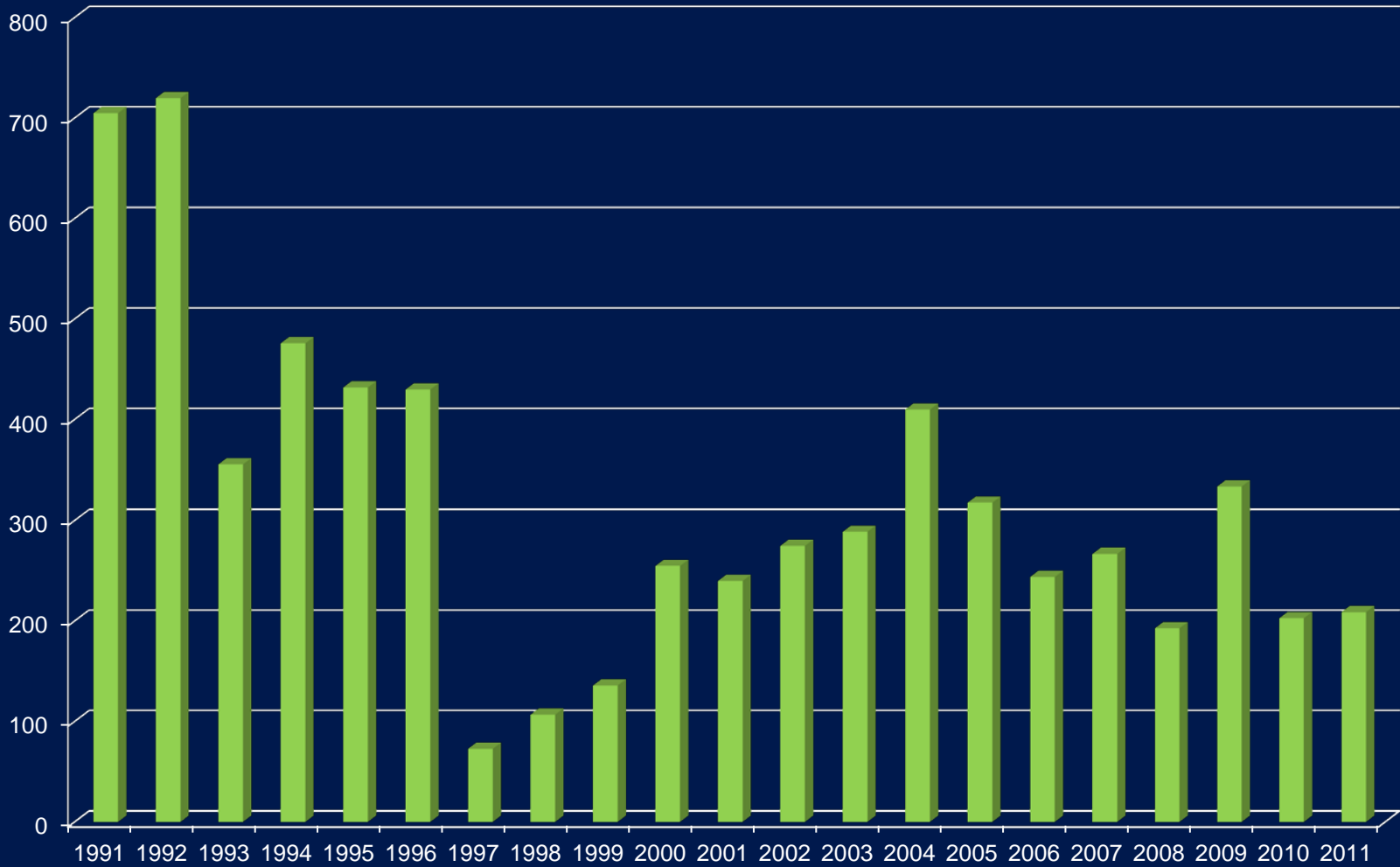
- Have we identified all the stakeholders and their goals? Have we identified common goals with stakeholders? Do we have the necessary resources/capabilities to engage in a collaborative process?
- Are we providing the right tool to our partners such that their values and goals are met? (incentives, technical assistance, information products, regulation).
- Does the project goal reflect the values of all stakeholders including those goals that require tradeoffs?
- Have the barriers that prevent WDFW from collaborating with stakeholders been addressed?



Mule Deer



GMU 335 Buck Harvest







Record Book Bull - Teanaway



Turkeys



Watershed



© Steve G. Baid

460 Miles of Stream
85 Miles Fishbearing

Stafford Creek

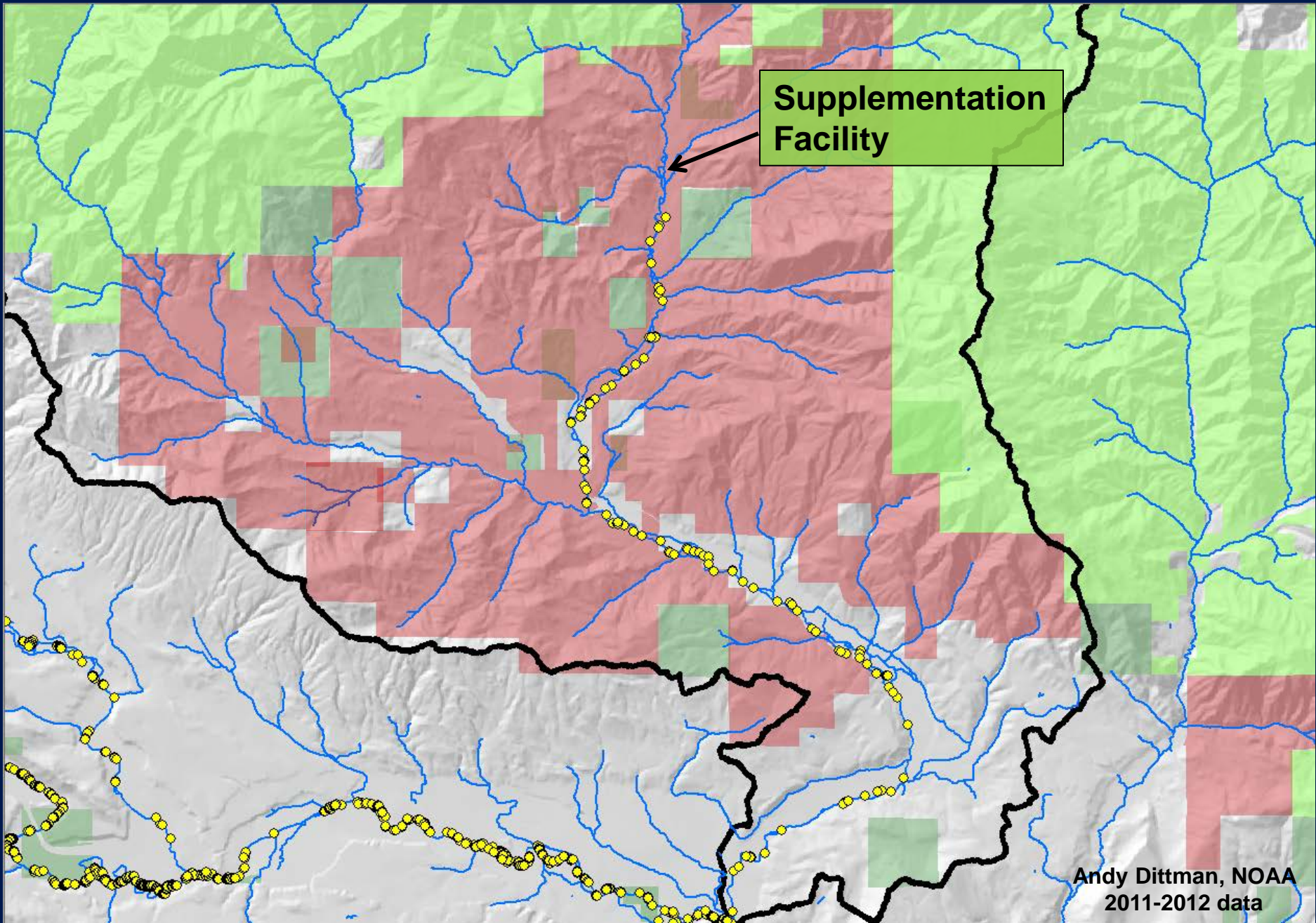


Teanaway Steelhead

Radio telemetry revealed approximately
39% of the upper Yakima Steelhead
returned to the Teanaway



Teanaway Spring Chinook Spawning



Andy Dittman, NOAA
2011-2012 data

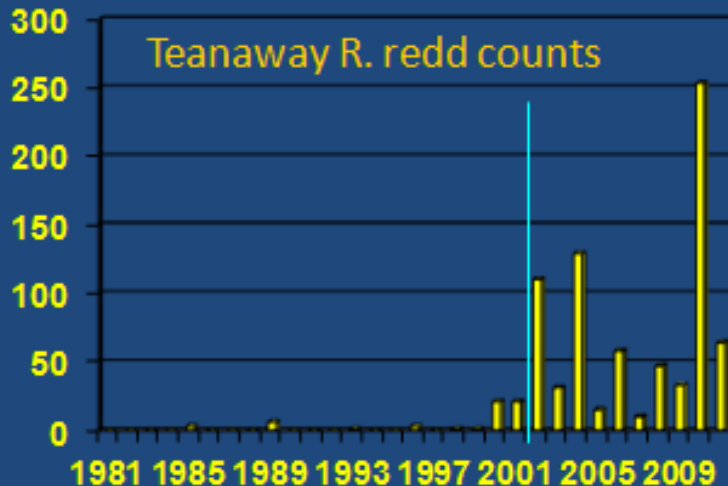
Teaway Chinook Supplementation



Teanaway Chinook Supplementation

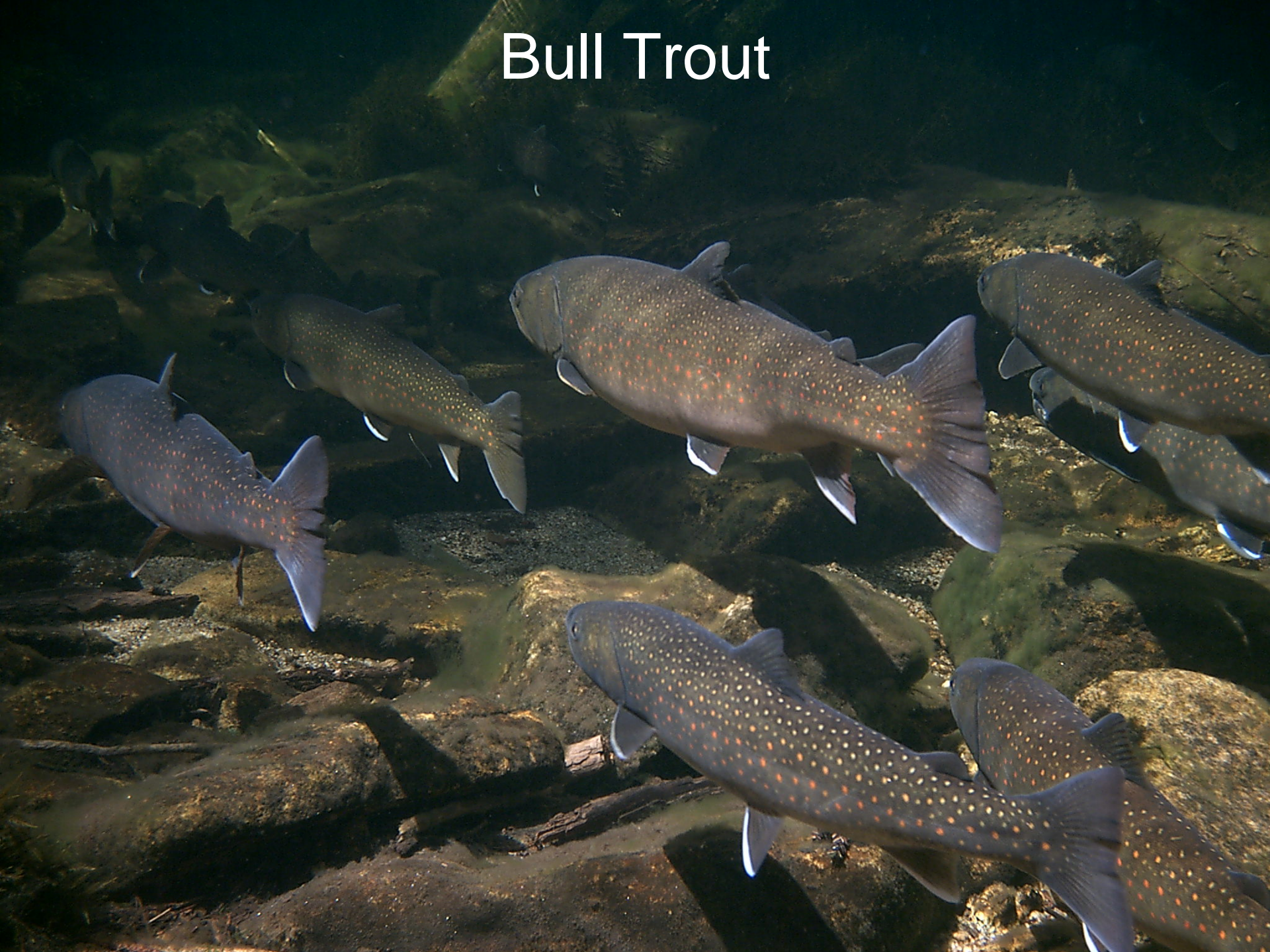


Evidence of Hatchery-Origin Reproductive Success: Teanaway R. Spring Chinook

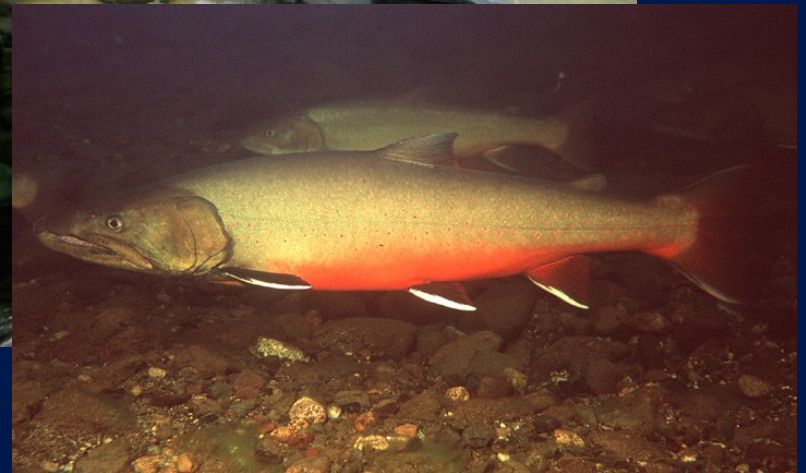


- pre-supplementation average: 3
- post-supplementation average: 75

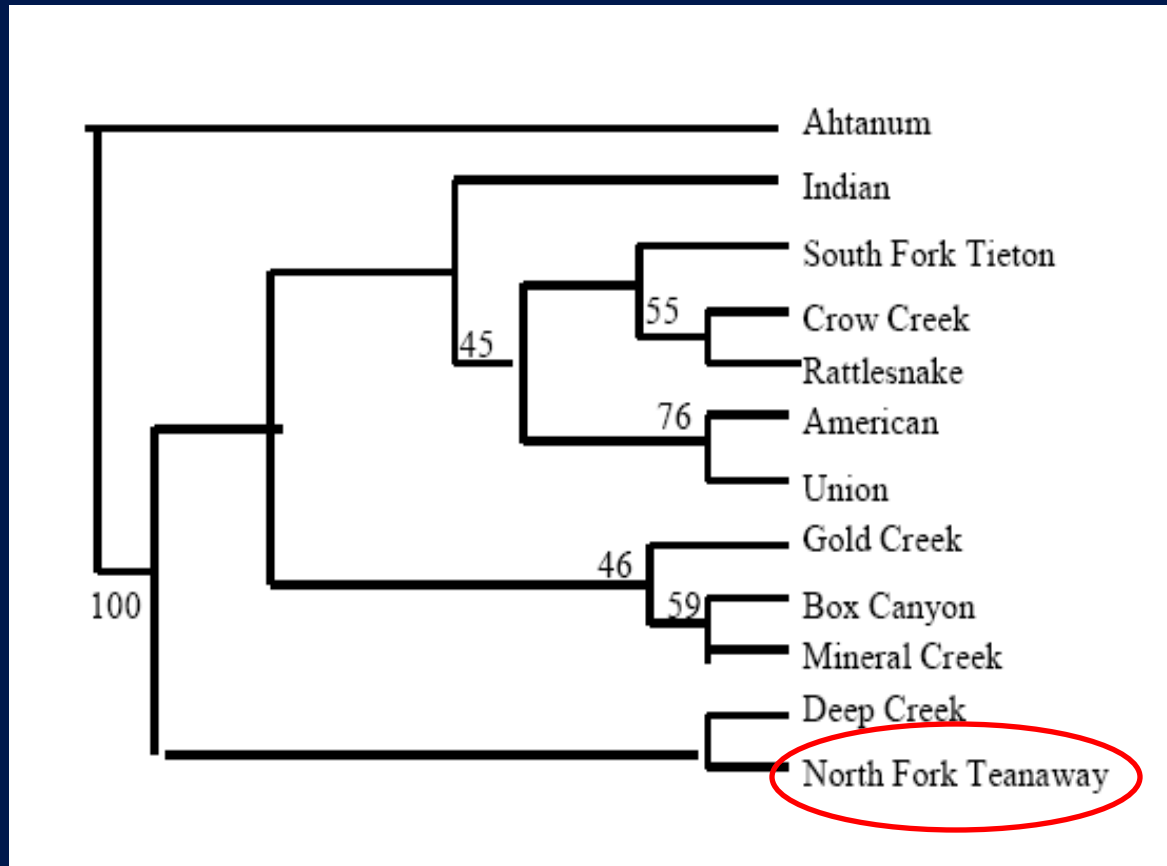
Bull Trout



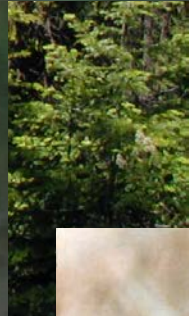
BullTrout Habitat



Teanaway Bull Trout Genetics



Large Forested Landscape

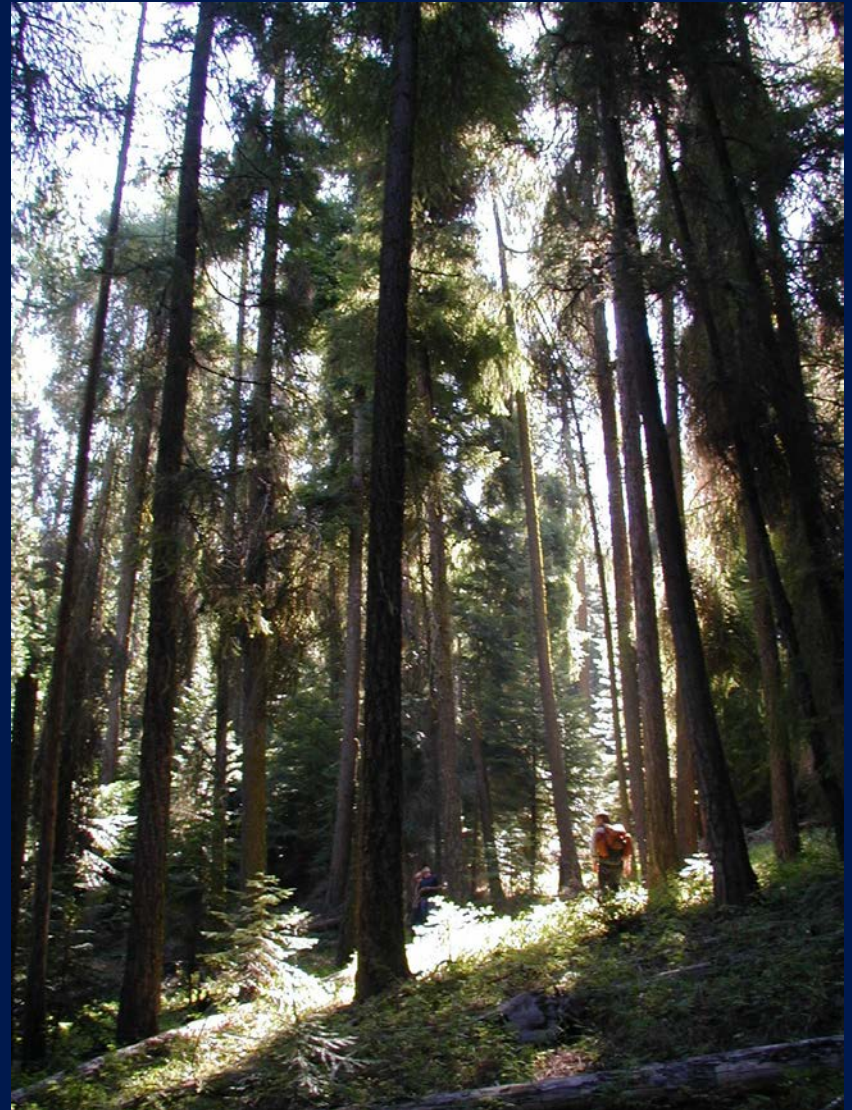


Spotted Owl Recovery Plan

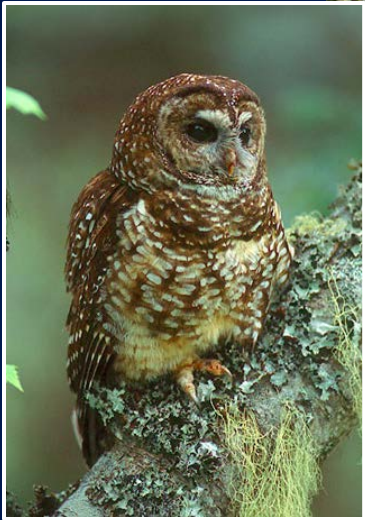
U.S. Fish & Wildlife Service

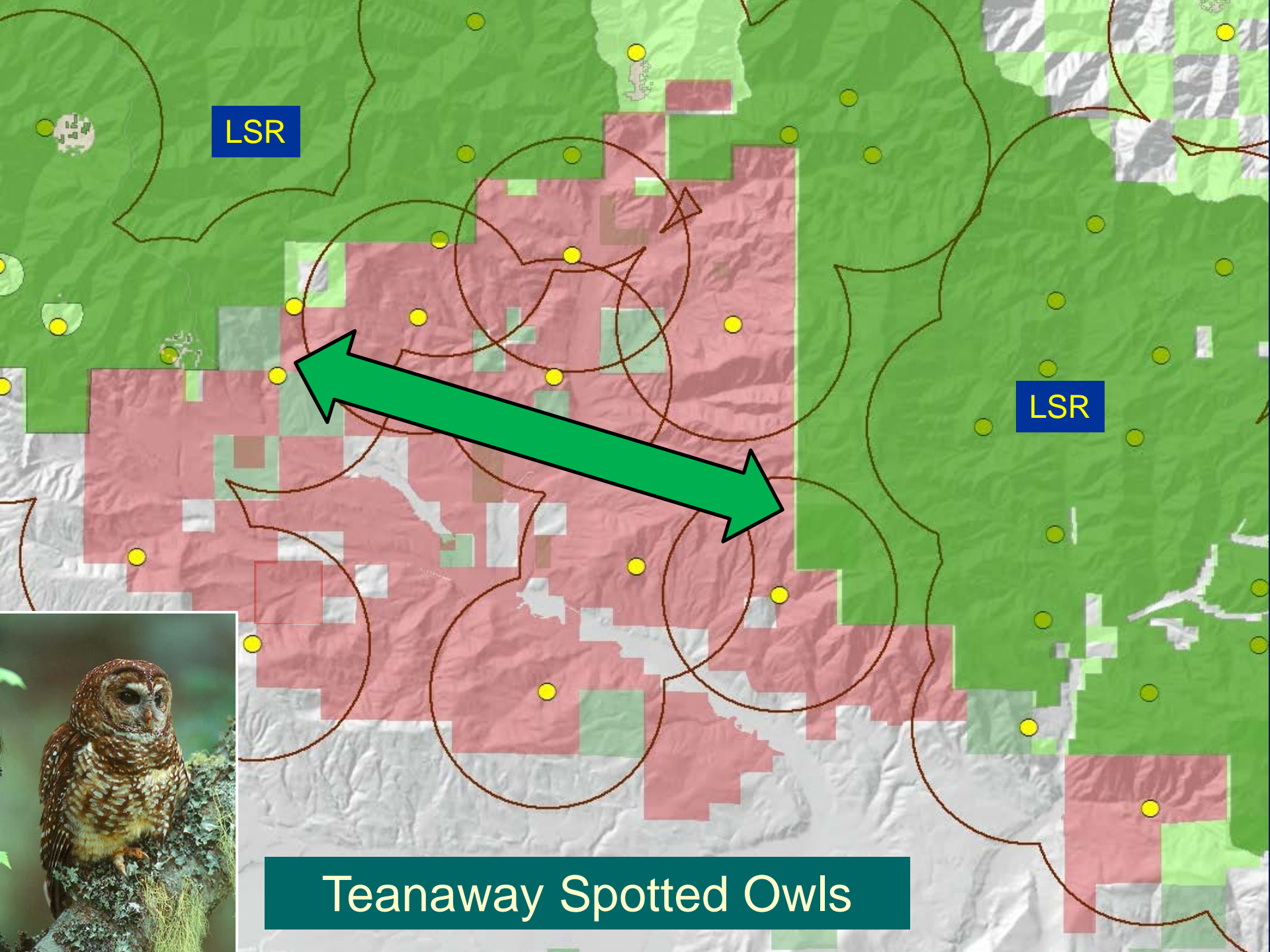
Recovery Plan for the Northern Spotted Owl

(Strix occidentalis caurina)



Teanaway
Provides important
East side
Spotted owl
Habitat





LSR

LSR



Teanaway Spotted Owls

Spotted Owl Decline in the Teanaway region

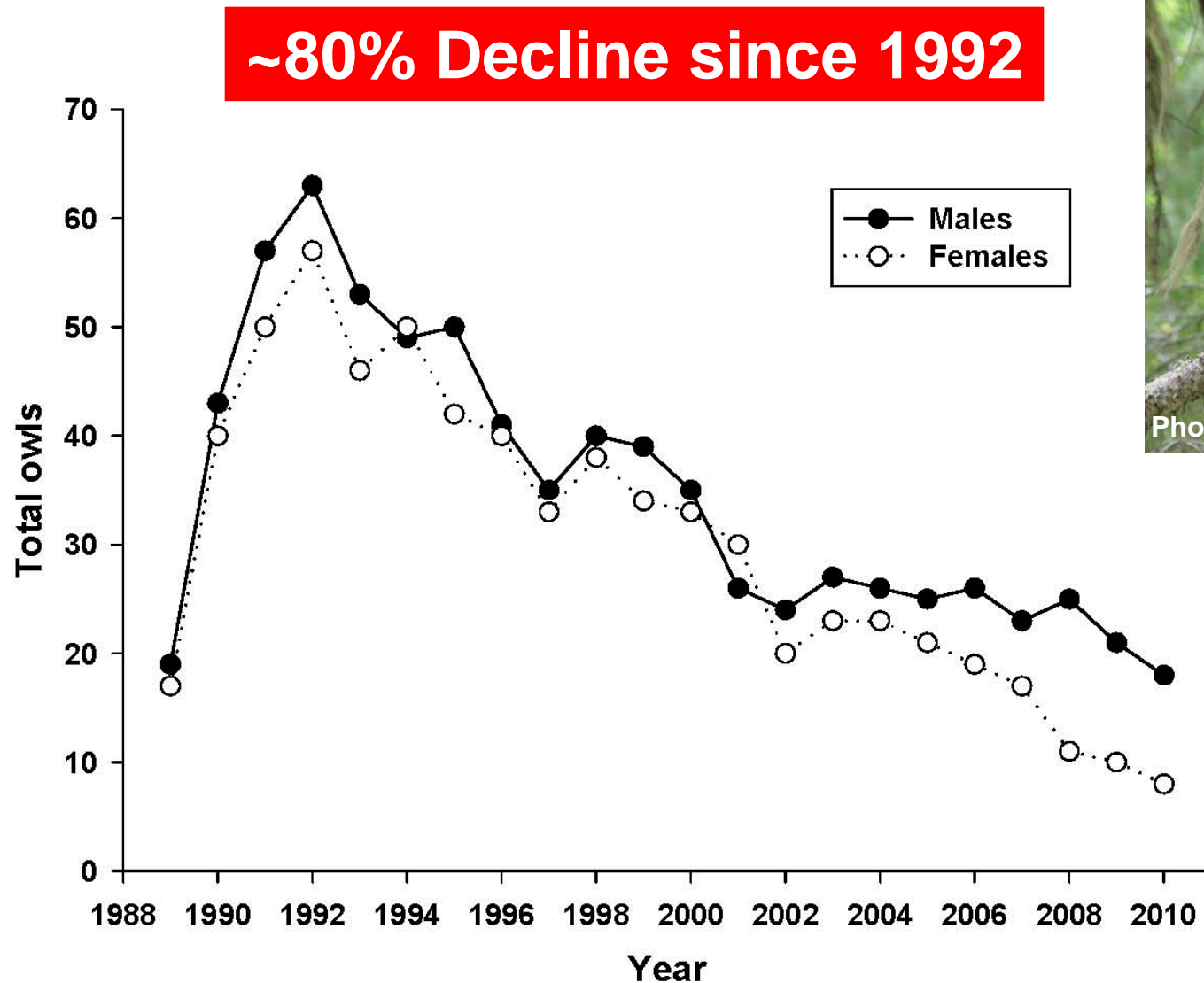


Figure 5. Number of male and female Spotted Owls detected by year on the Cle Elum Study Area, Okanogan-Wenatchee National Forest, Washington, 1989-2010.

Large predators

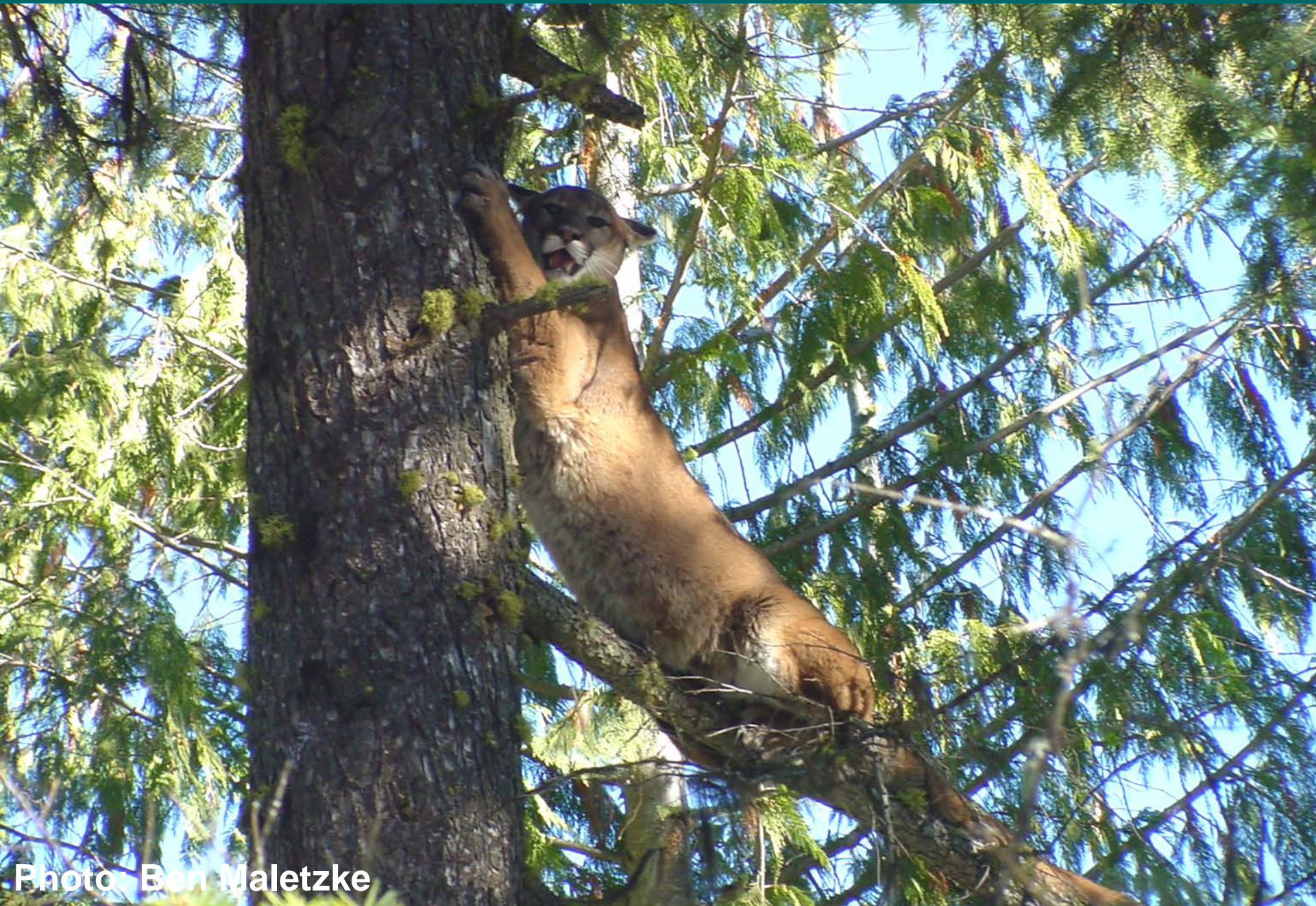
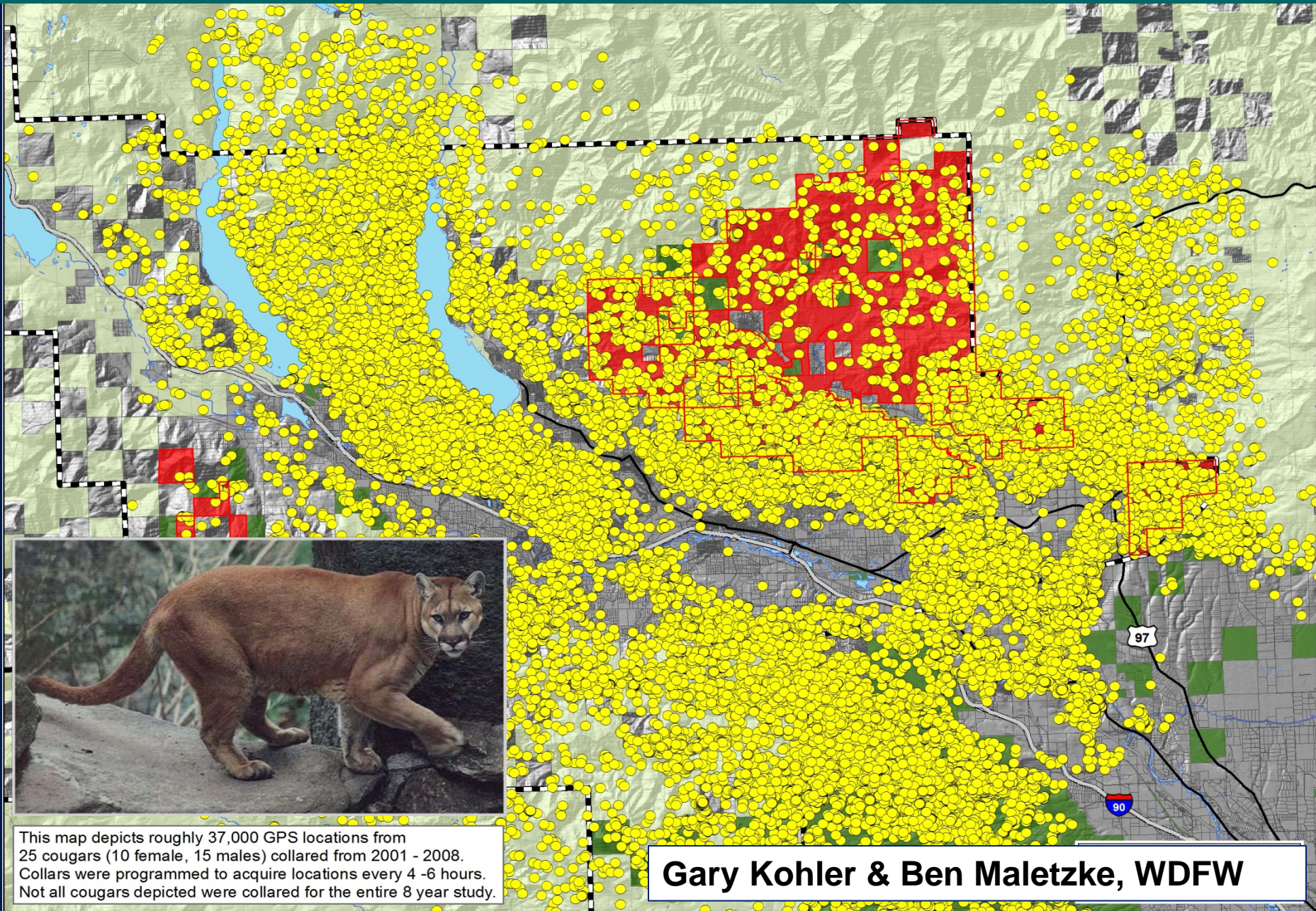


Photo: Ben Maletzke

Cougar Locations



This map depicts roughly 37,000 GPS locations from 25 cougars (10 female, 15 males) collared from 2001 - 2008. Collars were programmed to acquire locations every 4 -6 hours. Not all cougars depicted were collared for the entire 8 year study.

Gary Kohler & Ben Maletzke, WDFW

Project CAT



Project C.A.T.

Biological Value

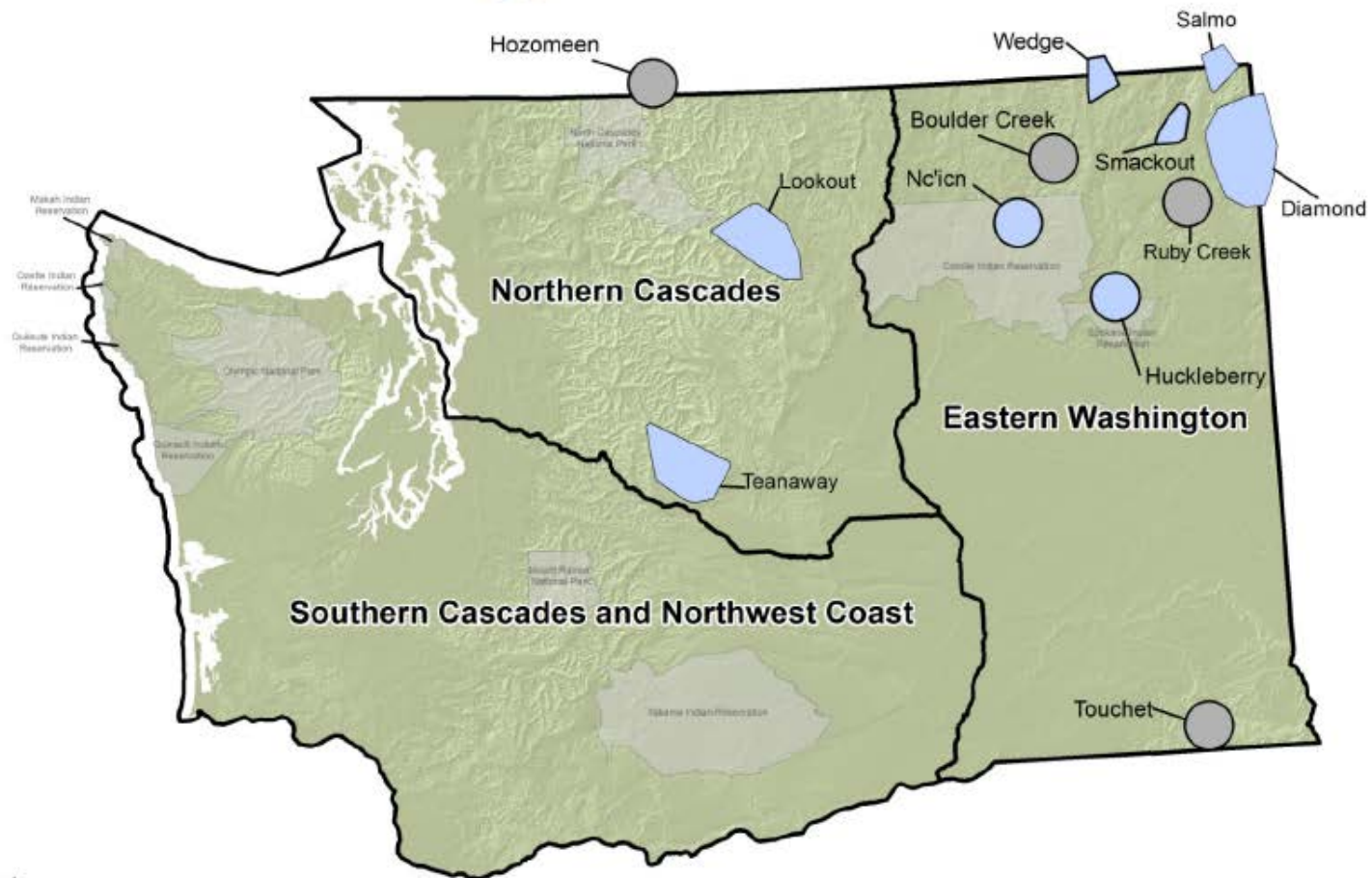


Teanaway Wolf Pack






Teanaway Alpha Female

Washington Wolf Packs



Legend

-  Confirmed pack*
-  Suspected pack**
-  Wolf Recovery Region

*Packs represented by polygons are packs with collared wolves and the polygon is the estimated pack range. Packs represented by circles are packs without collared wolves and the circle is a generic representation of the pack location.

**Suspected wolf packs are based on WDFW confirmed wolf activity at a level that is consistent with the existence of a pack.

Approximate
Gray Wolf
home range

Teanaway River

N

Interstate 90

Legend:



Gray Wolves



Grizzly Bear



Geographic Envelope



I-90 Wildlife Bridges (Major)



Other Wildlife movement zones



Recreation



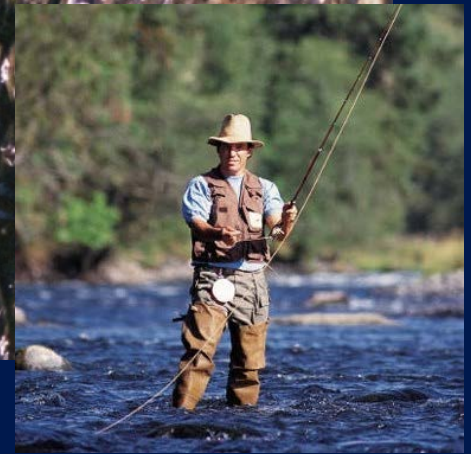
Birding



Hunting



Fishing



Native cutthroat

Horseback Riding and Hiking







Recreation - 29 Pines Campground



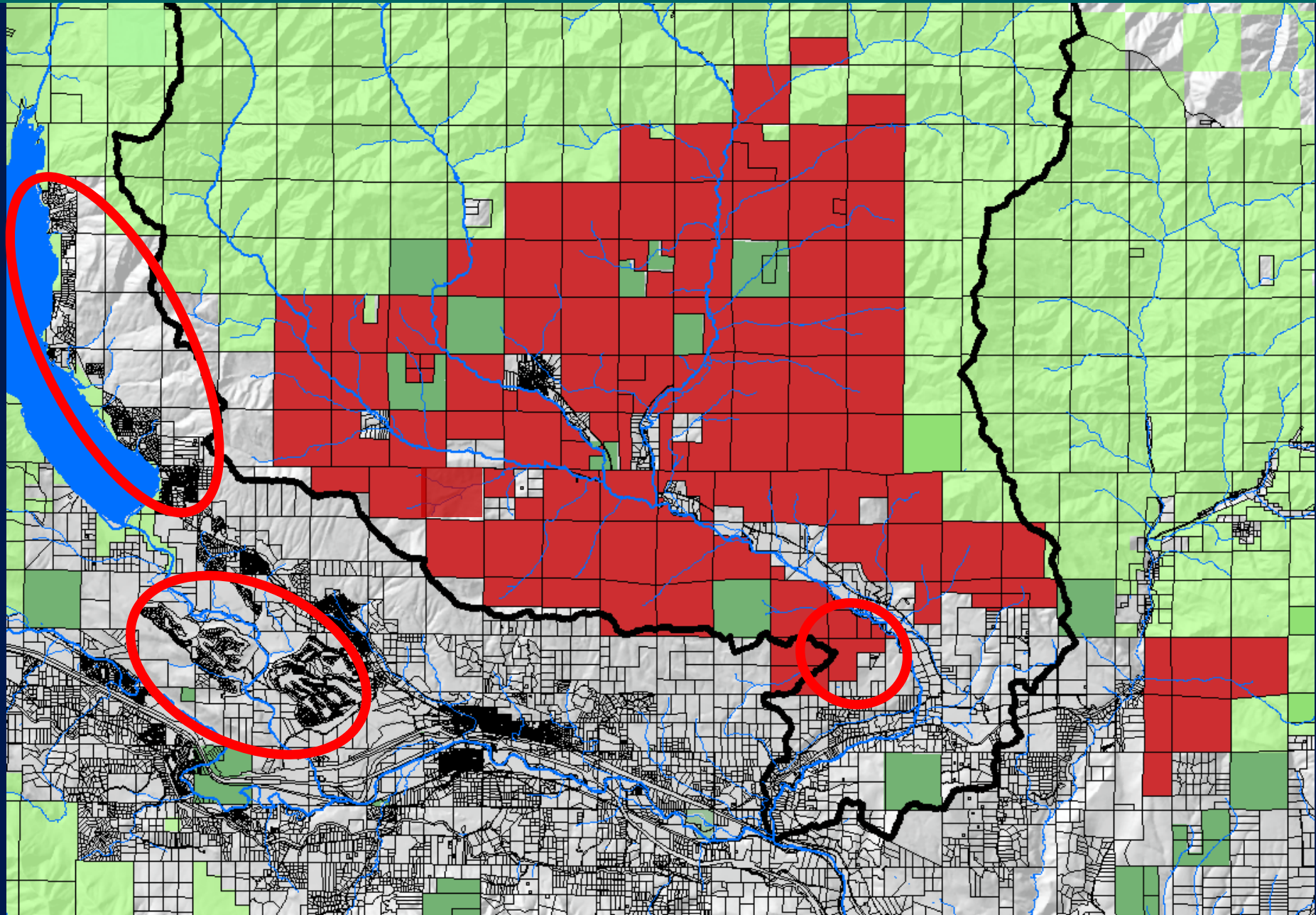
Development Threat



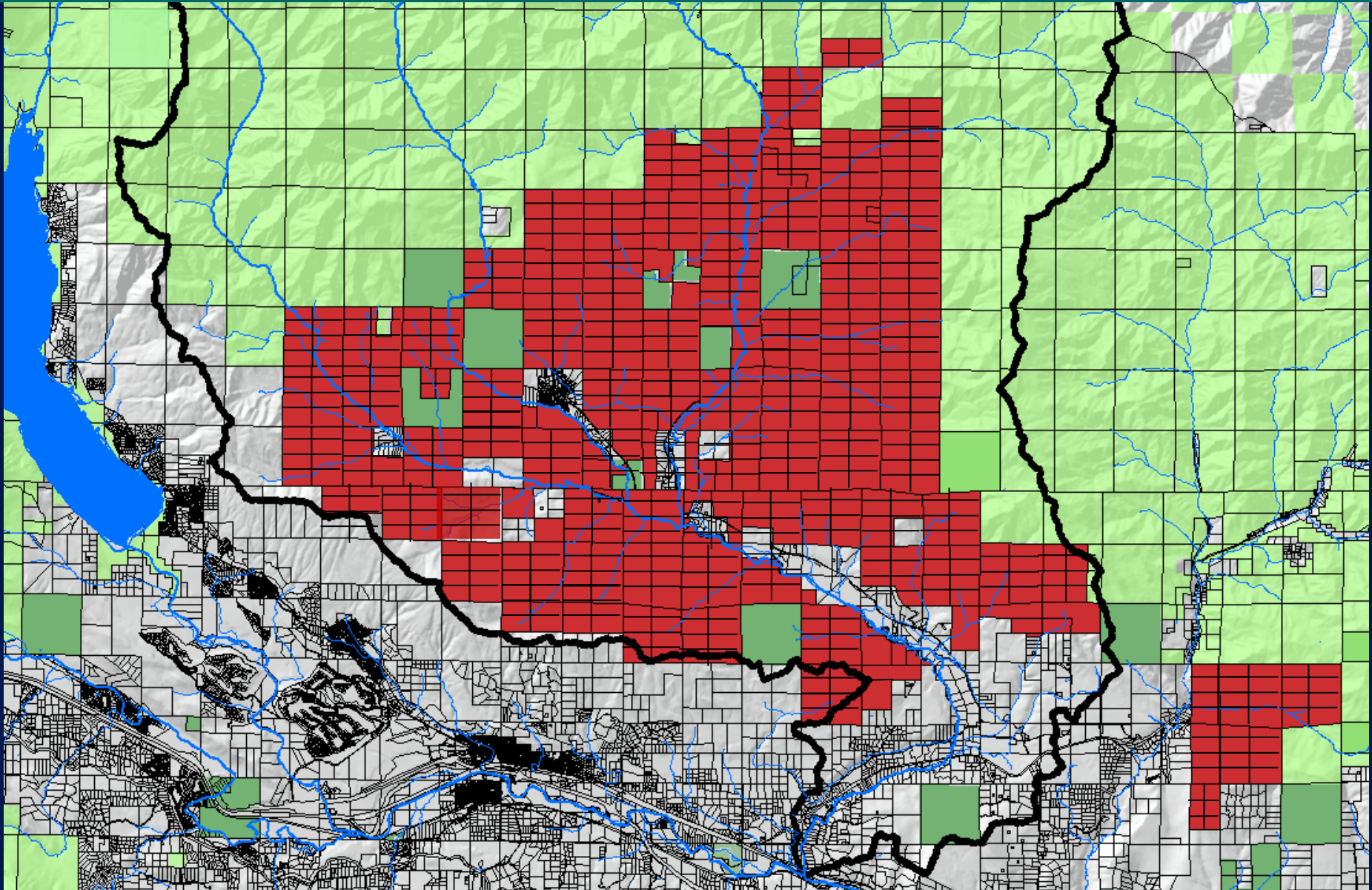
Development Threat



Development Threat

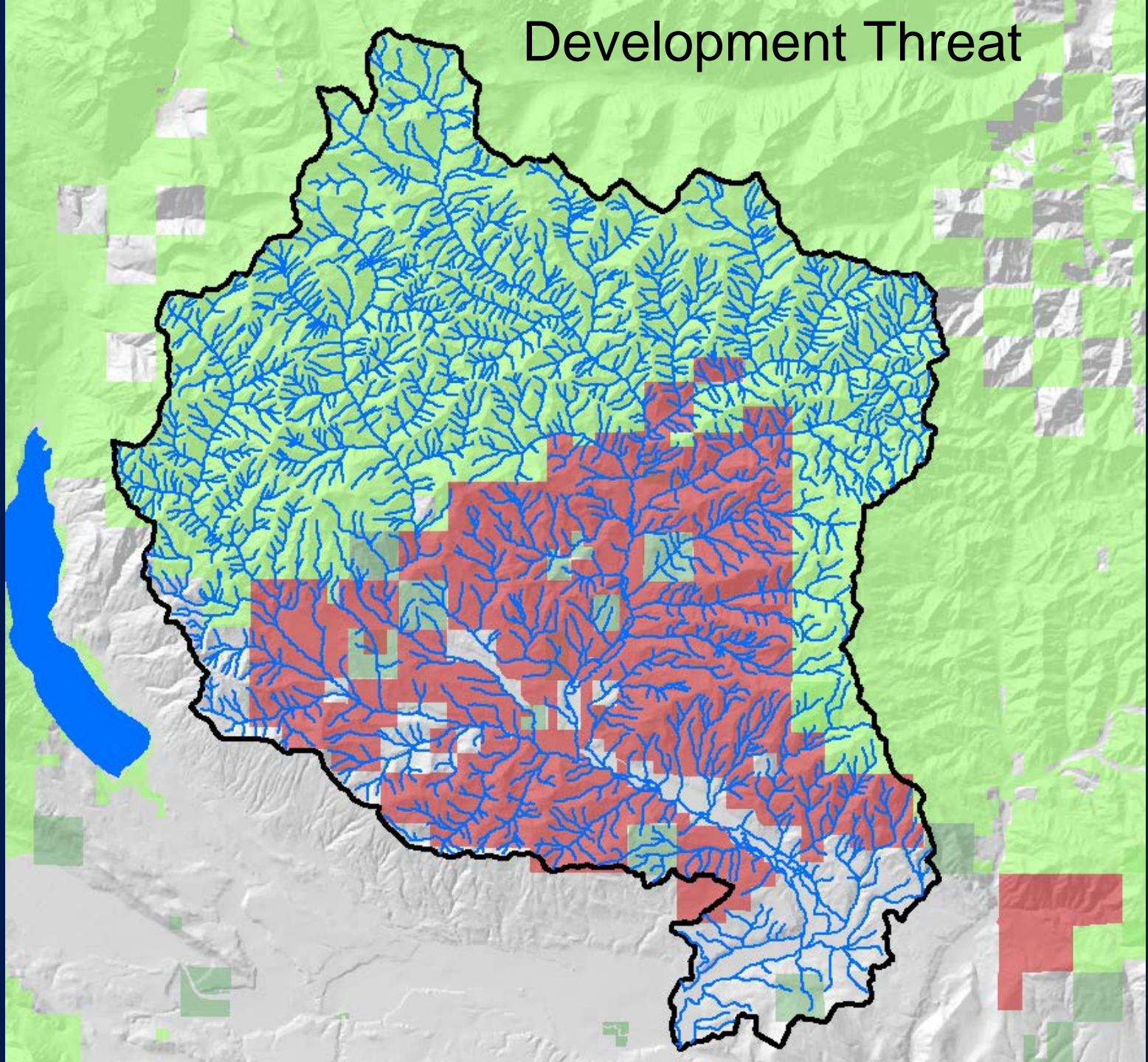


Development Threat



Potential lots under current zoning!

Development Threat



Development Threats



FOR SALE
RE/MAX Eastside Brokers
Robert F. Sluder
800-735-1348
Acreage & Homes/Cabins
Cell Phones:
206-235-7714 or 509-899-1836
www.nwhouses.com
www.cowboysandguns.com
E-Mail: bob@nwhouses.com

Teanaway



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4. Begin appraisal of potential projects to transfer water from the Columbia River to the Yakima Basin.

Groundwater Storage

1. Construct pilot projects to evaluate recharging shallow aquifers via groundwater infiltration. Full scale implementation may follow.
2. Build an aquifer storage and recovery facility allowing Yakima City to withdraw water from the Naches River during high flow periods and store it underground for use during low flow periods.

Conservation Value

<p>Cascade Lakes (57e) Jackson Creek (99w) Middle Wenatchee (9e) Mount Hood - East (41e) Mount Hood - West (47w) Mt. Bailey (95w) Mt. Thielsen - West (94w) Mt. Washington - East (49e) Salt Creek (81w) Upper Cowlitz River (19w)</p>	<p>Big Valley North (118e) Blue River (70w) Columbia Gorge - West (44w) Climax Peak (101w) Mt. Thielsen - East (63e) North Sprague (75e) Purcell Slough (22w) Rogue River Headwaters (97w) South St Helens (33w) White River (43e)</p>	<p>Antelope Creek - Cascades (100w) Big Butte Creek (104w) Columbia Gorge - East (34e) Cowitch Riffe Lake (29e) Eightmile Creek (39e) Jack Creek (62e) Little River (92w) Lower Lewis River (36w) Metolish River (46e) Middle South Umpqua (100w) Mt. Jefferson - East (47e) Rock Creek (North Umpqua) (88w) Soda Mtn / Jenny Creek (89e) South Fork and Lower McKenzie (72w) Teanaway River (14e) Thorn Lake (143e) Tison Headwaters (19w) Upper Willamson (67e) Warner Foothills (90e) West Fork Hood River (37e)</p>	<p>Blue House (104e) Big Valley (108e) Brewer Ridge (9e) Cowlitz River - West (97w) Cypress Butte (7e) Fall River (73e) Gardiner Valley (139e) Hood River (106e) Lower Lewis River (39e) Lower Willamette (114e) Middle Sprague (78e) Mud Creek Fork (29e) Olsen Island (88e) Oregon Creek (91e) Pine Valley / Heston (87e) Rogues (96e) Sawtooth Creek - Cascades (139e) Sawtooth Creek (24e) Upper Dry Creek (81e) Upper Fossilburg River (108e) Wabun Creek (107e)</p>
<p>Chelan (2e) Crater Lake - East (92e) Crater Lake - West (96w) Diamond Peak (58e) Hat Creek (130e) Icicle Creek (11e) Little Naches Headwaters (19e) Little White Salmon River (32e) Naches River / Rattlesnake Creek (20e) Roaring River / Oak Grove Fork Clackamas (49w) Sky Lakes - East (76e) Three Sisters - East (52e) Three Sisters - West (73w) Upper Middle Fork Willamette (86w) Upper Sycan River (72e) Upper Wenatchee (6e)</p>	<p>Adobe Flat (125e) Aggregate Flats (70e) Bull of the Woods (53w) Columbia Gorge - Collins Cr. (42w) Crescent Creek (60e) East Fork Lewis Headwaters (39w) Fall Creek (74w) I.T. Murray (11e) Middle North Umpqua (90w) Rock Creek (40w) Steamboat and Canton Creeks (87w) Upper Clackamas (52e) Upper McKenzie (69w) White Salmon River (20e)</p>	<p>Badger Creek (42e) Carbon River (9w) Columbia Rocky Reach (10e) Elk Trail Foothills (102w) Kiona Creek (21w) Little Butte Creek - Cascades (105w) Lower Alkali Lake (121e) Lower Ash and Willow Creeks (127e) Lower Klickitat River (33e) Middle Fork Willamette (77w) Sandy River - Cascades (49w) South Sprague (80e) Upper Deschutes (54e) Upper Nasqually River (16w) Warner Mountains (82e)</p>	<p>Brewer Creek (44e) Coast Fork Willamette (70w) Horse Rock Ridge (60w) Middle Klickitat River (23e) Middle Upper Klamath River (66e) Oak Bay / AM Creek (46e) Pt River (139e) Pt River Confluence (110e) Snow Peak / Thomas Creek (58e) Spencer Creek (94e) Three Creek / Tumalo (51e) Upper Calapooia Creek (89w) Upper Rock Creek (31e) Upper Trappena Creek (26e) Warm Springs River (45e)</p>
<p>Bull Run (45w) Chiwawa River (4e) Cispus River (25w) Lower Cispus Tributaries (27w) Mt. Rainier (12w) Mt. Adams - West (28w) Mt. Bachelor (53e) Mt. Jefferson - West (60w) Sky Lakes - West (103w) Sycan Marsh (68e) Tieton (21e) Upper Lewis River (31w) Upper North Umpqua (91w) Upper South Umpqua (96w) Waldo Lake (78w)</p>	<p>Badger Basin / Willow Creek (108e) Entiat River (8e) Fifteenmile Creek (40e) Gerber (85e) Goose Lake West Shore (103e) Hat Creek Rim (135e) Klamath Marsh (65e) Lost Creek (140e) Lower Klamath Lake (88e) Lower Sprague (77e) Lower Sycan River (73e) Mt. Adams - East (26e) Newberry / Paulina (55e) North Fork Pt River (115e) Salmon - Huckleberry (48w) Upper Little Deschutes (61e) Upper Yakima (13e) Wind River (37w)</p>	<p>Eagle Lake (142e) Lower Wenatchee (12e) Naneum Ridge (15e) Row River / Mt. June (79w) South Santiam (64w) Touffie Green River (26w) Upper Ash Creek (129e) Upper Chewaucan (74e) Upper Klamath Lake (70e) Washington River (43w) Wardson Creek (24w) Winter Rim (69e)</p>	<p>Deschutes (WA) (14w) Drews Creek (86e) Indian Ford Creek (50e) Issaquah Creek (1w) Little Klickitat River (30e) Lower South Fork Pt River (119e) Mashel / Ohop (11w) Middle Alkali Lake (117e) Middle North Santiam (57w) Newakum Headwaters (17w) Upper and Abasco Creeks (54w) Swan Lake (81e) Upper Calapooia River (69w) Upper Molalla (50w)</p>
<p>Ancient Tule Lake (101e) Black Canyon (3e) Boles / Fletcher Creek (104e) Boulder Creek (89w) Breitenbush River (50w) Butte Valley (102e) Clear Lake (106e) Cowlitz Headwaters (15w) Egg Lake (113e) Goose Lake (97e) Lava Beds (107e) Medicine Lake (114e) Mt. Washington - West (67w) Muddy River Tributaries (30w) Rattlesnake Creek (109e) Round Mountain (110e) Sand Springs (66e) Smoke Creek (137e) Stehekin River (1e) Touffie St Helens (29w) Upper Lost River (82e) Whitehorse Flat (120e)</p>	<p>Antelope and Butte Creeks (111e) Antone Creek (5e) Ball Mountain (99e) Big Valley South (132e) Blowout Cr. / Coopers Ridge (59w) Fairview Peak (84w) Hills Creek (62e) Horse Lake (138e) Middle Ash Creek (122e) Middle Lewis River (35w) Middle Santiam (62w) Middle South Fork Pt River (129e) North Fork Middle Fork Willamette (76w) North Fork Willow Creek (96e) Opal Creek (55w) Pine Creek (141e) Upper Cedar River (3w) Upper South Fork Pt River (123e) Upper Wenas Creek (19e) Upper White River (8w) Whalehead Ridge (20w)</p>	<p>Ahtanum / Cowiche (22e) Cleanwater (7w) Crabtree Creek and Mtn (61w) Goose Lake East Shore (100e) Horse Creek (134e) Howard Hanson (5w) Kanaskat (4e) Klickitat Headwaters (23e) Madeline Plains West (131e) Mohawk / McGowan Creek (71w) Raging River (2w) Swauk Creek (16e) Thompson (64e) Twelvemile Creek (94e) Warm Springs Valley (112e)</p>	<p>Butte Creek (51w) Coweman River (32w) Dry Pine (59e) East Fork Lewis River (38w) Kallama River (34w) McDowell Creek (63w) Mosby Creek (89e) Satus Headwaters (27e) Thomas Creek (83e) Upper Alkali Lake (105e) Upper Coast Fork Willamette (83w) Wiley Creek (65w)</p>

Vulnerability

Map 9.1, Table 1: Integrated Portfolio Sites by Relative Importance



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This table identifies the automated relative importance of 250 integrated portfolio sites across the East and West Cascade Ecoregions using criteria for measuring conservation value and vulnerability as depicted in Map 9.1. We based conservation value on irreplaceability measures, one of the Marxan model outputs. Vulnerability was based on the suitability index which was an input to the model.

Portfolio sites are sorted in the table according to factors important for biodiversity value as well as those that pose threats. The site names are listed according to their relative ranking, followed by the index number and "e" or "w" for East Cascades or West Cascades Ecoregion for ease of reference to Map 9.1.