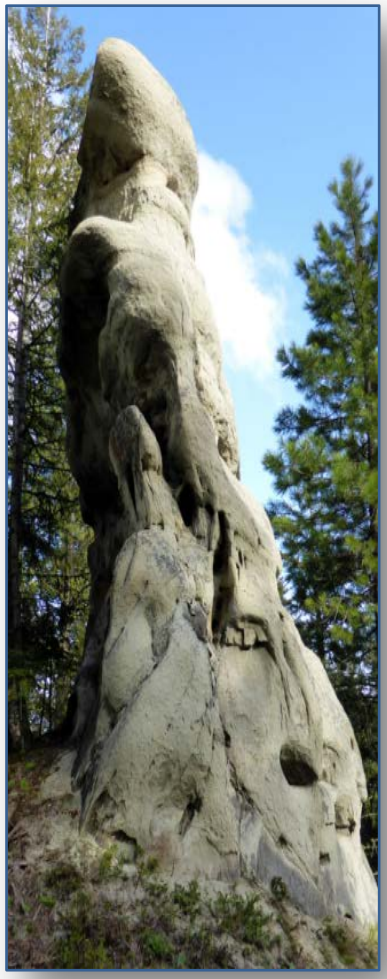
Department of Natural Resources
Department of Fish & Wildlife

TEANAWAY COMMUNITY FOREST COMMITTEE TOUR

May 8, 2014



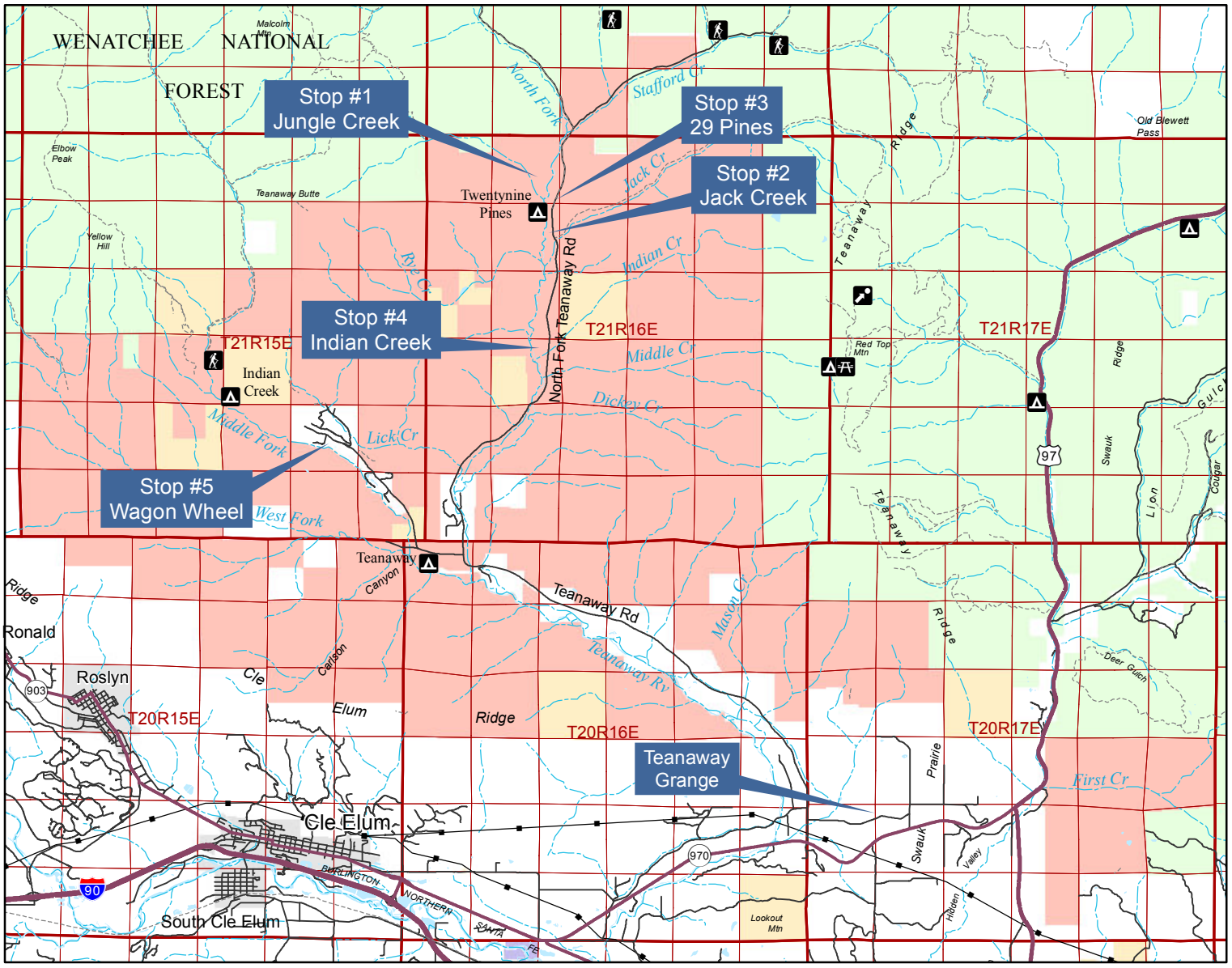
WASHINGTON STATE DEPARTMENT OF Natural Resources

Washington Department of FISH and WILDLIFE

TOUR AGENDA

Location	Topic and Issues	Speaker	Time
Teanaway Grange	Meet, drive to first location.		8:45 - 9am
Jungle Creek	Culvert replacement project - Roads: RMAP	Nick Jones, DNR	9:30 – 10am
	- Watershed health: fish barriers	Jim Matthews, YN; William Meyer, WDFW	10 – 10:20am
Jack Creek	Road relocation project - Project purpose and description	Rebecca Wassell, MCFEG; Anna Lael, KCCD	10:30 – 10:45am
	- Floodplain restoration and connectivity to the river	Tom Ring, YN	10:45 – 11:05am
	- Fish habitat requirements	Jim Matthews, YN; William Meyer, WDFW	11:05 – 11:30am
	- Grazing	Bill Oakes, DNR; Jeff Burnham, WDFW; Sam Kayser	11:30am - 12:10pm
29 Pines (lunch will be provided)	Campground and nearby vicinity - Recreation & Campgrounds	Larry Leach, DNR; Gary Margheim, DNR;	12:20 – 12:50pm
	- Law enforcement - Recreation Permits	Gary Margheim, DNR; Richard Mann, WDFW	12:50 – 1pm
	- Fish recovery efforts (acclimation site)	Dave Fast, YN	1– 1:15pm
	- Invasive plant spread and control	Bill Oakes, DNR	1:15 – 1:30pm
Indian Creek	Meadow restoration project and working landscapes – walk 10 minutes to site - Spotted owls - Forestry - Forests and Wildlife	Stan Sovern, USFS; Larry Leach, DNR	1:50 – 2:30pm
	- Big game and large carnivores	Scott McCorquodale, WDFW; Ben Maletzke, WDFW	2:30 – 2:45pm
	- Cattle and wildlife interactions	Bill Oakes, DNR	2:45 – 2:55pm
	- Floodplain restoration	Scott Nicolai, YN; Tom Ring, YN	2:55 – 3:10 pm
Wagon Wheel	Drive up Middle Teanaway to Wagon Wheel - Fire risk and fuels management	Matt Eberlein, DNR	3:30 – 4pm
Teanaway Grange	Drive back to the Teanaway Grange for Advisory Committee Meeting		4 – 4:30pm

Tour Stops



Teanaway Community Forest
US Forest Service
Washington Dept. of Natural Resources
Washington Dept. of Fish & Wildlife

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TEANAWAY COMMUNITY FOREST

The Teanaway Community Forest is a 50,272-acre forest situated at the headwaters of the Yakima Basin watershed. The forest will be managed through a partnership between Washington state departments of Natural Resources (DNR) and Fish & Wildlife, with input from the local community and interested stakeholders.

DNR designed the community forest model, which was approved by state lawmakers in 2011. The model is a tool to involve local citizens in protecting working forests that support healthy communities through grazing, forestry, recreation, and conservation.

The Teanaway property was identified as part of the Yakima Basin Integrated Plan as an area of importance to safeguard the Yakima Basin water supply and associated habitat, and to support the economy by preserving working lands and enhancing recreation opportunities. The Basin Plan was developed by a coalition of public and private organizations committed to increasing the quantity and quality of the water in the Yakima River Basin.

Historic Teanaway Photos

Contact Information for Tour Presenters

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Matt Eberlein, Department of Natural Resources
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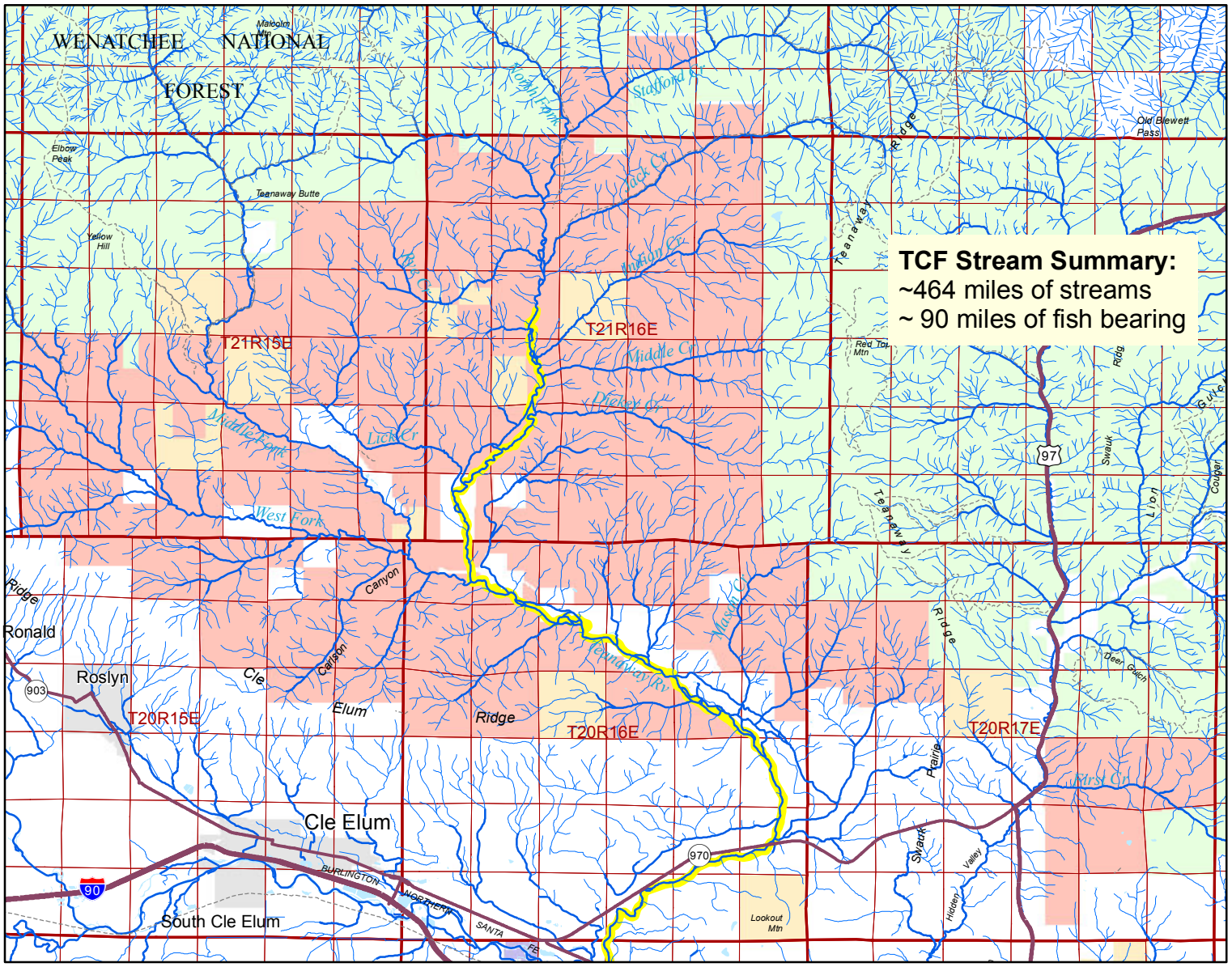
Fish Streams & Spring Chinook Spawning Areas



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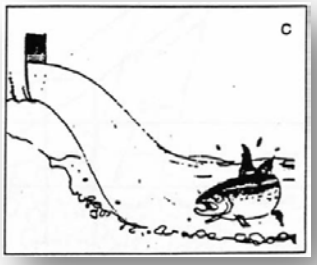
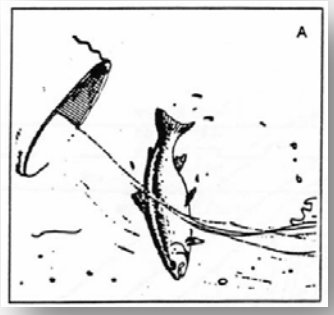




Adapted from Powers and Osborn 1985

CULVERTS AND OTHER ROAD CROSSING STRUCTURES IN THE TEANAWAY: WHEN ARE THEY A PROBLEM FOR FISH?

Culverts are the most common stream crossing structure used on forest roads, especially small to medium-sized streams. Culverts can provide a durable crossing structure on streams when properly designed. Unfortunately, many culverts installed years ago were undersized to pass peak flow events and caused barriers to upstream fish migration. Stream crossing structures on the roads in the Teanaway Community Forest are no exception.

What happens when a culvert or other crossing structure is too small for the stream?

- The stream channel is funneled and confined at the stream crossing.
    - Stream velocities are increased
    - Stream channels scour and downcut at the outlet
    - Bedload and debris frequently collect at the inlet
    - Fish barriers develop
    - Channel, bank and/or road prism erosion occurs
    - Culvert is more prone to plugging from debris, bed deposition and/or ice jams
    - The culvert and road prism is at much higher risk of failure during high flow events
    - Undersized culverts don't afford normative stream function, such as beavers, floodplains, or passage of wood and bedload

- Stream and floodplain processes are altered.
    - The stream is forced into a single, higher velocity channel
    - Stream channel downcutting reduces floodplain interaction and water storage
    - Stream downcutting reduces stream sinuosity and side channels for fish habitat

How does a culvert or stream crossing prevent fish passage?

- Scour and downcutting at the outlet cause a vertical drop impassible to fish
- Channel scour below the culvert removes resting and jumping pools
- Increased velocities through the culvert prevent upstream passage
- Thin water depth at low flows prevent passage for fall spawners (bull trout, salmon)
- Aggradation at the inlet creates a steep cascade that prevents upstream passage

Why is fish migration and connectivity important?

- Loss of access to upstream habitat
- Inability to recolonize habitat that has been improved/restored
- Reduced overall amount of habitat available for fish production
- Fragmentation and isolation of fish populations
- Loss of fish sub-populations above barriers after extreme events such as drought, fire and major floods.
- What other benefits are gained with improved stream crossing structures?
- Lower risk of future road failure and loss of access
- Reduced costs to repair road and maintain crossings
- Improved conveyance of woody debris and bedload movement
- Improved floodplain connection and function
- Reduced scour and erosion of road crossings to maintain water quality conditions

Where and how many fish barrier structures exist in the Teanaway Community Forest?

- Several fish barrier culverts are known, but a complete inventory needs to be completed. The WDNR, Yakama Nation and WDFW are assessing the culverts and other stream crossings.
- Some culverts with fish passage problems have already been corrected (e.g. lower Jack, middle Carlson and lower Indian Creek – SEE PHOTOS).
- Other culverts are slated for replacement and improvement for fish passage (e.g. Little Jungle and Downs Creek).
- Other culverts with fish passage problems have been identified (e.g. Lick Creek and tributaries, Middle Creek – SEE PHOTO).
- Culverts and other crossing structures are not static. Continued assessment is needed to identify and correct structures that develop into fish barriers or are prone for failure.

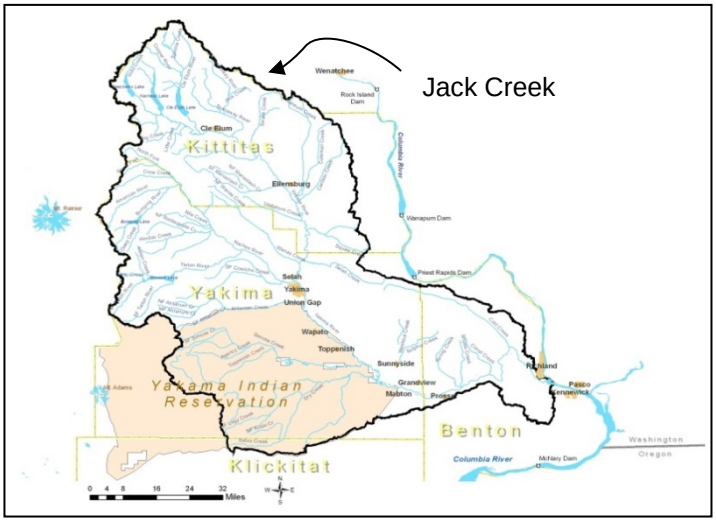
TOUR STOP #2 – JACK CREEK

Project Background

Located in Kittitas County, WA, Jack Creek is a tributary to the North Fork Teanaway River in the Upper Yakima watershed. The creek hosts steelhead trout, Spring Chinook salmon, and resident rainbow and cutthroat trout. It is also designated as Critical Habitat for federally-threatened bull trout.

Decades of beaver trapping, railroad logging, road building, farming and cattle grazing combined to severely degrade Jack Creek's channel and floodplain. The lowest 2.5 miles of the stream, which flow through recently-acquired state-owned land, were directly impaired by FS Road 9738, which paralleled the stream, and by grazing along the stream banks, which prevented the re-establishment of riparian forest.

Jack Creek Restoration Project



FS Road 9738 disrupted floodplain and stream bank function in Jack Creek (ABOVE) prior to its relocation in 2012 (BELOW).

Project Accomplishments

- Relocated 0.9 mile of FS Road 9738 from the banks of Jack Creek to an upslope location and obliterated the old road.
- Placed large wood in the stream channel to prevent avulsion into the old road bed, provide in-stream cover, and trap spawning gravels.
- Installed more than 2 miles of barbed wire fence to exclude cattle from grazing the stream banks and wet meadows.
- Redirected flow from a severely incised reach of stream to a complex, well-vegetated channel.
- Increased the length of wetted channel.
- Planted over 1200 native trees and shrubs along the stream's banks, in the floodplain, and in the footprint of the old road.

Restoration work began in the fall of 2011 with the construction of the new road segments. In August and September of 2012, the old road was obliterated, and channel and floodplain restoration work was completed. Fence construction, planting, and plant maintenance will continue through the summer of 2014.

Funding

$740,000 in project support has come from the USDA Forest Service, the WA Department of Ecology, WA Salmon Recovery Funding Board, US Fish and Wildlife Service, Mid-Columbia Fisheries Enhancement Group, National Forest Foundation, and the Overlake Flyfishers Association.

Project Partners and Contracted Firms
USDA Forest Service, Mid-Columbia Fisheries Enhancement Group, Yakima Tributary Access & Habitat Project, Kittitas County Conservation District, WA Department of Fish and Wildlife, Yakima Basin Fish and Wildlife Recovery Board, AmeriCorps, Washington Conservation Corps, Central Washington University, Yakama Nation, Community volunteers; *Restoration design*: Interfluve, LLC and Herrera, Inc., *Construction*: Belsaas and Smith, *Archaeology:* Reiss-Landreau Research.

Next Steps for Continued Success

Revegetation Management
Ongoing monitoring and management of the revegetated stream banks and floodplain is needed to ensure plant survival.

Fence maintenance
The newly-installed barbed wire fence will require maintenance annually.

Increasing Public Ownership and Support
We will continue to work with the Teanaway Snowmobilers Association to notify recreationists of the changes in the project area, and will install interpretive signs along the road.

Watershed restoration
The Jack Creek Restoration project has made significant strides toward restoration in an important tributary, but most of the Teanaway watershed is impaired. Restoration of wood loading, sediment transport, and floodplain function throughout the Teanaway system will be needed for this system to reach its fish production and water storage potential.

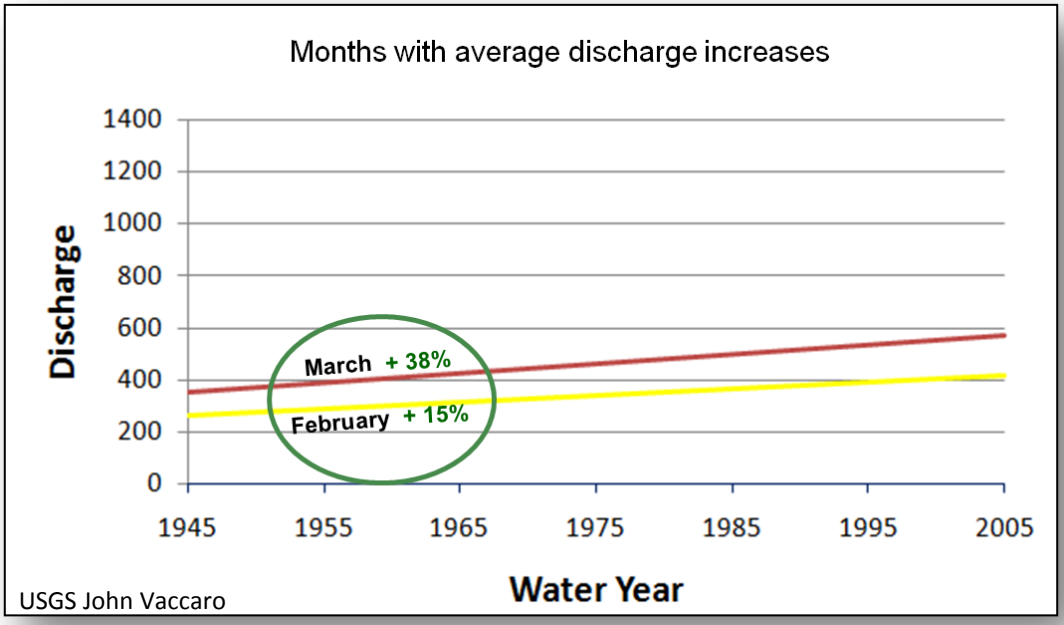
About Mid-Columbia Fisheries Enhancement Group

Mid-Columbia FISHERIES ENHANCEMENT GROUP

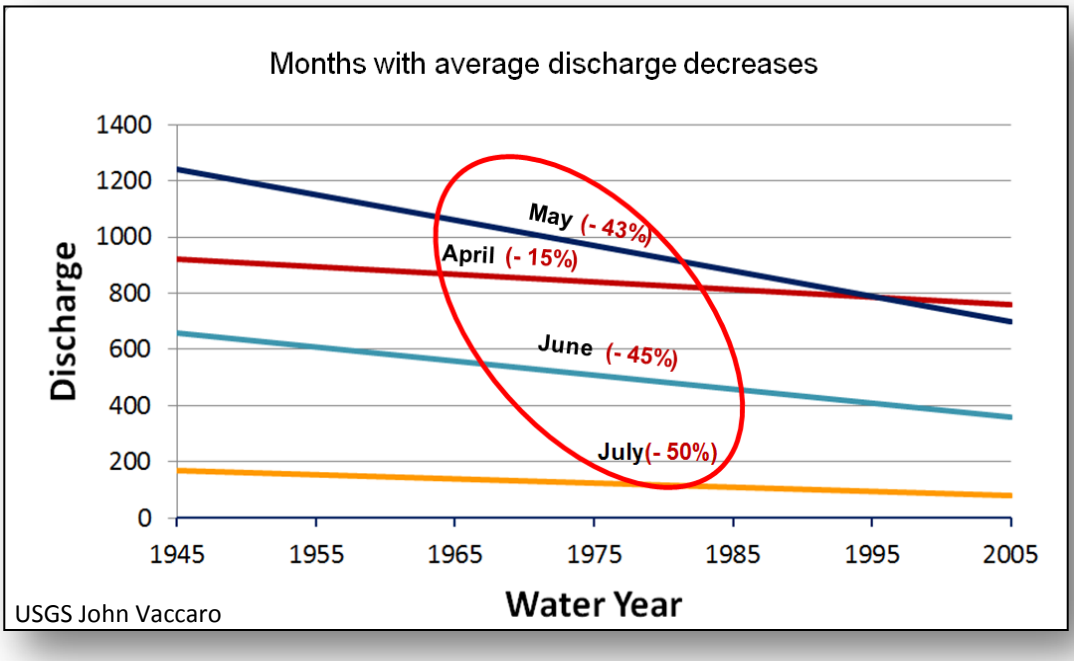
Mid-Columbia Fisheries is a non-profit organization dedicated to restoring self-sustaining populations of salmon, steelhead, and resident native trout. We work in the Yakima River basin, the Klickitat, White Salmon, and Wind Rivers, and smaller tributaries in Skamania, Klickitat, Benton, Yakima, Kittitas and Franklin Counties. We work with willing landowners to implement on-the-ground habitat restoration projects, coordinate with partners on restoration planning, and educate our communities about salmon and watershed health.

Changes in Teanaway River Flows

The runoff is occurring earlier, which means it isn't available later in the hot dry summer



Flow reduced during the irrigation season and fish migration and spawning seasons



FISH HABITAT AND WATER QUALITY IN THE TEANAWAY: WHAT DO FISH NEED?

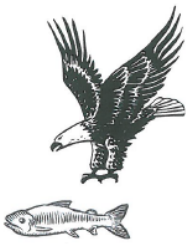
Salmon and trout require quality habitat and water conditions to ensure productive populations. Conditions need to support all life history stages including spawning, egg and fry development, juvenile rearing, adult migration and holding. Deficient habitat conditions for one or several life history stages will limit overall salmonid productivity in a watershed. Habitat requirements for salmon and trout can be generally summarized into the "Four C's": Cold, Clean, Complex and Connected.

•Cold

- Salmon and trout need relatively cold waters for survival and productivity.
- Warmer water temperatures increase the likelihood of disease and parasites
- Warmer water temperatures increase respiration, oxygen demand and metabolic rates
- Warmer water temperatures stress fish and decrease swimming speed duration
- Stream temperatures can be elevated by reduced flows (e.g. loss of ground water storage and output, or irrigation withdrawals)
- Stream temperatures can be moderated or kept cooler with adequate riparian vegetation to reduce solar input and heating
- Stream temperatures can be moderated with greater groundwater storage and release into the system (e.g. maintaining floodplain storage and connectivity)
- Generally preferred temperatures for salmonids are:
    - Less than 61^{o} F for salmon, steelhead and rainbow tout rearing and holding
    - Less than 55^{o}F for salmon, steelhead and rainbow trout spawning
    - Less than 57^{o}F for cutthroat trout rearing and holding
    - Less than 55^{o}F for bull trout rearing and holding
    - Less than 50^{o}F for bull trout spawning
- Summer water temperatures in some areas of the Teanaway are excessively warm (past monitoring found summer maximums approaching 80^{o}F near the forks of the Teanaway).

- **Clean**
    - Clean water is vital for spawning, egg incubation, alevin development, rearing and feeding
    - Fine sediment deposition suffocates developing eggs and entombs alevins
    - Fine sediment delivery causes gill abrasion
    - Fine sediment delivery reduces feeding and foraging
    - Fine sediment delivery fills and reduces pool habitat
    - Fine sediment delivery fills interstitial spaces and reduces macroinvertebrate (food) production
    - The Teanaway watershed has notable fine sediment delivery due to past management, roads, loss of riparian vegetation, stream bank and channel erosion, and erodible geology

- **Complex**
  - Complex habitat conditions are essential for most life history stages of fish
  - Complex habitat contains:
    - Sufficient quantity of deep pools for rearing, migration holding, predator escapement and velocity refuge
    - Sufficient quantity of riffles for spawning and macroinvertebrate food production
    - Sufficient quantity of obstructions, such as wood and boulders, for overhead cover, velocity refuge and channel stability
    - Sufficient quantity of side channel and low velocity water for juvenile rearing
    - Sufficient riparian vegetation for shading, overhead cover, wood recruitment, bank stability and allochthonous nutrient delivery (litter fall)
    - Sufficient stream sinuosity to moderate channel gradient, flow velocity and bed erosion
    - Good stream interaction across the floodplain to dissipate peak flows, reduce erosion and deposit bedload and sediment
  - In-stream wood helps provide complex habitat through:
    - Overhead cover for shading and to limit predation
    - Velocity refuge from high flows
    - Resistance to channel incision and downcutting
    - Increased channel sinuosity and amount of habitat
    - Increased development of side channel and off channel habitat
    - Retention of spawning gravels
    - Increased pool formation for rearing, holding and migration
    - Increased substrate for macroinvertebrate production
    - Bedload accumulation and trapping for floodplain connectivity



  - Some streams in the Teanaway have little complexity due to heavily incised channels, stream-adjacent roads, scarcity of in-channel wood, limited spawning and pool habitat, and shortage of riparian vegetation.

- **Connectivity**
  - Stream system and floodplain connectivity is critical for good fish production in the Teanaway
  - Disconnected stream reaches reduce access and availability of habitat
  - Disconnected stream reaches prevent genetic mixing and isolate subpopulations
  - Disconnected stream reaches increase the likelihood that subpopulations will be lost during episodic events such as severe drought, fires, landslides or large scale floods.
  - Stream systems and habitat can be disconnected by:
    - Artificial barriers such as culverts prevent access to habitat
    - Entrenched channels with headcuts prevent upstream migration
    - Low flows disconnect fish populations and cause barriers. The Teanaway has experienced extremely low flows in the past from irrigation withdrawals. Stream channel incision and loss of floodplain storage may also be decreasing base flows and disconnecting habitat.
    - High summer temperatures can also cause thermal barriers that prevent upstream migration and habitat use

  - Floodplain connectivity is also important to provide groundwater storage and release, maintain hyporheic flows, create side channel habitat, spread peak flows and velocities, provide areas for riparian vegetation establishment, and retain bedload and retard channel incision.

Range Lands

Nearly everything we value about rangelands depends on these three interrelated attributes:

- *Soil/site stability*
- *Hydrologic (watershed) function*
- *Biotic integrity*

Rangelands and Grazeable Woodlands are defined as “land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, shrubs or trees and is managed as a natural ecosystem.

Range Management is defined as a mixture of science and art in making production use of our rangelands on a sustainable basis depending on societies desires.

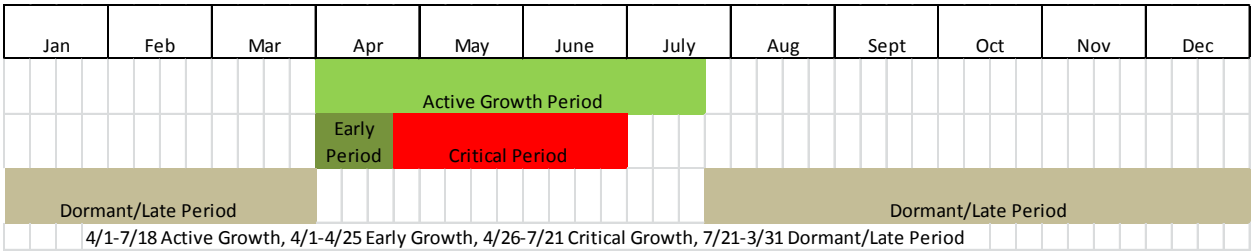
Few Variables to work with in Prescribed Grazing Management:

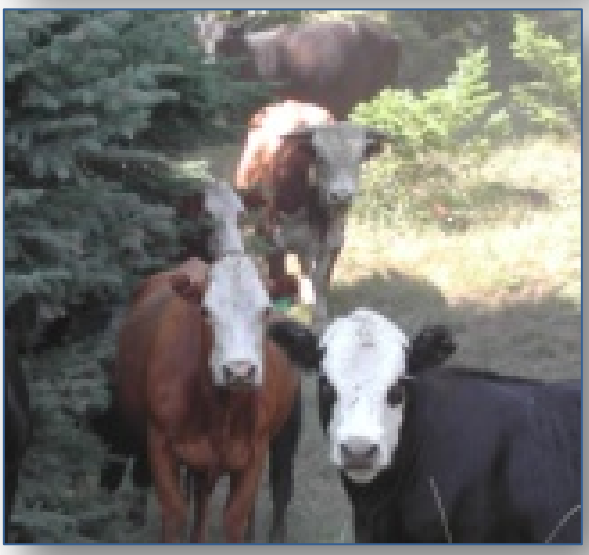
- Time/timing of grazing periods
  - Season of use (when)
  - Duration or length of grazing periods (how long)
  - Frequency/Intensity of grazing periods (how often) – Utilization and Residual
- Space/Area of landscape
- Animal Numbers – stock density and class of livestock
- Rest/Recovery Periods – back to Time/timing

Definitions

- "Carrying capacity" is the acreage required to adequately provide forage for an animal unit (AU) for a specified period without inducing deterioration of vegetation condition or soil.
- Animal unit" (AU) is equal to one cow and her nursing calf or their equivalent.
- An AUM is a measure of the amount of forage one 1,000-pound cow with calf or equivalent will consume during one month of the grazing season. DNR calculates the fees annually.
- AUM = Time x Number of Pairs

The following chart is an example from the Cle Elum area which illustrates the three general grazing periods of forages/key plant species. These periods will vary based on the geographic location, elevation, plant communities and annual climatic weather conditions.





Grazing Objectives:

- Manipulate vegetation
- Accomplish habitat objectives
- Facilitate coordinated resource management.

When permitted, grazing must be consistent with *ecological integrity*, which is the ability of a system to maintain its ecological structure and function within the historic disturbance regime.

Meet Ecosystem Standards (HB1309) for grazing management of streams, riparian areas, rangelands, and grazeable woodlands (RCW 79.13.610). These standards emphasize water quality, bank stability, and intact, diverse vegetation and habitat.

Tools for Managing Riparian Grazing:

- Fencing, herding
- Off-stream water, salt/low-moisture blocks, seeding, timber harvest/thinning
- Uplands need to be attractive places for livestock
- Adjust time, duration, and frequency of grazing
- Permittee/lessee involvement in designing objectives and conducting monitoring

Open Range?

Teanaway Community Forest is not located within a stock restricted zone, thus open range law applies. EXCEPT: written permission is always required to graze livestock on any state or federal land, and livestock cannot run unattended on public roads (RCW 16.24.065).

A Brief Teanaway Grazing History

The Teanaway Community Forest has a long history of livestock grazing, dating from settlement. There were several homesteads on the main stem, North Fork, Middle Fork and West Fork dating from the 1880's.

It is reasonable to assume that the homesteads were livestock oriented since the non-forest, arable grasslands adjacent to the main stem and tributaries were used for hay production and pasture. These uses continue.

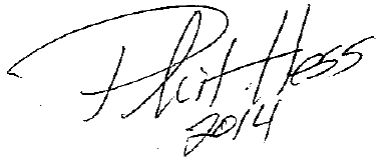
Cascade Lumber Company (CLC) came into ownership of the forested lands about 1900 but this also included the non-forest arable hay/pasture lands in the N. Fk, lower W. fork and Indian Creek. These arable lands were used for hay production by the company for the draft horses used in logging operations up through the 1920's. CLC was succeeded by Boise Cascade Corporation (BCC) in 1957.

The forested CLC/BCC land has been continually used by neighboring ranches for summer livestock grazing since the company came into ownership and no doubt before that. Prior to the mid 1930's sheep were dominant in the N. Fk and south of the river from Orso Canyon, westerly up past Dingbat. The early sheep ranchers were Sanders, Smithson, Tom Smith, and Kohler. They used this range on their way to National Forest sheep allotments up through roughly the 1930's except Martinez sheep grazed the south side on their way to the Nat'l Forest up through the 1970's.

Formal grazing leases on CLC/BCC began about 1920. These ranches, as of the late 1950's were, from east to west, on the north side were: Burke (First Creek), Harwood, Hartman, Gerald Thomas, Danko (later Downs), Carolla, Engstrom, Contratto, Bussoli. On the South side it was Roy Thomas, Martinez, and Masterson. These were all cattle except Martinez sheep on the south side.

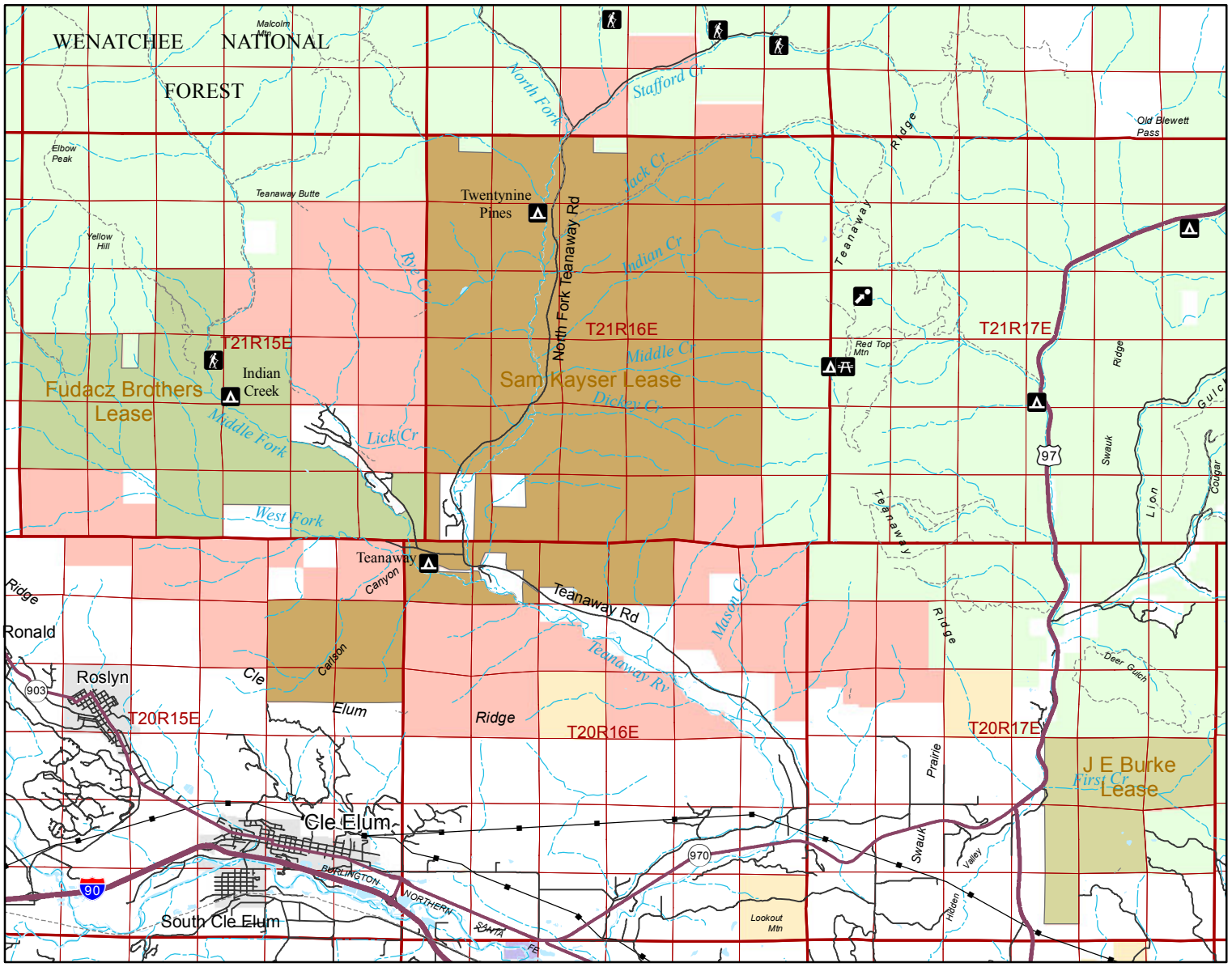
The Middle Fork and West Fork lessee (cattle) was Chicklinsky and Fudacz which continues to this day under Fudacz.

The North Fork cattle lessee was Jess Peterson beginning in the late 1920's but there were some dual use with sheep on their way to Nat'l Forest. Jess Peterson was succeeded by his son-in-law, Frank Schober in the 1940's and the lease remained in the Schober family until 1994. In the 1950's CLC/BCC ran their own stock with Schober cattle up until about 1962. Sam Kayser succeeded Schober beginning in 1995. This was on 25,388 BCC acres and 1,905 State acres. BCC leased the State land in order to control grazing and sub-leased to their lessee.



Phil Hess, 2014

Grazing Leases



Grazing Leases

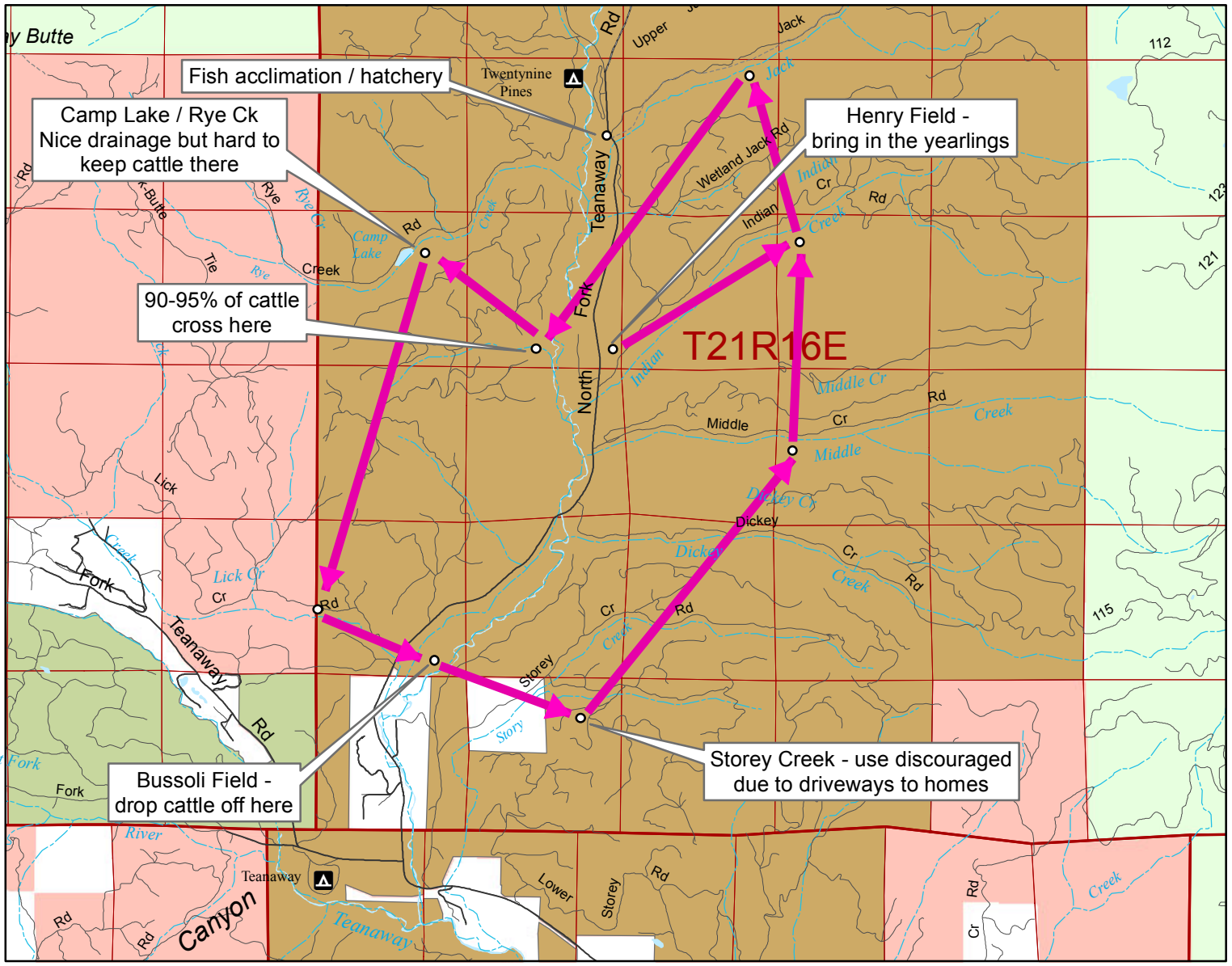
- SAM KAYSER
- FUDACZ BROTHERS
- J E BURKE

Not Leased for Grazing

- Teanaway Community Forest
- Washington Dept. of Natural Resources
- US Forest Service
- Washington Dept. of Fish & Wildlife

DRAFT MAP - Subject to Change Without Notice

Grazing Rotation - Sam Kayser Lease



The grazing rotation lines on this map are a graphic representation only and may not predict accurate grazing patterns.

Grazing Leases

- SAM KAYSER
- FUDACZ BROTHERS
- J E BURKE
- Grazing Rotation

Not Leased for Grazing

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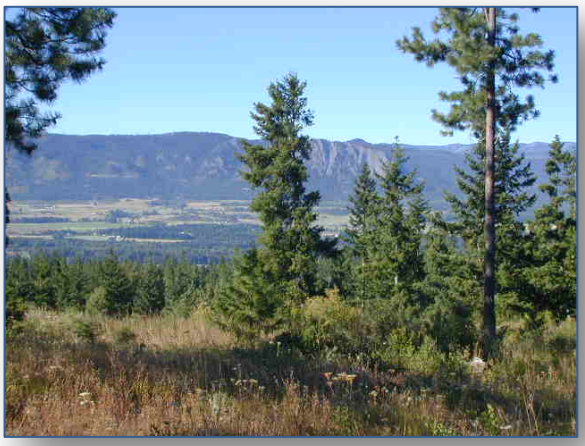

Information about Forest Practices rules related to timber harvest, forest roads, RMAP, fish barriers, and silvicultural activities can be found at:

http://www.dnr.wa.gov/BusinessPermits/ForestPractices/Pages/Home.aspx

Information about USFS recreation opportunities in the area, including the Teanaway area can be found at:

http://www.fs.usda.gov/recarea/okawen/recarea/?recid=57117

Information on the DNR Recreation program including restoration of recreation areas, recreation planning, Discover Pass, volunteer opportunities and more can be found at:

http://www.dnr.wa.gov/RecreationEducation/Recreation/Pages/Home.aspx

Information about Forest Health and other forestry related news can be found at:

http://www.dnr.wa.gov/ResearchScience/ForestryForestEcology/Pages/Home.aspx

The latest Forest Health Highlight Report is at:

http://www.dnr.wa.gov/Publications/rp_fh_2013_forest_health_highlights.pdf

Still can't find the information you are looking for? You can contact:

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Public Access

DRAFT MAP
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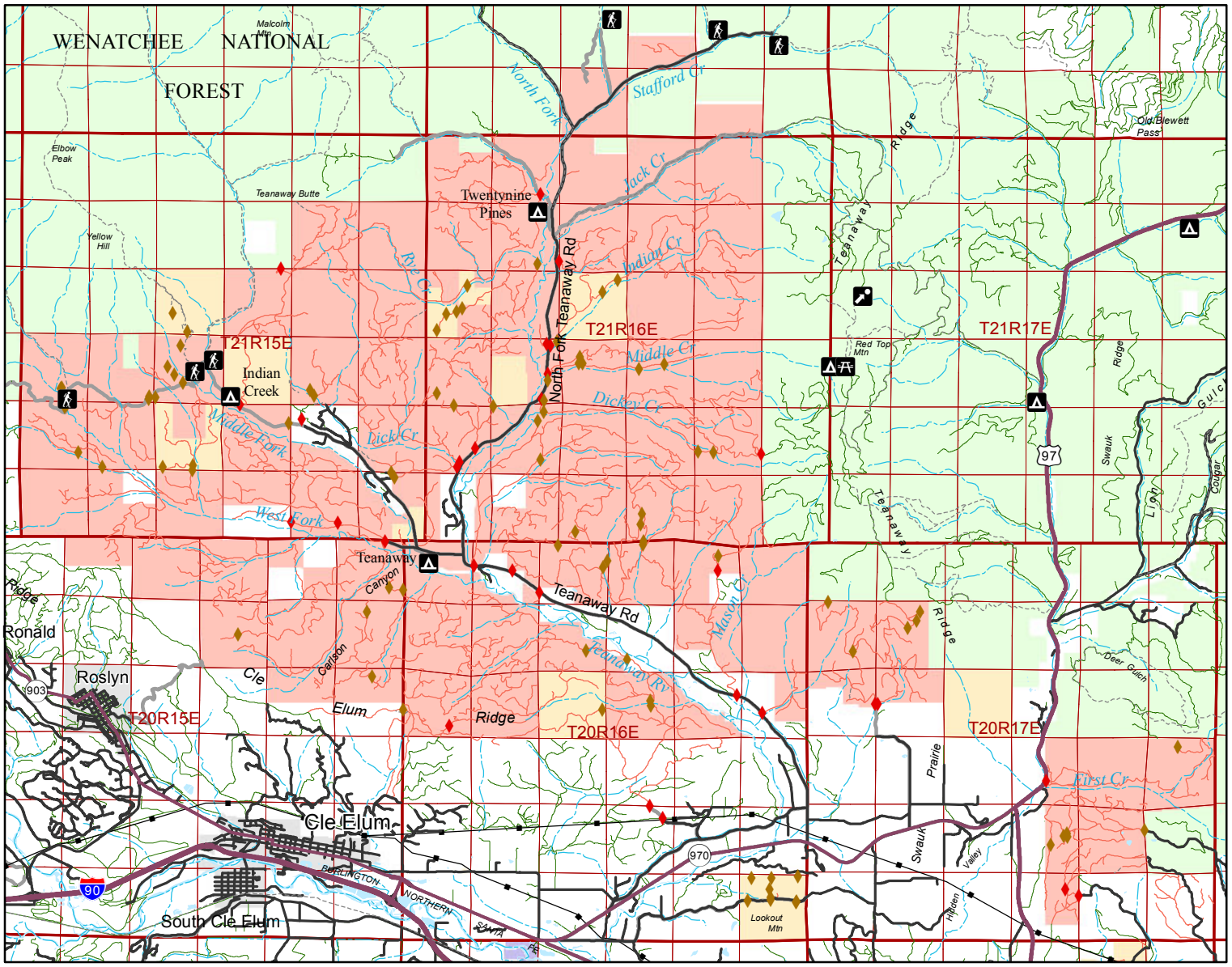

- County Road
- 3-Season Access
- Management Access Only
- Unknown Access
- Gate
- Earth Barricade
- Teanaway Community Forest
- Washington Dept. of Natural Resources
- US Forest Service
- Washington Dept. of Fish & Wildlife

Trails

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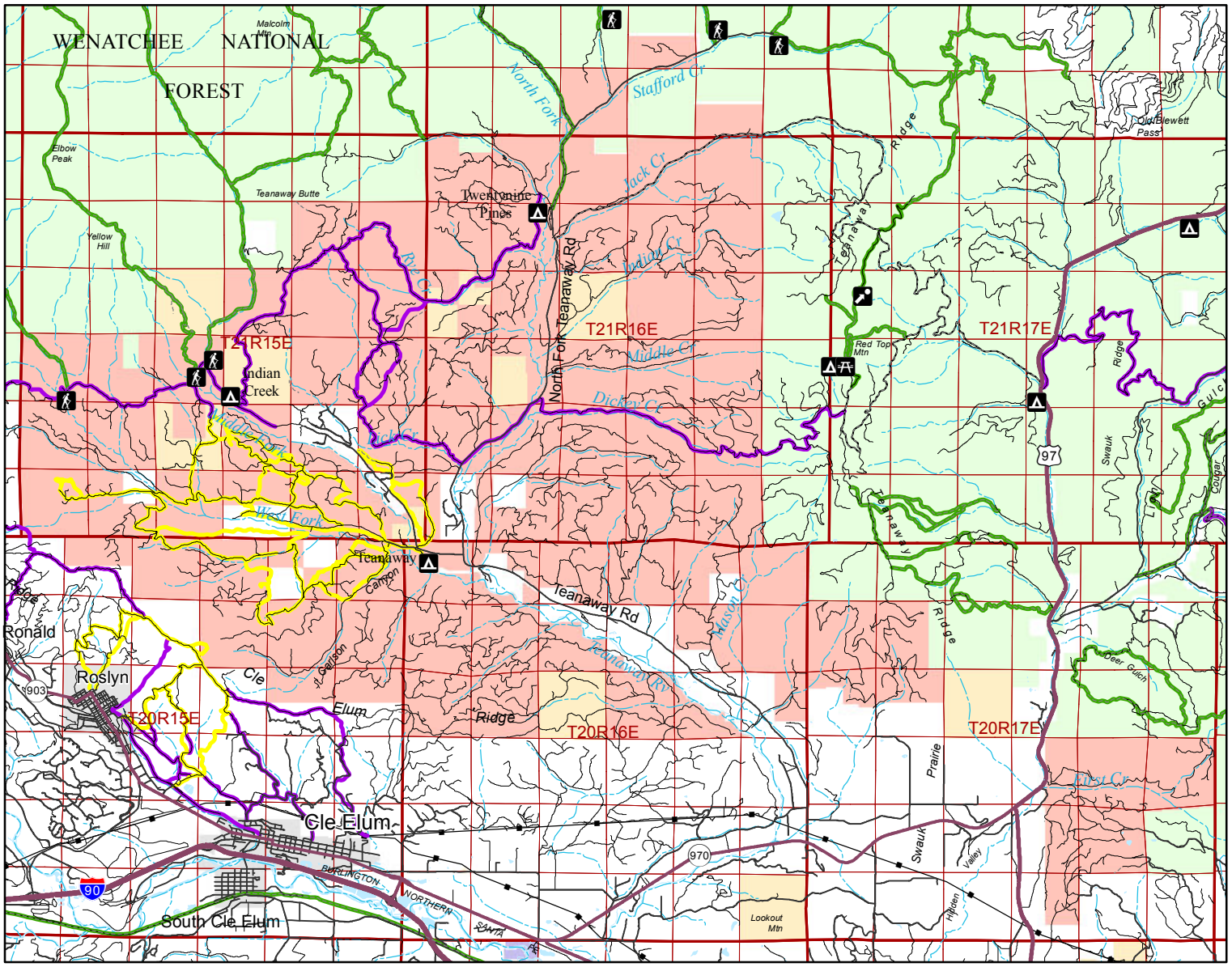
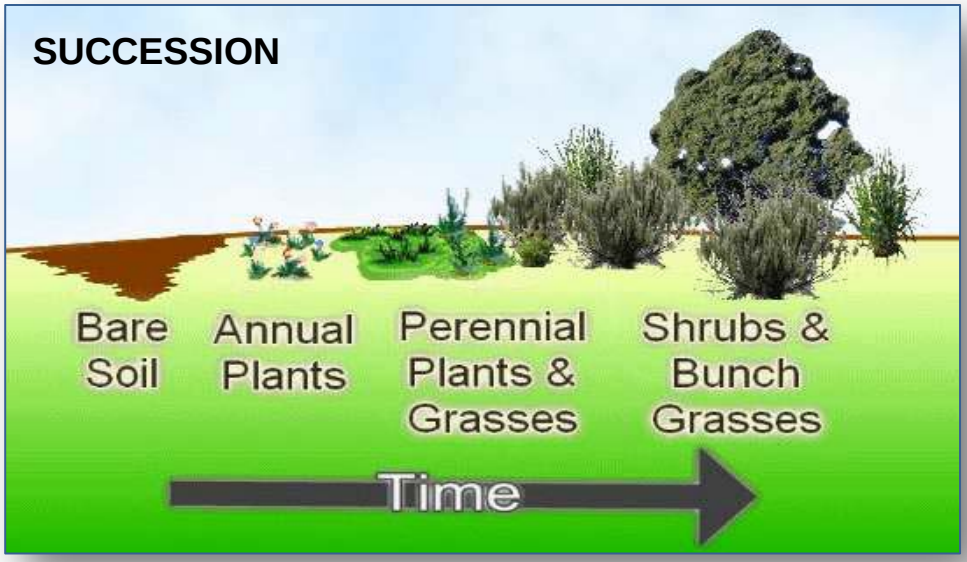


- Trails Normally Maintained
- X-C Ski/Snomobile Trail
- Other Trail
- Teanaway Community Forest
- Washington Dept. of Natural Resources
- US Forest Service
- Washington Dept. of Fish & Wildlife

Invasive Species



- Succession explains how an area begins as bare soil and then, as time passes, annual plants begin to grow, followed by perennial plants and grasses and finally, shrubs and bunch grasses.
- The progression of species that appear on the landscape over time is called succession. Progression toward non-native plants that creates monocultures and harms the environment and economy is called invasion.

Tools - There is no silver bullet solution nor is there one right way to solve all our invasive plant problems.
- Chemical
- Biological
- Physical/Mechanical

An ecosystem with an invasive species infestation can be the result of any or all there causes of succession in disrepair.

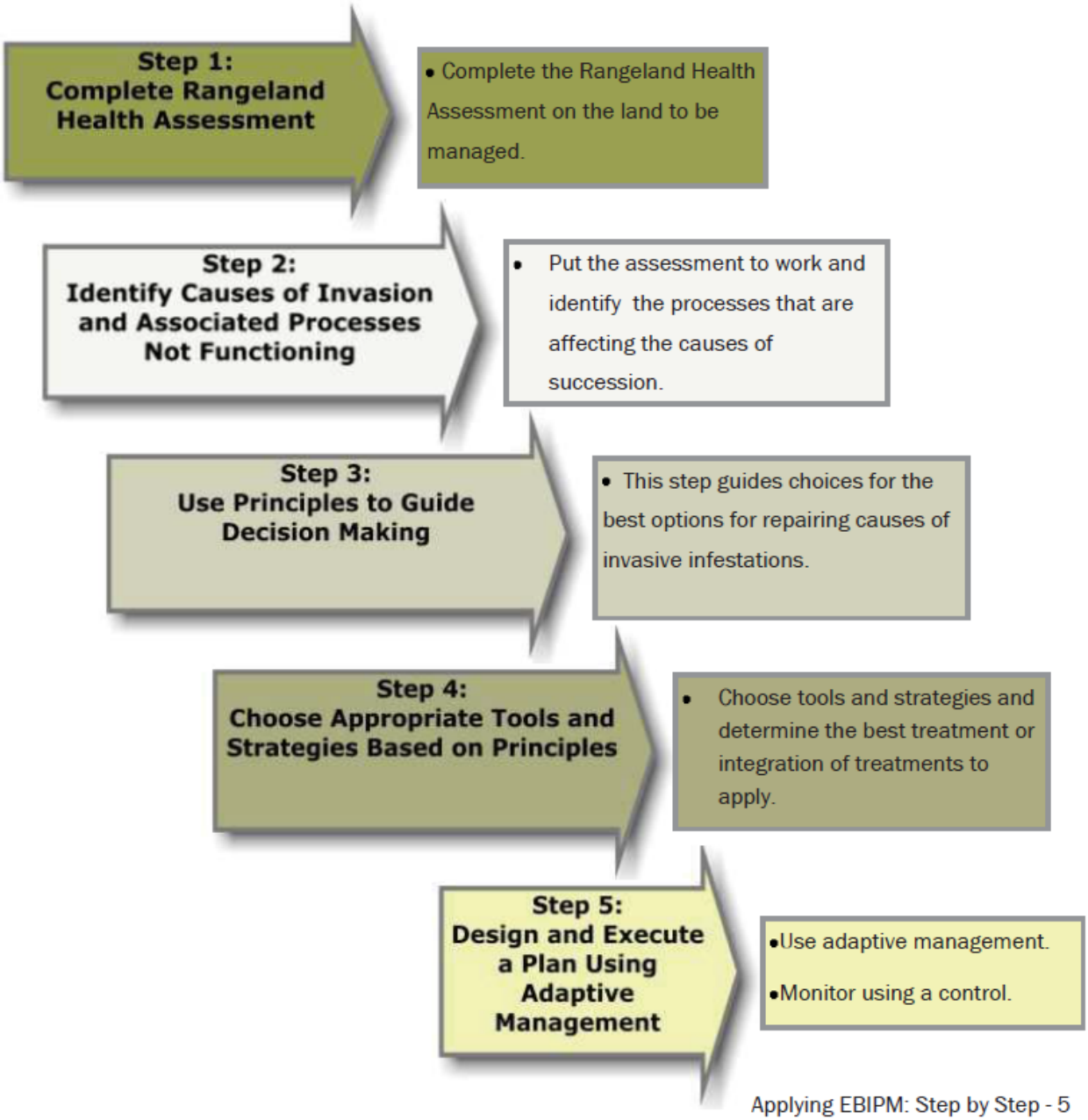
EBIPM model was developed based on the 3 general causes of succession:
- **Site Availability** *–Are there places (niches) for a plant to grow on the site?*
- **Species Availability** *– Are there seed sources available to occupy the site if niches are available?*
- **Species Performance** *–Are optimum levels of resources available to allow the plant to perform (grow and reproduce) to its maximum capabilities?*
-

Benefits of Implementing Ecologically-Based Invasive Plant Management:
- Find the true causes of invasive weeds
- Develop treatments with proven science behind them
- Get ideas, skills and practical know-how to overcome
- challenges of invasive weeds
- Learn by doing—find what works best on your land
- Ability to adapt as you go, to keep progressing toward goals

Applying EBIPM: Step by Step

The EBIPM decision model is a comprehensive decision tool that can be broken down in a step-by-step format for anyone wanting to implement effective invasive species management.

On the following page is the complete EBIPM model. The remainder of this guide will examine the steps of this model.



Applying EBIPM: Step by Step - 5

Timber Mortality

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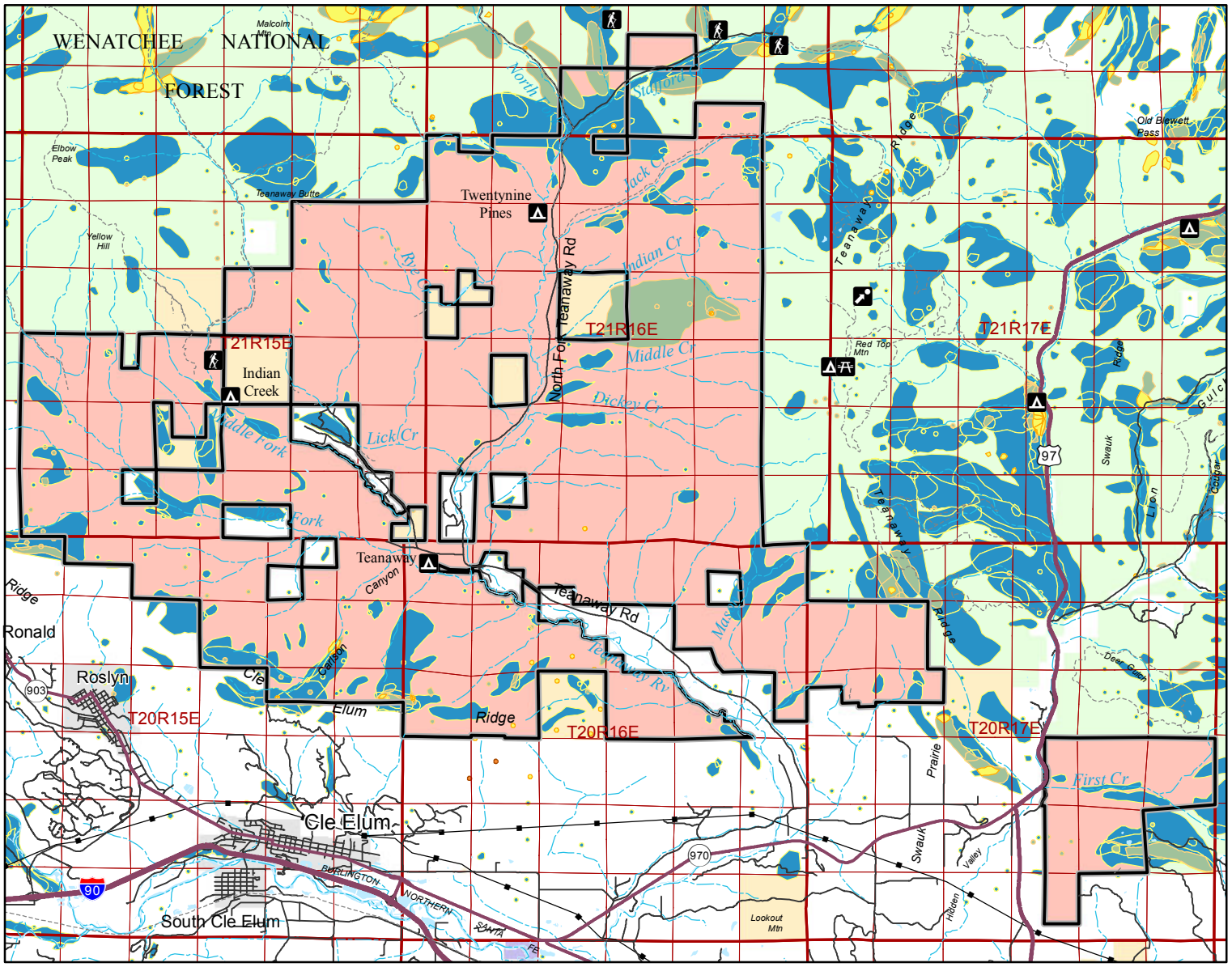

5 or Less Dead Trees Per Acre	Teanaway Community Forest Boundary
5 - 10 Dead Trees Per Acre	Teanaway Community Forest
10 - 25 Dead Trees Per Acre	Washington Dept. of Natural Resources
25 - 50 Dead Trees Per Acre	US Forest Service
50+ Dead Trees Per Acre	Washington Dept. of Fish & Wildlife

Source: Insect & disease aerial detection survey 1998-2012.

Timber Defoliation

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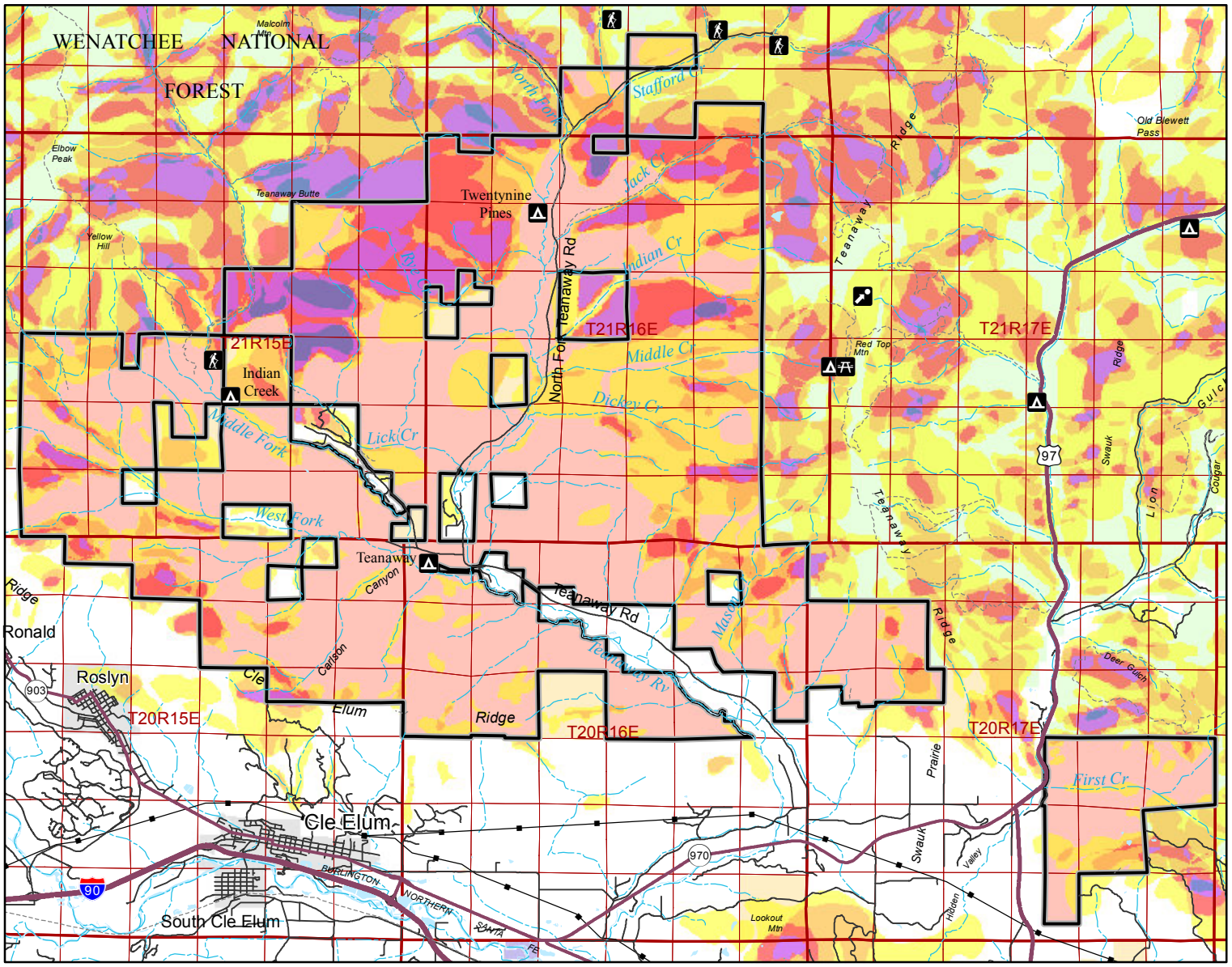
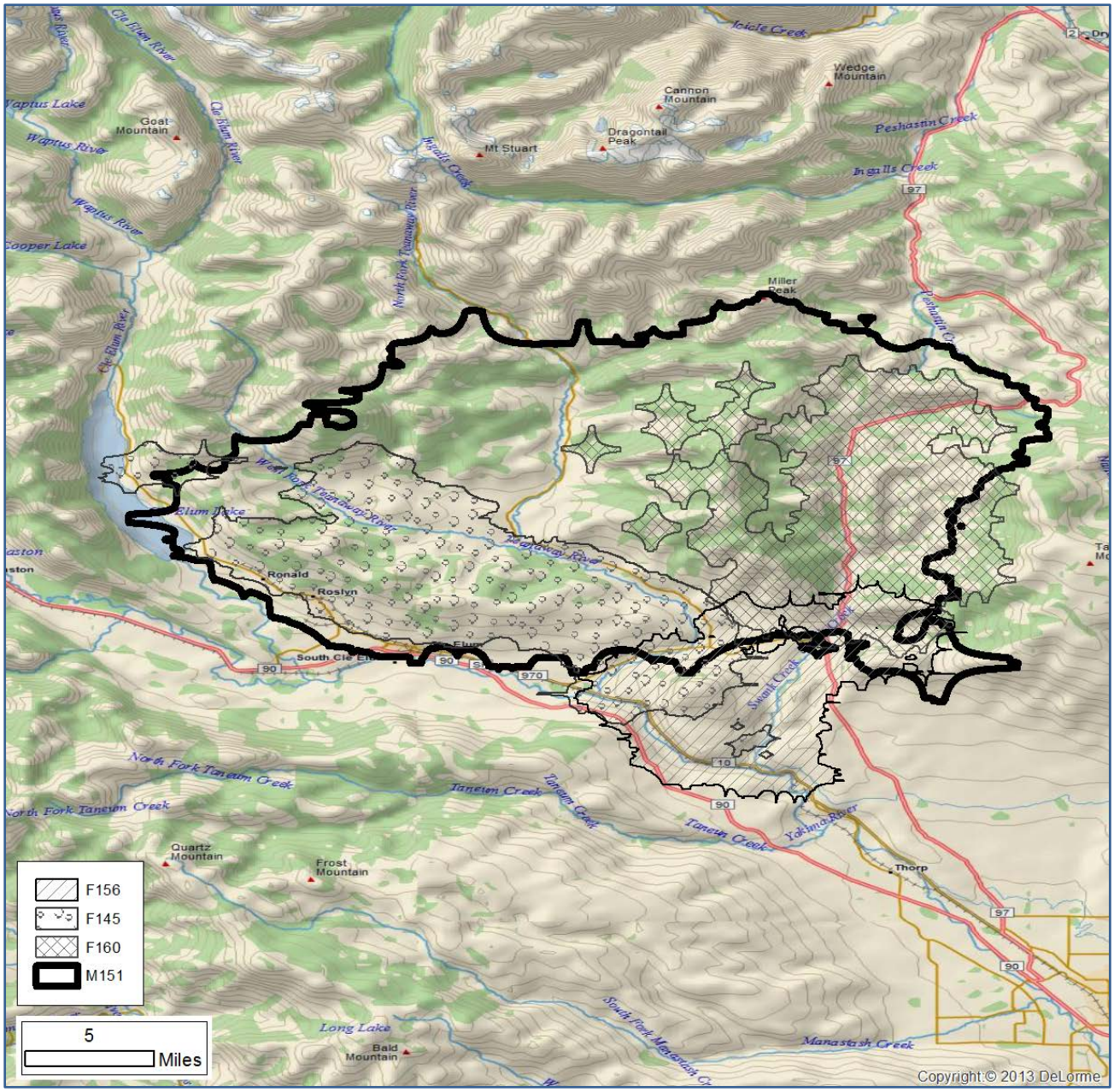


- Defoliation occured for one year
- Defoliation occured for two years
- Defoliation occured for three years
- Defoliation occured for four years
- Defoliation occured for five years
- Teanaway Community Forest Boundary
- Teanaway Community Forest
- Washington Dept. of Natural Resources
- US Forest Service
- Washington Dept. of Fish & Wildlife

Source: Insect & disease aerial detection survey 1998-2012.

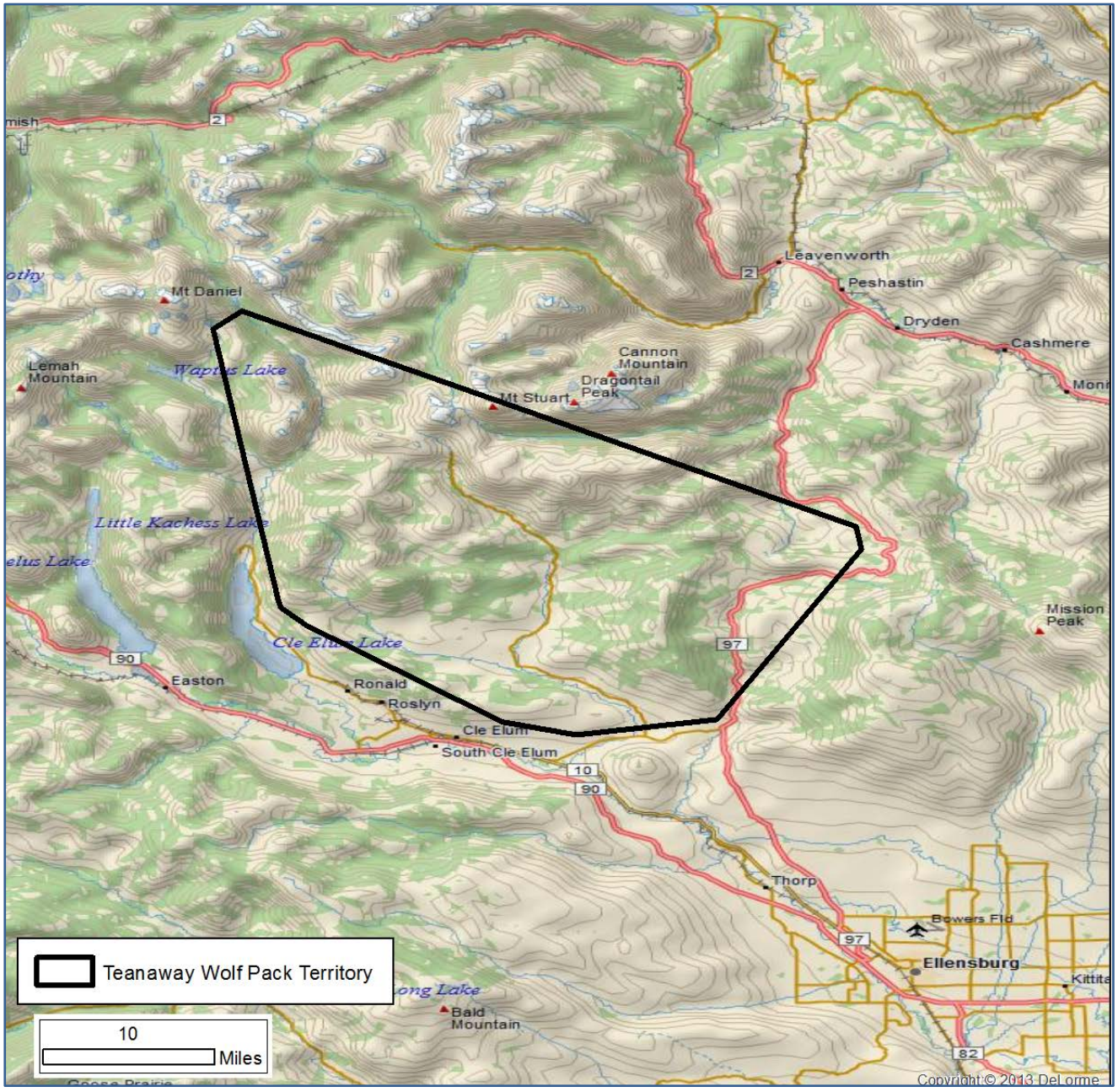
Cougar Home Ranges (3F, 1M) In the Teanaway



Male = 150 mi^2

Female = 60 mi^2

Pack Territory of Teanaway Wolves



Average pack territories = 314 mi^2

TOUR STOP #5 – WAGON WHEEL

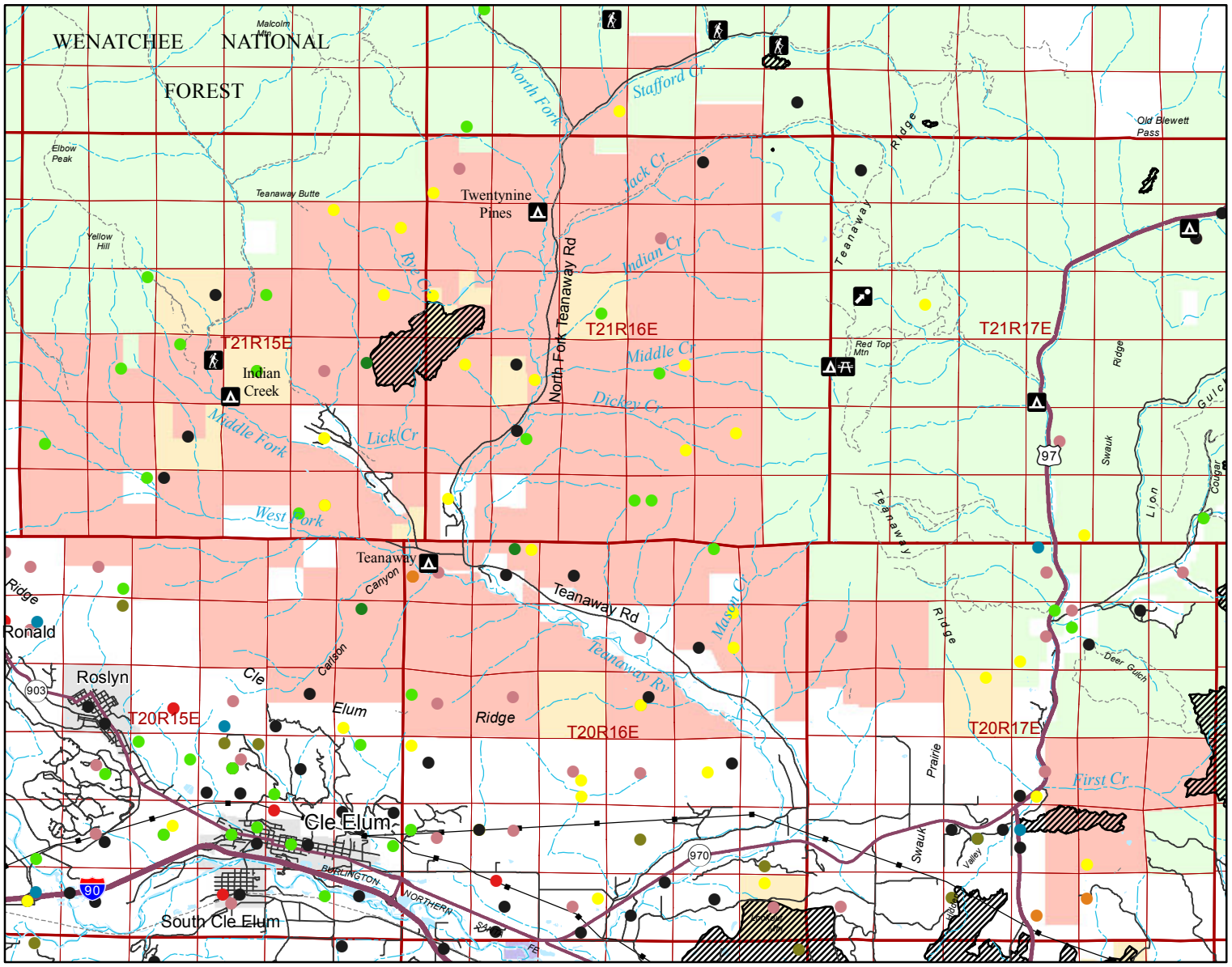
Fire History in the Teanaway since 1994

- 51 total fires
- 1 - type 3 fire
- 2- type 2 fire
- 1- type 1 fire
- Several fires with imminent threat

Main fire concerns/ threat

- Limited access in certain areas – gated roads, road conditions
- One main route in and out
- Forest health
- Increasing structures growth in the Wildland Urban Interface (WUI)
- Recreation use and locations

Fire Occurrence



Fire Location by Cause

- Lightning (16 in TCF)
- Arson
- Recreation (11 in TCF)
- Smoker (2 in TCF)
- Debris Burn
- Logging (3 in TCF)
- Children
- Railroad
- Miscellaneous (8 in TCF)
- Undetermined (11 in TCF)
- Large Fires

- Teanaway Community Forest
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Fire Regime Groups

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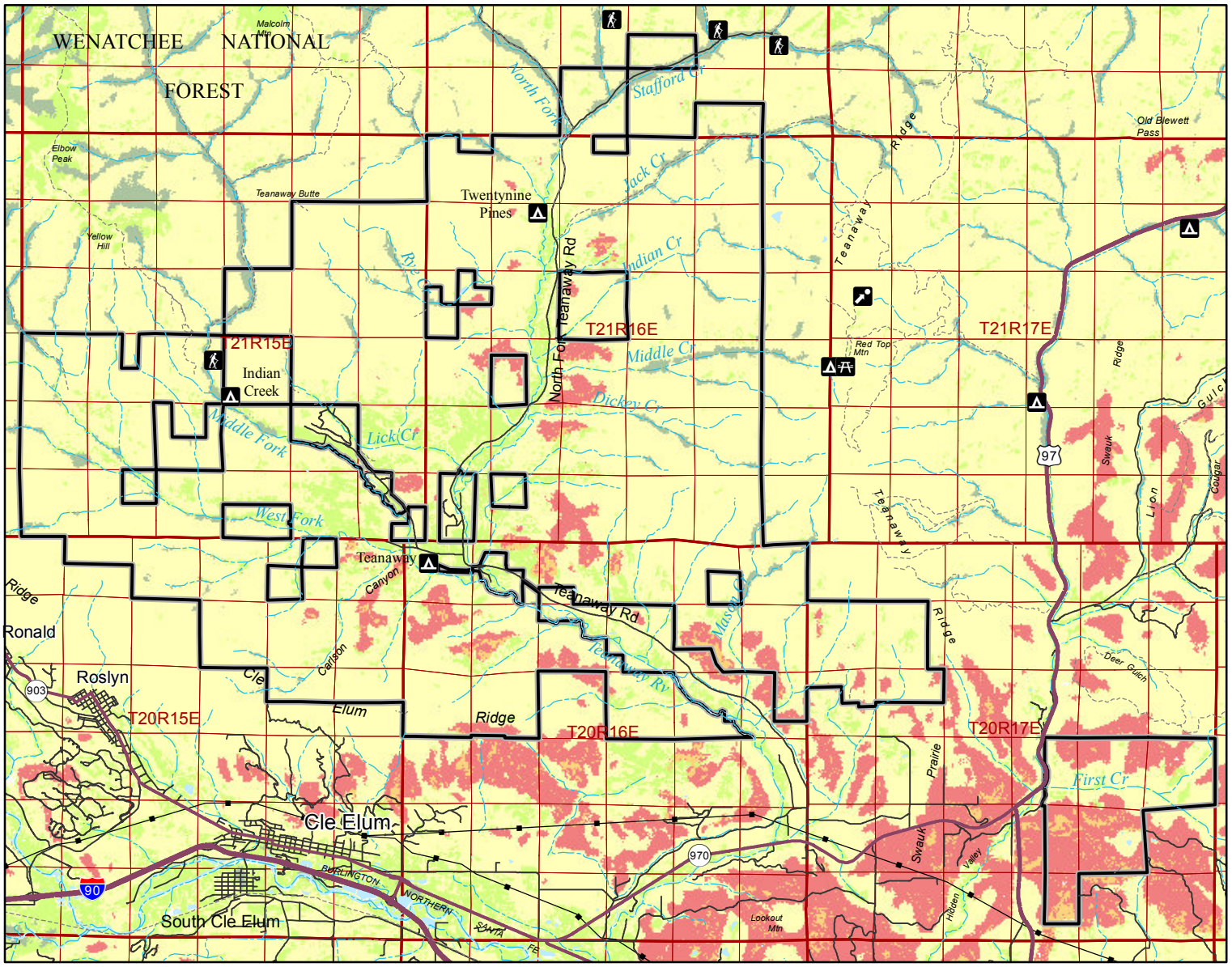

- Teanaway Community Forest Boundary
- Fire Regime I: 0-35 year frequency, low to mixed severity
- Fire Regime II: 0-35 year frequency, replacement severity
- Fire Regime III: 35-200 year frequency, low to mixed severity
- Fire Regime IV: 35-200 year frequency replacement severity
- Fire Regime V: 200+ year frequency, any severity

Fire Regime Groups are based on:
- Fire Frequency
- Fuel Loading
- Terrain

Source: USFS LANDFIRE project.

Current Fire Risk Assessment

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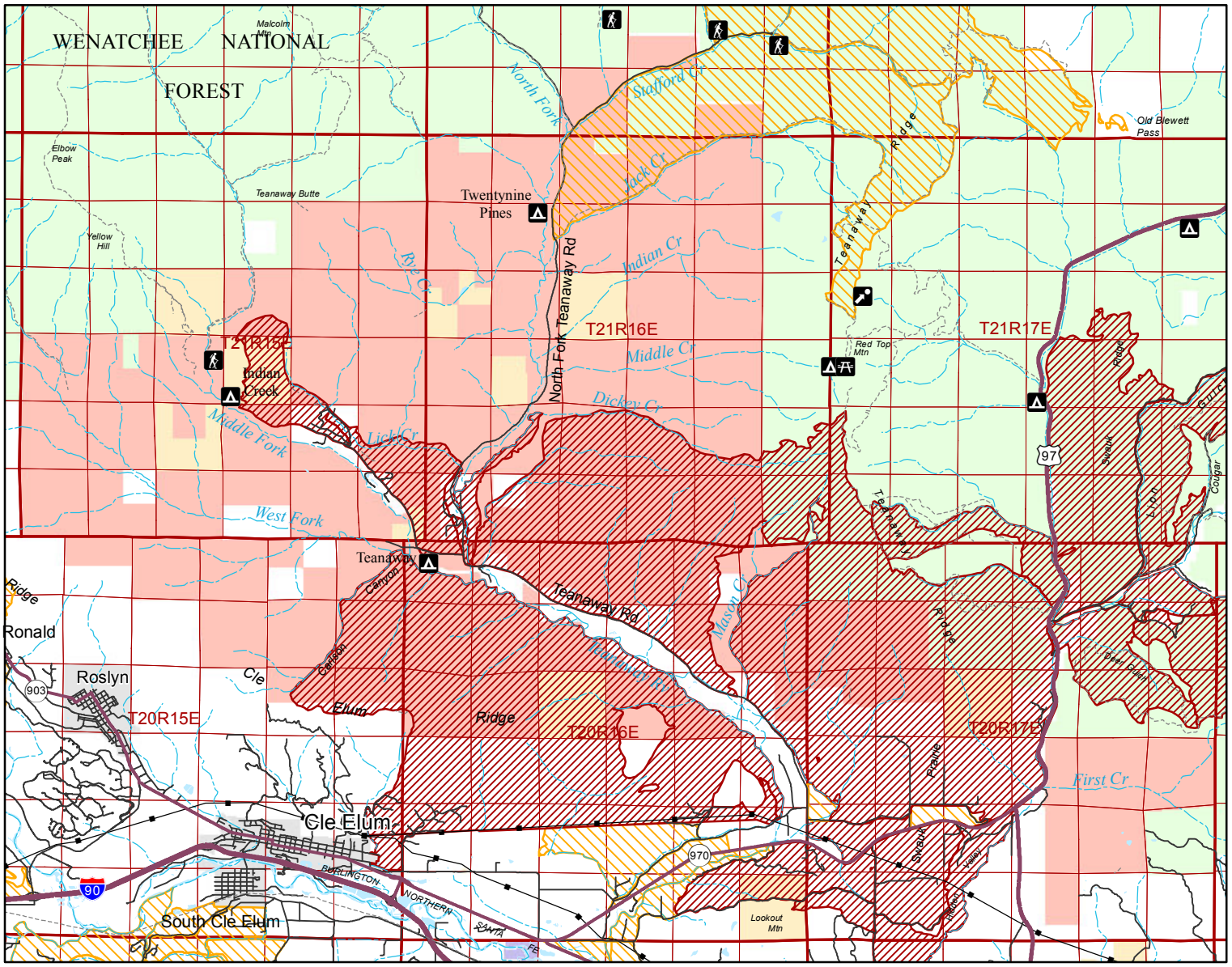


Fire Risk

- Extreme fire hazard
- High fire hazard
- Teanaway Community Forest
- Washington Dept. of Natural Resources
- US Forest Service
- Washington Dept. of Fish & Wildlife

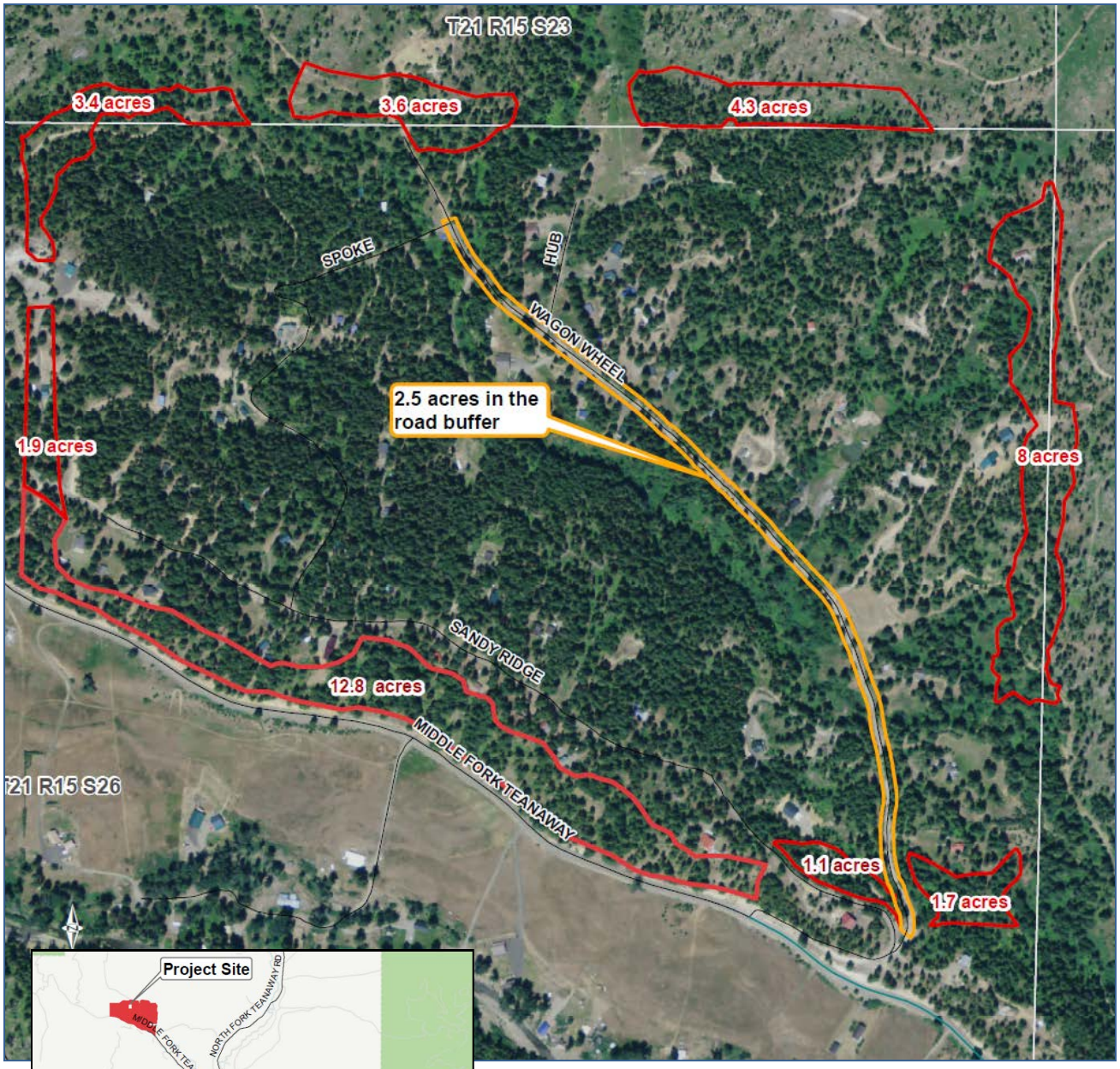
Fire Risk Assessments are based on:

- Terrain
- Fuel Loading
- Structure Make Up
- Fire Frequency

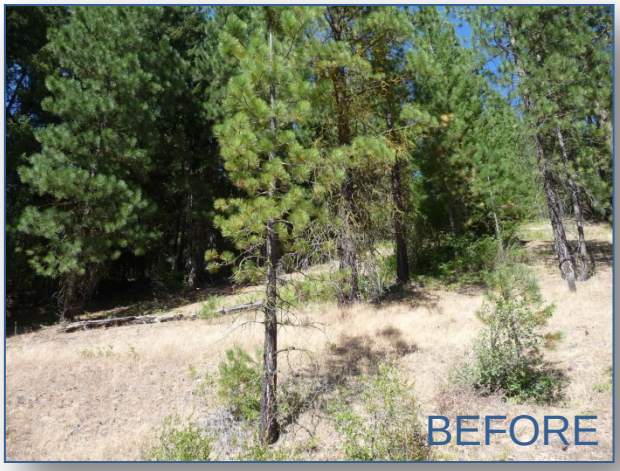
Risk assessments are determined using National Standard Rating Form NFPA 299

Source: Field surveys using protocol developed by National Fire Protection Association.

Wagon Wheel Fuels Reduction Project - 2010



Wagon Wheel Fuels Reduction Project - 2010



Wagon Wheel

- 120 parcels within the community
- Approximately 50 structures
- Became a Fire Wise Community in 2010
- The Kittitas Conservation District hired contractors for 35 individual landowner projects.
- A roving chipper was made available through the Conservation District, which 20 landowners used to abate their own slash.

Outside Wagon Wheel

- Ten other landowners participating in the Conservation District fuels program equaling 100 acres of fuels treatments