

Panhandle Forest Collaborative Forest Projects Committee
Silviculture Panel
Fernan District Office, Coeur d'Alene, ID
March 12, 2014

Forest Projects Committee Present: Phil Hough, Liz Johnson-Gebhardt, Jeff Connolly, Laura Wolf, Paul Sieracki, Mike Petersen

Guests: Mike Sapp (for Bob Boeh), John Schwandt, Chad Hudson, Fanny Chomel, Cory Davis, Andrew Larson, Russ Graham

Forest Service: Pat Behrens, Barbara Hansen, Luke Hixson, Sarah Jerome, Will Young, Melissa Hendrickson, Kyle Berendsen, Ana Cerro-Timpone, Albert Helgenberg

The Forest Projects Committee heard a series of presentations about silvicultural issues relevant to the Bottom Canyon area. See ppt presentations for further information. Key to acronyms:

BC – Bottom Canyon
CDA – Coeur d'Alene
DF- Douglas Fir
GF – Grand Fir

HRV – historic range of variation
WH – Western Hemlock
WL – Western Larch
WWP – Western White Pine

Jason Jerman – Silviculturist on the CDA District

- Reviewed historic range of variation (HRV) for vegetative conditions and incorporated future desired conditions
- Desired conditions are very broad; % of forest cover types, patch sizes, etc
- These are targets for the landscape, not specific attributes
- In Bottom Canyon, 94% is warm/moist biophysical setting (BPS) so that is what Jason used in terms of the desired conditions for this landscape
- Under Forest Plan for warm/moist, desired stand structure
 - Single and 2 storied stands dominate early and mid-successional states
 - Multi-storied stands are common in late-successional stage
 - 100 – 300 acre patches with larger ones on steep topography
 - 80-120 trees/acre at maturity
- Steps in process
 - Define target landscapes
 - Determining existing condition
 - Determine departure from target
 - Define areas of concern – apply screens like old growth, riparian areas, sensitive soils
 - Assign generalized target stands

- Develop site specific prescriptions
- Current conditions vs desired forest comp by forest – See ppt for Bottom Canyon
 - Doug fir above desired
 - Western larch, below desired
 - Grand fir (GF)/cedar/western hemlock (WH)– way above desired
 - White pine – way below desired
- Shortage of seed/sap, early seral class in Bottom Canyon; otherwise, BC is pretty well matched with desired conditions
- Moist Mixed Conifer Target Stand table for vegetation – offers target condition descriptions vs. current condition – gives a picture of what to shoot for in terms of changing conditions (similar approach for wildlife)

Questions/discussion

- Aspen, cottonwood important on landscape – incorporated into wildlife table – important to consider
- May need to look at riparian stands with a different multi-age, multi-species composition
- How can the impacts fire suppression and the lack of major “reset” events like fire disturbance be responded to? Answer – want to get the landscape back to the “in between” major disturbance condition. What regrows after a fire is what is there currently. Right now, DF, WH, etc would grow back. In the past, WL and WWP would have regrown. Objective is to bring those “keystone” species back on the landscape.
- Why isn’t there more western larch? Because it was selectively logged. Example of the “Ohio Match Rd” – white pine and larch were heavily logged by 1945. Also, there was a high rate of settlement at that time and those trees were used for building houses. Plus, regrowth was very dense and were likely competed out.
- Around Buckskin and Larch Mtn, there are still stands of western larch and white pine in remote areas; they were too far back for settlers to access.
- Western larch doesn’t compete well in dense forests. Hemlock is a very aggressive competitor in moist and dense forests.
- Coeur d’Alene Mountains are one of the most unique areas in the PNW. 55-58” of precipitation in this area.

Russell Graham, Rocky Mountain Research Station

- Has worked in this area since 1970; started on the Wallace District
- St. Joe used to produce 110 mbf/year
- Priest River Experimental Forest was established in 1911; have the most productive, longest-running exp forest in the nation; have issued over 750 publications in last 100 years
- Deception Creek Experimental Forest – ash-capped soil (Mt Mazama), plus loess soils blown from Glacial Lk Missoula and climate is very wet; creates very unique conditions
- All of these forests are inherently unique

- Bottom Canyon is one drainage north of Deception Creek
- Moistest, most productive habitat type in the N. Rockies; lower, wetter sites were refugia for WWP
- WWP should adapt well to climate change
 - High within-stand variation
 - Low among-stand variation – trees in different stands and in different states, even, are very similar so will transfer well
- Same with Western Red Cedar in terms of adapting to climate change
 - Very adaptive, scales instead of leaves, no buds
- Disturbances: mixed fire regime, weather, diseases
 - Wind, weather cleans out the forest – WWP and WL survive those events well
- WWP will store seeds up to 3 years and still be viable – that’s why white pine regenerated after the 1910 fire
- Cedar and hemlock generate large seed crops/acre, high viability percentage
- 15%-20% canopy opening – hemlock and grand fir do well, white pine needs higher % canopy opening
- Blister rust is a major suppressant of white pine – 55%+ canopy opening is optimum for WWP to have competitive advantage and be free to grow
- The silvicultural system dictates that there is a planned series of treatments through the life of a stand; key phases for white pine are regeneration up to age 30 --- needs “tending”/thinning/prescribed fire up to that point, then WWP will be able to compete well
- What is the target stand? What tools are needed to get to that target over time?
- Important message: Integrate all aspects of vegetation management and site preparation into the silvicultural system! Recommends a planned series of treatments throughout the life of the forest.

Questions

- Can we design treatments to support snowshoe hare to benefit fisher? Response – produced snowshoe hare habitat as well as habitat for the predator.
- Haig 1941, Natural Regeneration of White Pine – premier resource
- How do you pick and choose which species to manage for? In other words, how do you manage for multiple objectives?
 - Certain species are managed at fine scale (e.g. lynx, because they’re endangered)
 - If you manage for some species, then multiple species benefit – top level predators can serve as coarse filters
 - Scale is also important
- Purpose and need drives the project (Bottom Canyon is not a species-specific project)
 - White pine
 - Watersheds/TMDLs (Total Maximum Discharge Loads)
 - Wood products

John Schwandt, Retired Forest Service Researcher, Forest Health Issues in the IPNF

- Decline in white pine primarily due to white pine blister rust, plus accelerated harvest, decision not to plant
 - White pine planting has gone way down; so has harvest
- Results – thousands of acres of stands dominated by DF/GF on much of most productive sites
 - Increases in many forest health agents – insects and disease
 - Root disease
 - White pine blister rust
 - Bark beetles (Doug Fir most susceptible to DF Beetle in old, dense stands; also like root-disease weakened trees)
 - Decays
 - Dwarf mistletoes (DF and WL)
 - Defoliators – spruce budworm (this is declining in influence in Bottom Canyon)
- R-1 has over 16 million acres w/root disease; over half of that have significant losses (20-40% of mature trees die every 10 years; often convert forested sites to shrub fields; most damage tends to occur on best growing sites; root diseases are primary cause of tree mortality on 66% of acres in N. Idaho
- Several root diseases; silvicultural treatments are similar for all; most susceptible trees are DF/GF; pines/cedar/larch are the least susceptible
- Root diseases act as a weeding agent. Really the outbreak is not of root disease, but of DF and GF.
- Characteristics of stands with root disease
 - Various stages of decline, dead and dying trees
 - Patches of trees or alone
- Severity rating system – Sue Hegl – need to wander through whole stand (low, moderate, high)
- Root disease spreads through root contact; if only visibly sick trees are removed in “pockets”, the remaining trees are then more susceptible to contracting the root disease
- Root disease continues living on dead trees for a long time – saprophytic
- How deep does the root disease go? Very deep. Fire doesn’t affect depths enough
- In Canada – pushing trees over and separating stumps from trees; other concerns are soil
- See slides for treatment considerations
- Precommercial thinning – if you thin, should also prune

Summary

- Root diseases historically played a minor role in stands dominated by seral species
- Have become a major issue in stands dominated by shade tolerant species
- Without management, losses may increase since root disease tends to favor DF/GF regen.
- You can reduce the mass of the fungus but not eliminate it.

- With few exceptions, you will want to change composition to less susceptible species.

Questions

- Potassium treatments – study John Schwandt did showed potassium additions help for a while but not long-term. Don't really know the full answer and there doesn't seem to be a silver bullet.
- Why is cedar less susceptible? Cedar may be able to “wall off” attack of *armillaria* due to its characteristics. Think about how resistant cedar fence posts are to rotting. Has the same properties when it is alive. One of most hazardous species to work with is cedar – has a lot of chemicals in it that other species don't.

Andrew Larson – University of Montana – Fire and Forest Development related to variable retention systems

- Tend to see lower-severity fires in flat terrain and higher severity on steep terrain
- Next major fire will happen, won't be stopped; when we think about fire ecology and resilience, we have to acknowledge that major disturbance events like fire happen
- Important to think about how to set up our landscapes to be ready for next fire
- What functions do I want? What are natural variations? These questions help develop target for desired conditions.
- Key points:
 - Knowledge of forest disturbance regimes and structural devlpt are the core theoretical structures.
 - N. Rockies don't fit common models – are unique
- Mixed severity regimes are “messy middle”
- Active fire regimes as reference – what do burned western larch forests in the Bob Marshall Wilderness suggest for forest mgmt. and restoration?
 - 20-30,000 acres of overlapping fires in research area
 - What range of structural conditions do mixed-severity fires create within stands?
 - Does the spatial heterogeneity created by mixed-severity fire initiate different post-fire structural development pathways?
 - Mixed-severity fires create high-contrast mosaic of fire effects and post-fire structure – (don't do that very often in treatments) –
 - Strong differences in tree reg density
 - Scaling: different data systems can help give perspective and scale up from “stand neighborhood” to figuring out how units should be spatially distributed across units
- Individuals, clumps and openings (ICO) system – “QuickMap” Tool – ArcPad tool develops a map using monitoring data that shows the results of a treatment – What's the pattern that we left behind post-treatment, and does it match desired conditions? Tool helps to characterize tree stand characteristics.

Questions:

- How can we use natural patterns to inform desired conditions and what are the appropriate treatments and tools to get us there?
- Identify several different target stands on Bottom Canyon in order to develop appropriate treatments – (for example, white pine recovery in DF heavy areas is different than in GF heavy areas)
- Do we have reference stand material for white pine in Bottom Canyon area? What kind of reference conditions are we looking for? Montford Crk Natural Area and Experimental Forests offer references. West of Dobson Pass has an 80-100 year old stand of white pine that has escaped blister rust.
- Also – you don't have to have HRV; it is helpful but not required. It's important to look forward in the context of climate change.
- Russ Graham offered to host a day in the field looking at white pine in Deception Creek.
- In BC, could mimic HRV structural pattern – but species composition can't be mimicked because the desired species are not present. It is a “non-analog” system.

Mike Petersen, Blue Alder

- Purpose and need similar to Bottom Canyon
- More dry habitat on Blue Alder
- Discussion regarding a retention area that was added late and that was problematic for the logging contractor (Mike Reynolds Logging); location of the retention areas weren't well thought out with regard to operations; some of the forwarding distances were rather long which drove cost up and net value down; makes for many trips in and out when no temp roads or roads. 2 acre unit was not effective operationally – too small
- Has been burned and planted. Expect substantial regeneration of WP, WL, cedar, DF, PP
- Russ Graham – what will area look like 5 years, 10 years, 20 years from now, and what are treatment actions over the long term?
- What tolerance is there for natural change due to weather, fire, etc.?
- In general, conservationists were supportive of the results of Blue Alder after they saw the monitoring.
- Russ shared an example of a logging operation that cable yarded diagonally near Priest Lake – not visible (may be other issues)