San Juan Headwaters Forest Health Partnership
Jackson Mountain Tour NOTES for Friday, August 21, 2020

Location: Jackson Mountain (multiple locations)

Regular Meeting: 8:30 AM – 12:00 PM

JACKSON MOUNTAIN TOUR NOTES

21 In Attendance: Dana Hayward (MSI), Aaron Kimple (MSI), Emily Swindell (MSI), Jean Zienhelt (Weminuche Audubon), Lilla Martinez (Private Landowner), Sergio Martinez (Private Landowner), JR Ford (Forest Health Company), Matt Ford (Pagosa Forest Products), Jimbo Buickerood (SJCA), Doug Call (Volunteer), Roger Jensen (Retired USFS/BIA, Volunteer), Steve Hartvigsen (Retired USFS, Volunteer), Bill Trimarco (WAP), Robin Young (CSU Extension), Doug Secrist (San Juan Water Conservancy District), Rita Daniels (SJNF), Matt Tuten (SJNF), Mercedes Siegle-Gaither (CSFS), Al Myatt (WAP, Private Landowner), Anne McCoy Harold (Senator Gardner's Office), Sean Bliss (NRCS)

Tour Site I (Little Jackson 1, Unit 20)

- History
  - Steve Hartvigsen wrote the unique prescription for Little Jackson 1
  - Gretchen Fitzgerald and Steve Hartvigsen spearheaded effort to offer Little Jackson, overall, as a project accepted into the nationwide ASCC effort/network
    - Linda Nagel, as the lead for ASCC, and Mike Battaglia, the RMRS lead Silviculturist, agreed with how Little Jackson would serve as a good example of warm-dry mixed conifer forest in the Southwest for the study
- Little Jackson includes some Ponderosa pine units
- Prescription
  - Ponderosa Pine in warm-dry mixed conifer
    - Favored for retention because it is fire resistant, windfirm, is being crowded out by more shade-tolerant species, and there is a need for existing trees as an important seed source to establish younger cohort(s)
    - The only Ponderosa pine to be cut are trees exhibiting significant insect/disease or dwarf mistletoe attack
  - Douglas Fir
    - Some individuals getting cut (mostly smaller size classes, or large exhibiting poor health or attack by I/D), but many will be left due to moderate fire resistance, windfirmness, and shade tolerance
  - White Fir
    - Most of merchantable trees are being removed due to:

        - High fire susceptibility
        - High incidence of foliage disease (fir broom rust)
        - Susceptibility to bark beetle attack (fir engraver)
        - Spruce budworm defoliation, and internal rot
        - Additionally: frequent, heavy seed crops lead to significant understory regen, fostering more shade-tolerant WF expansion
    - Most merchantable trees are mature to relatively (for this species) old: 70-150 years
        - Older trees often have significant internal rot and no longer have market value
    - After ~70years, market value begins to taper and there's a big net cost
    - Mortality or heavy damage by fir engraver beetle and/or internal rot can cause whole trees, or large portions, to fall down, getting in way of harvest or prescribed burning operations
- Aspen
    - Some units will see quite a lot of harvest
    - Some coppice to promote sprouting depending on the unit
        - Concentrated cutting in conifer, especially white fir clumps/patches will create openings favoring aspen sprouting
    - Much of aspen component has high levels of rot, which is an issue for the chipper because it essentially turns to dust
        - Harvesting of aspen stems earlier inn life is preferred
    - Can be used as firewood
    - Much is going to Aspen Wall Wood out of Dolores making wood paneling
    - Aspen products also used to produce excelsior, useful for erosion control materials

- Contracting
    - This contract represents ~1100 acres out of thousands of acres of surrounding road-less and unmanaged lands
        - Little Jackson 1 = ~ 479 acres
        - Little Jackson 2 (ASCC) = ~ 413 acres
        - Laughlin = ~155 acres
- Challenges
    - The ultimate goal is to remove biomass and turn it into biochar and briquettes
    - What's acceptable elsewhere doesn't work here because of the end goal
        - Lots of material was left by a subcontractor, which created costly issues for the Forest Health Co.
            - Premium wood peeled for plywood and poles
        - Rocks and boulders brought in with skidders can damage machinery
    - Big rocks and bullets are problem for JR's operation and the mills to which they're sent
    - Machines

        - Traditional Forwarders use 20-30 gallons of diesel/hour
        - Swedish BRUK Forwarders use only ~8.5 gallons/hour AND are more mobile, this is what is being used by the Forest Health Co.
    - Ash content: lots of dirt or pebbles will come out as "clinkers" at the bottom during processing
    - Biochar is recycled material, which means wood often has objects, like nails, in it
        - Wood may also be treated or have other abnormalities
    - Equipment, skilled labor, and truckers are lacking for this industry in this area
        - We need a new focus on an old industry!
    - When mills work together, it's important to determine a niche for each company
        - Gate wood, wood hauled to a mill not purchased as standing timber, is one way this can be done
- Process
    - The Forest Health Co. process is similar to timber processing in Sweden
        - Chipper hand picks logs from piles → green boxes → chips → sawmill → char and briquettes
    - If we want biochar end products, harvests must be done in a specific way
        - More time-consuming harvest, but more product (or what is often thought of as a by-product) is used
        - Stack slash with forwarders, then let dry for 3-4months
            - After drying, more can be stacked and hauled out to about ~50miles maximum distance based on weights and pricing
            - If stacks could be left to dry for 1 year, then logs could be hauled ~75-100miles to a future local power plant
                - Drying log piles could also create a fire hazard
        - Needs
            - State legislature support, academic networks (Fort Lewis), appropriately scaled industry, markets
    - Currently valued at ~$400/acre, but could have be worth $1000's/acre years down the road
- Markets
    - Premium wood from this logging unit will be sent to Ironwood, the Pagosa Springs sawmill (Ponderosa Pine), and the Blanca Mill in September
    - Primary markets: Ponderosa Pine
        - Denver mill: 6x6s
        - Phoenix and Utah mills: 4x4s
        - Pallet company's now selling more locally and want 1x6s, 1x8s, 2x6s, 2x8s
    - Now waving board orders locally
    - Wood chips, dried and then made into biochar or briquettes
        - Compressed into wood blocks (compressing pine chips = approximately the same as a pine log)

        - <35% moisture after 1 year can be fed directly into processing equipment, but still need to dry further
        - Target moisture for wood chip feed into processing equipment is = 12-15% by weight
    - Slash = bioproduct + cost
        - We should start treating slash as a *product*, but we need to develop markets

Tour Site II (Little Jackson 1, unit closed out)

- Regeneration
    - SJNF "standard" goal: 150 stems/acre
        - Want Ponderosa Pine and Douglas-fir regeneration with Aspen suckering as secondary goal
            - More concerned with the desired species composition than with the number of trees, spacing of such trees
            - Important to remember: Forest Service silviculturists aim to do the right things in the right places for the right reasons
    - Already seeing an oak response in this unit
    - Likely to get Aspen sprouting
        - By next summer, expect oak and aspen up to 2'+ in height
    - Ponderosa Pine
        - Regenerates best in bare to nearly bare mineral soil
        - Seeds episodically and can be many years between successfully established cohorts
        - Prescribed burning in next few years, and will hopefully take care of slash pile and provide bare mineral soil needed for PP regeneration
        - Fire to be a piece of this landscape in one way or another (natural ignition or prescribed)
- Reforestation
    - None is planned here because there are already enough trees and this "opening" should fill in relatively quickly, especially with aspen sprouting
    - Some Douglas-fir will be seeded in select areas to discourage unauthorized travelers and vehicles
- This area has been seeded to promote a desirable future forest condition and to avoid erosion and challenges while trees and other parts of the forest mosaic establish
    - 19lbs/acres
        - Western wheatgrass
        - Slender wheatgrass
        - June grass
        - Arizona fescue
        - Blue gramma
- Recreation values
    - Recreation and landscape maintenance can be aligned to natural processes

    - Jackson Mountain has high potential to become a mounting biking destination
        - Trails can be used as fire line
        - Must work with outside partners to build trails
- Wildlife values
    - Wildlife is a big part of the SW CO experience and an important economic component of this landscape
        - Examples
            - RMRI: focus is water, WUI, wildlife, and recreation
            - Weminuche Audubon bird monitoring
    - Bird species drawn to open areas will come back to these places
    - Take-away: treatments will be good *and* bad for a range of species
        - A mosaic across the landscape is important
        - This is a very small portion of a very big landscape
- Range
    - Grazing allotments in this area are large
    - Animals are not usually in allotments for long periods of time or even reliably on an annual basis
- Invasive plant species
    - Vectors: animals and equipment
        - Regardless of how careful people are, equipment we use inevitably introduces and moves seed around
    - We know where disturbed areas are (temporary roads, skids trails, etc.) and can send people in the Range Program to these areas to track and deal with invasives

Tour Site III (Little Jackson 2, ASCC)

- This task order and unit has yet to be treated
    - Forest Health Co. currently working in LJ1, this is part of LJ2/Adaptive Silviculture for Climate Change
- Monitoring will be critical Post-treatment at this site (as it is at all sites)
    - Treating weeds and continued monitoring
    - Project Outcome
        - Examining at a range of conditions with pre-/post- pictures in the Control, Resistance, Resilience, and Transition prescription units
- For the ASCC study, the SJNF and USFS is working with the RMRS and researchers at CSU to create a replicable plot and study design to answer specific questions about how this forest type, warm-dry mixed conifer, responds to our changing climate
    - Other partners include researchers at NAU, FLC, and the SWERIs
    - ASCC is a long-term study that promotes partnerships between researchers and land managers while seeking to examine how different treatments and control plots respond over long periods of time to the changing climate.
        - Resistance – goal is to manage stands while still maintaining the current compositional mix over time

        - Resilience – goal is to expect some changes to current conditions, both in composition and structure; and manage for sustainability over time and changing climate
        - Transition – goal is to aggressively facilitate change in structure and composition, even to foster conditions for species currently infrequent to rare on the landscape, anticipating significant changes in composition and structure
        - Control – goal is to forego any forest vegetation treatment, and have a control reflecting current, existing forest conditions to compare and contrast against treated areas
            - **Adaptation options occupy a continuum of management goals related to their levels of desired change* (https://www.adaptivesilviculture.org/silviculture-climate-adaptation)
        - Each treatment/non-treatment unit type is replicated 4x
            - 4 treatments spread out in blocks across Jackson Mountain
            - Sets are clumped together in space
            - Pairing the study design to make it as comparable as possible
            - Study design attempts to capture variability across the landscape
            - Spatial autocorrelation
    - Will likely have lots of academic scrutiny during the peer-review process when publishing findings due to the challenge on replicability and comparability of natural environments and dynamics
- Photo-monitoring
    - A few hundred pictures have been taken at points along the road and in the interior of units
        - Points marked with rebar
        - Photos: reference tree (with recorded azimuth) and cardinal directions
    - Repeat photo points are one possible way to promote public engagement and allow for community science engagement
        - The Suvey123 GIS web-based software and web app geotags photos, then automatically upload, index, and archive them
        - Photos will be web-available immediately upon upload
    - Taking and will continue to take photos at every site on every project
        - It's fast and easy to do!
        - A great way to monitor for desired conditions and communicate with the public
- Fire
    - Prescribed fire is a part of the long-term plan at Jackson Mountain
    - Getting Rx fire on the landscape will require additional planning
    - Fire lines are *very* important
    - Prior to planning, collaborators at CSU must be involved as this research was developed through a local and collaborative process and effort

- Monitoring the shrub landscape component
    - Understory community of Gamble Oak is important and unique to our forests
    - Measuring shrub community can be difficult and time consuming
    - Shrubs are ladder fuels
        - But they regenerate quickly after a fire which can help stabilize soils
    - As shrubs interact with the forest cover, water, and soil moisture, it is important to study their impacts
        - This is an area where lots of research remains to be done
        - Forest ground cover impacts many aspects of watersheds
            - Snow water equivalent
            - Measuring soil moisture will help tell this story

End Tour 12:15pm