Southern Willamette Forest Collaborative
Rigdon Collaboration Committee
Tuesday, Sept. 20th, 8:00 – 4:00
Rigdon Field Trip #2

Participants: Andy G, Becky H, BJ K, Brian W, Chandra L, Cindy N, Sarah D, Fergus M, Guen P, Jean C, Kevin T, Kris E, Laurie P, Lon O, Mike B, Chris O, Leslie L, Molly J, Allen H, Duane B, Stephen Todd J, Lisa K, Jose M, Joanne L

Facilitators: Sarah A., Mariah A.

Quick Recap of the first field trip, Leslie Elliott
The Rigdon area is made up of four subwatersheds that total 104K acres: Buck creek, Cole creek, Echo creek and Staley creek. The entire upper Middle Fork Willamette river watershed that is about 223K acres. At the last field trip we discussed what makes this landscape unique, for the Willamette national forest and for the west side of the Cascades.

- The Rigdon project area as a working landscape which includes a balance of many uses
- This area is in a transition zone from warmer to drier climate
- The geology of landscape is diverse – impacting the water flow, soils and vegetation types
- There are four major vegetation types in this area, from mountain hemlock at higher elevations and mixed conifer at lower.
- Mixed conifer – exists here at the northern extent of its range and it is unique to the Willamette forest.
- Fire regimes - overview of fire patterns and frequency on the landscape.
    - Most of the landscape is in fire regime 3 and is mixed.
    - This area experiences a whole range of fires from high intensity, frequent fires to low intensity, frequent fires.
    - Still get big fires but also have lots of little fires.
- Fire history - people have been suppressing fires for 100 years on the landscape and the consequences mean more vegetation than would be here naturally.
- Vegetation patterns - mix of mid and late seral habitat.
    - There is not a lot of early seral habitat besides the Tumblebug fire area.
    - Much of the area is predominated by closed canopy forest, with dense continuous canopy.
- Recreation overview - campgrounds and dispersed camping are two major uses. Two major trails go through this area.
- There are important aquatics and fisheries interests in the area and floodplain restoration needs
- Jims creek restoration pilot project –
    - visited the lower part of project site: on one side of the Youngs Rock trail the forest is overgrown due to 100 years of fires suppression on the other side of the trail the forest has been restored to a savannah like condition that existed previously.
    - Talked about the native use of the area and management by prescribed fire.
- Pine grass habitat restoration - talked about early seral habitat and restoration work in previously managed stands to retain the pine and understory grass habitat.
    - The project was made possible by cooperator groups that volunteered time, labor and money.

National Environmental Policy Act (NEPA) 101, Allen Hambrick
NEPA triangle *see handout*
We are currently working on the "left side" of the NEPA triangle in the proposal development phase. At each phase of the triangle the collaborative will play an important roll. *See handout*

The NEPA document types. See the flow chart on how to determine the type of NEPA analysis needed

- categorical exclusions (CEs)
    - there are several different kinds of categorical exclusions - some that were set by the secretary, some set by the Chief of the forest service.
    - Example: trail maintenance.
    - The FS can use CEs when they know what the impacts of the action and they will not be significant
- environmental analysis (EAs)
    - used when there is not a CE category and the agency knows a project will have impacts but they are most likely not significant
    - when the analysis is done there can be a finding of no significant impact (FONSI)
- environmental impact statements EISs
    - if the agency finds there will be significant impact by the action an EIS is prepared
    - The requirements for an EIS are more detailed than the requirements for an EA
    - After the environmental analysis and EIS public review and comment periods a record of decision (ROD) is made which explains the agency's decision, describes the alternatives the agency considered, and discusses the agency's plans for mitigation and monitoring, if necessary.
    - Now objections must be made before the decision – this is a change in recent years

Interdisciplinary Team (IDT) – these are teams of agency specialists that work with the District NEPA planner and deciding official (line officer such as District Ranger) to do NEPA planning and analysis for agency actions (projects).

- An IDT can include any specialist area that is part of a project: for example wildlife bio, fisheries, aquatics, botany, sivilculture, fuels, recreation etc. Any resource that is impacted by the action is on the ID team.

Participant Q: When is there opportunity for feedback during scoping? is it informal? For the FS it is formal. During scoping the project is still developing and FS shares proposed action for comment and to get feedback from the public. The project can change based on feedback, the FS will use feedback to further develop the proposed action or alternatives. Comments become part of the record and providing comments gives legal standing for future objections. In order for someone to object to a final decision they must first comment during first two comment periods - initial scoping or during the draft EA or draft EIS.

Participant comment: Although it is a complicated process for the FS, for the public it isn't that complicated. It is easy to be part of the process, you can be requested to be on the mailing list and be informed. As a member of the public you will be provided notice when there is scoping or a draft EA or EIS. By submitting comments you are part of the process. It shouldn't be intimidating for the public.

Forest Service land management allocations, Leslie Elliott
The District has two guiding documents that are the legal authority for land management allocations - the 1994 Northwest Forest Plan and the 1990 Willamette National Forest Land and Resource Management Plan (Forest Plan). The Northwest Forest Plan amended the 1990 Forest plan.

- Between the two documents all of the forest is allocated into management areas with boundaries.
- Each management area has management goals, objectives, prescriptions, standards and guidelines. *See handout*
    - Administratively withdrawn areas –example: recreation areas
    - Scheduled timber harvest areas – areas the Forest determined are best for growing and harvesting timber
    - Late successional reserves (LSRs) - areas identified with the objective to protect and enhance old growth forest systems. 100 acres and larger.
        - Participant Q: Why 100 acres? Places where spotted owl nests were historically
    - Riparian reserves (not on the map because of the scale) - areas along all streams, ponds, wetlands and areas of unstable soils where riparian needs are emphasized. The riparian buffer is 170' on each side of stream (based on tree height). FS documents will always refer to the buffer on one side of the stream – so a riparian reserve will be 340' total
        - Class 1 stream - permanently flowing with anadromous fish or municipal water supply.
        - Class 2 stream - has fish
        - Class 3 stream - does not have fish.
        - Class 4 stream - intermittently flowing
    - Matrix land areas – All federal lands outside all the other land allocations. Typically these lands are where FS does timber harvest.
    - Matrix lands have the following objectives:
        - 1) emphasis production of commercial yield of wood,
        - 2) retain moderate levels of ecological valuable old growth component: snags, logs, large green trees,
        - 3) provide ecological diversity for providing early seral habitat.

Forest Plan management areas: The Willamette has14 management areas with management goals, desired future condition, standards and guidelines.

- Oregon Cascade Recreation Area - near Diamond peak; where the Forest provides broad array of recreational opportunities
- Research natural areas
- Special area habitats - old growth
- Wildlife habitats – example: management Area 8 bald eagle habitat
- Scenic Areas - visually sensitive landscapes where must consider how it visually appears from nearby roads
- Developed Recreation Areas – such as campgrounds
- Management Area 14A - general forest areas where timber management occurs.
    - The objective if 14A areas is to produce timber.
    - The Middle Fork district has an annual timber target of 40 million board feet and 45-60% of the timber target and happens in 14A locations
- Participant Q: Can the forest harvest timber from LSRs? Yes, but its not the objective.

- Participant comment: The way timber targets have been met isn't how the Northwest forest plan calculated it to happen. American Forests Resource Council member organizations are concerned that the Agency can't continue to sustainably harvest the way they have been. The agency has been managing by thinning the forest instead of regeneration harvest, when you start a stand over. The scheduled timber harvest in the 1990 forest plan was based on regeneration harvesting. For example: the Jim's creek project is not considered a regeneration harvest because the plan is to not regenerate trees - it is to keep out trees.
- Participant comment: There are different types of regeneration harvest and they are not synonymous. For example - all clear cuts are regeneration harvest but not all regen is a clearcut. A clearcut removes all vegetation on unit; shelter wood leaves limited overstory for native seed source; group selections harvest smaller groupings and looks like swiss cheese, creating retention areas and openings.
- Participant Q: Are there minor regen projects that can be done in LSR? Yes, the FS can create openings and gaps up to 3 acres. The McKenzie district recently did a project like this.
- Participant Q: What size of an area is needed for Doug fir regeneration? Probably an acre is as small as an acre for Doug fir. Doug fir don't necessarily regenerate in understory units because they need a lot of sunlight. If there is an opening where they get good sun then they can grow.
- Participant comment: It could be ecologically important to create large enough areas for Doug fir regen in LSR areas for early successional habitat where it is limited for species such as elk. Yes, but the intent of LSR is to protect and enhance for late successional species. Elk are primarily an early successional habitat dependent species. Gap cuts in LSR do create diversity of structure.
- Participant comment: Elk are truly an early seral species and will survive in only early seral areas, whereas if they have only late seral habitat they would die. They don't need shade brakes or cover. They will use the older forests but they are not dependent on them.

Land Allocations in Forest Plan, Molly Juillerat
Within the Rigdon project area and visible from the field trip stop #1:

- Special interest areas on map - SIAs
    - The Forest plan online on WIF website which includes the SIAs
    - Management actions focus on protection of important historic cultural aspects of nations heritage and foster public use and enjoyment.
    - SIAs are part of the larger Rigdon area and need to take in consideration when talking about management actions in this area.
    - It can be complicated when land allocations overlap. The FS must make management decisions by following the most restrictive standards and guides.
    - Not a lot that has been done in some SIA spots so it is exciting that they are located within the Rigdon project area.
    - When doing planning we have to pay attention to these land allocations.
- Moon Point - about 2K acres set aside for botanical reasons. Includes neat meadows and plants among unique rocks formations.
- Chuckle Springs - set aside as a scenic area but it is an important area for bull trout. Tumblebug fire burned through there but the green lush understory is starting to come back.
- Culturally important areas - rock shelters

- Rigdon Point research natural areas - part of a system established for non-manipulated research. Includes Knob Cone pine – a fire dependent tree at the northern end of its range. It has been studied by volunteers and college students, including several masters thesis.
- Big Swamp and other old growth groves. Set aside to be generally accessible to the public. By definition they have to be easy for people to get to.
- Middle Fork Willamette river – proposed as a wild and scenic river and listed as "eligible" in the Forest Plan.
    - In order to be designated has to be designated by congress. The management plan is to manage so that it stays eligible. Proposed in 1990 and not a lot has been done since then with some exception of some research.

Seneca Private Lands, Kevin Tours, Seneca GIS inventory forester, biomass specialists

- In the Upper Middle Fork area Seneca owns about 20K acres of private timber lands; originally owned by the Pope and Talbot mill. There are 12-15K acres of Seneca lands within the Rigdon area known as Simpson Creek Seneca lands. Much of this forest is 10-30 yr old Doug fir plantations.
- Seneca is in the business of growing Doug fir trees for their sawmill operations. The management plan right now is to maximize fuels reduction and long-term growth.
- The forests are thinned at about 30 years and intense regeneration at 60 years.
- Seneca has a sustainable harvest plan that is mapped into units to be harvested sustainably over time. Must follow their sustainable harvest plan - growing trees the same rate they are harvesting.
- A company like Seneca does not harvest based on market conditions it based on the long-term sustainable harvest because they need their trees to keep their mill running long term. It is different then how some other timber companies operate.
- Seneca must abide by regulations governed by the Oregon State Board of Forestry for timber harvesting, water quality, wildlife, road use, and fire protection.
    - A lot of recreation happens on Seneca lands –lots of hunting because they keep their roads open.
    - Simpson is good winter range for elk and deer and therefore gets lots of public use.
    - Don't physically close roads but will close all lands during extreme fire danger.
- Participant Q: Tree ages and types? The oldest trees on Simpson land right now are 50-55 years.
    - Trees take longer to get to a merchantable size here because of the drier climate, longer winters and colder temps.
    - Seneca does have mixed conifer pine forests where you see more open habitat and the geology inhibits Doug fir growth. A Simpson lower elevations model similar to lower Jims creek so Seneca will plant pine, grand fir, and cedar instead.
- Participant Q: Stream side buffers? Under OR Dept. of Forestry streamside protection is 100 ft or 50 or 80 ft for smaller class streams. There is no bull trout in Simpson Cr. because it isn't a cold water habitat due to the geology.
- Participant Q: What percent of Simpson lands are early seral stage forest? For age class of 1-10 yrs only 1-2%.
- Seneca lands are part of the Blacktail deer management plan. There is very little early seral habitat in this area and the Blacktail populations have declined. In the future when Seneca starts

to do more regeneration harvest there will be more early seral habitat but a lot of the younger stands have grown up out of that early seral condition.

Spotted Owls, Joanne Lowden
The handout shows the highest quality habitat *see handout*

- Suitable habitat - associated with late successional forests with large diameter trees
- Critical spotted owl habitat for nesting rusting and foraging:
    - Large trees – cavities – 50-90% dense canopy
    - Complex vertical and horizontal structure
    - Snags and downed wood good for foraging – prey species
- Dispersal habitat – mid seral stands 49-79 yr old stands – important for spotted owls for movement across landscape – important for juveniles as they disperse from natal territory
- Participant Q: Private lands? These are not designated as critical habitat area.
- Participant comment: A lot of what was included in Rigdon area as critical habitat was not historically habitat because it was dry forests. The US Fish and Wildlife Service (FWS) designated it as critical habitat even though the only way to keep it as habitat is to suppress fire in these areas. The State of Oregon specifically asked FWS to not include dry forests as critical habitat because it is not appropriate to assume we can stop fire from occurring in these areas. The FWS decided to designate it with exceptions that they would not stop restoration in these areas that will prevent catastrophic wildfires.
- Under the recovery plan there is a lot of language about dry forest restoration and the need to balance it with spotted owl conservation needs and landscape resilience. Complicated and controversial.
- Participant Q: What happens if an area is surveyed and there are no owls? Depends on what is considered for this area. It is possible site centers shift and they will be found in areas they didn't exist historically because of barred owls pushing spotted owls around. The FWS may decide to shift areas or protect the whole area. Any decisions will be in consultation with FWS
- Recovery Area 32 – where see taller trees – are the most important areas in Rigdon for spotted owls. Small patches on the landscape. These are high quality habitat stands where you see the most diversity in structure. Often hear biologists talking about these areas.
    - Each area can be different in how they define RA32s. On the Willamette – patches are well distributed, providing connectivity, generally with trees over 175 years.
        - The forests are structurally complex with decedent components, snags and wolfy trees with expanded crowns.
        - High amounts of canopy cover 60% or greater.
        - Younger stands can qualify as RA32 when they have these characteristics and sufficient 60% canopy cover. Can have as few as 4 large diameter legacy trees.
- Participant Q: Implications for forest planning? It means there will need to be consultation with FWS. Some things to consider in this area managing for mature forests – creating late successional characterizes and doing things to help protect these areas.
- Participant Q: Is active management prohibited? No, its not prohibited. The critical habitat management plan recognizes there are conflicting designations and needs.
    - The FS tries to work with FWS early on
    - FWS is familiar with the Rigdon area and the complexity of the landscape.
    - If FWS had the staff they would most likely try to participate with the collaborative but they are short staffed.

    - The FS will work with them throughout the entire project and provide them with a report.
    - Until the FS can get more detailed about proposal than it is hard to know what concerns may come up.
- Participant Q: how has the survey methods changed with the presence of barred owls? Now the FS does 6 site visits, 2 full years of protocol survey and there are different rules to declare a site unoccupied. There are barred owls in this area and the spotted owls are much harder to detect.

Red Tree Voles (RTVs), Joanne Lowden
see handout
RTVs are a small tree dwelling rodent that eat needles of doug fir, grand fir, western hemlock and Sitka spruce trees. They are a prey species for the northern spotted owl. They build nests in upper 2/3 of trees that are near a food source. They are important because they are a survey and manage species and depending on proposed treatments the FS is required to survey for them. If any nests are found they must be protected.

- They were exempted from the survey and manage list years ago because they were very common on the forest and just got listed again.

Upper Middle Fork Watershed Action Plan, Lisa Kurian
on Rigdon project webpage

- The Action plan was a regional effort to document the most critical, unique watersheds and list all the projects that need to be done within the watershed.
    - Essentially a brain dump of all the priority projects that need to be done in the watershed.
    - Includes all disciplines and talks about the topics we have covered – restoration projects, management objectives, aquatic recovery projects, etc.
    - Much of the work has already been done and the FS will provide a list of completed projects.
    - Watershed condition framework and MFWWC Action plan are similar documents developed with the same partners that collaborated on the Upper Middle Fork watershed action plan.
    - Participants can use the action plans when considering projects and as a tool for future restoration projects that can be done with stewardship dollars
- How watersheds are defined – basins defined by natural terrain that causes water to flow to a stream or river. A watershed starting point is at the mouth or lowest point of any river; starting at the bottom and working up to the ridgelines.
    - Watersheds are referred to by size - FS typically analyzes 6th to 5th fields watersheds
    - The Upper Middle Fork river watershed is a 5th field watershed; typically referred to as a "watershed"
    - Larger streams that flow into 5th fields are 6th field watersheds – Staley, Echo, Swift, and Buck Creek; typically referred to as "subwatersheds"

Staley Cr. floodplain restoration project, Sarah Dyrdahl, Lisa Kurian
This project was an important priority project for all partners. The watershed council and FS were able to pursue this project because of the action plans that identify important projects, including local knowledge and important data.

- This Staley floodplain project

    - will make 45 acres of floodplain accessible.
    - The project area is a 1 mile stretch of Staley creek that the FS now owns, it was once Pope and Talbot land that was logged and used for road access.
    - This is an important area for fish habitat – bull trout and spring chinook foraging habitat.
    - became possible after a recent blowdown event in the Jim's creek project area.
    - The FS donated the large trees from Jims Creek and MFWWC used match funds from the Jims Creek stewardship project and leveraged 260K of OWEB funds to pay for the construction needed for this project.
- The Bull trout were poisoned and removed from the middle fork river, and then reintroduced about 20 years ago. This population came from Anderson creek on the McKenzie.
- Floodplains – they are the sponges of the landscape as well as other important functions. When they are disconnected they can't perform these functions. Staley is not actually a functioning stream right now because it can't access its floodplain. When there are snowmelt and rain events the stream should be able to rise and access the floodplain where the water would be absorbed and slowly released back into the stream during lower flow events. When floodplains are not accessible the water goes downstream and takes everything with it.
- Benefits of floodplains for Fish – *see handout*
    - See handout - 3 columns of fish growth on flood plains, canals, and rivers. Lots of reasons of why – the food is on the floodplains not in the rivers.
    - The second graph shows the habitats of pool, tide, and riffles.
    - The floodplain the graphs show that the fish densities are higher. This is important because there are numerous species that use the floodplain habitats and are important to the system.
    - It is important to know that these projects are not just about fish – fish are the indicator species but there are effects are important to many species – western pond turtles, etc.
- Floodplains are a freshwater analog to a marine reserve - important to critical life-stages for many species. These are anchor habitats.
- Site history – *see handout* for historic pictures of the river
    - 1960s Pope and Talbot started clear cutting Staley creek, over 500 acres in this project site was clear cut.
    - Bridges and dikes constructed for roads.
    - Berms were constructed to keep the river in a channel.
    - The infrastructure prevented the river from reaching the floodplain and caused the river to channel deeper, down to bedrock in some places. Over time large cobble that has been moved by the stream and has now downcut so far that there can no loner be any connectivity to floodplain.
    - LIDAR imagery shows old channels where the stream used to move before it was constrained by levies.
        - This channeled the stream that continued to downcut and move sediment and large rocks downstream.
        - This eliminates habitat for aquatic organisms and complexity – pools and ripples, that you see in healthy streams. Leaves nothing to eat for big fish.
- Staley Floodplain Restoration - the plan is to remove anything that is constraining the stream.

    - In the absence of intervention this system is not on a recovery trajectory on its own. It is now acting as a transport area and will not return to a floodplain on its own anytime soon.
    - Aggrading – replacing the materials that have been removed from the stream. Any higher areas that are natural or human created barriers will be pushed back into the stream.
    - Large wood will be replaced all along the floodplain. Wood helps hold everything together and adds complexity to the floodplain.
        - 600 pieces of large wood across entire floodplain and the river will do the work to create the complexity.
    - Returning diversity of habitat for life stages and making accessible floodplain
- With the climate changing it is important to consider the functions healthy floodplains contribute to the river system by holding water and releasing cool water slowly.
- There are more opportunities in the Rigdon landscape to turn areas that are supposed to be floodplains, but are now transport reaches, back to floodplains that are now lacking on the landscape.
    - Swift Creek –area 4x bigger than the Staley with the same potential for floodplain,
    - Doing this restoration along the Middle Fork at numerous confluences will reintroduce habitat that is important for many animals.
    - There is an opportunity for further stream restoration projects when doing forest restoration work that can provide large wood. If considering the removal of certain habitats in one area on the landscape then should consider other areas on the landscape that can use that habitat.
        - Need 40 pieces of large wood as anchor pieces to do this work otherwise it is not worthwhile to do.
- Participant Q: What type of wood is needed? All wood is good wood. Streams are supposed to be dynamic and need a diversity of big and small logs, with root wads and without, burned wood ok. But to do the work must have a few key pieces – large trees with root wads – they hold everything together and in place.
- Similar projects have been done on the Forest - Moose Cr, Deer Cr, Soda Fork – other places on the WIF. Staley is the first big earth moving project on the Middle Fork. This project has been thought about for a very long time but it was the big trees from Staley creek that made the project possible.
- The group can take more tours to look at this project and other opportunities and do a really deep dive into stream restoration.

Culturally Modified Trees (CMTs) Stephen Todd Jankowski
Archeological features are features found on the landscape that can't be moved and must stay in the place they exist. In the Rigdon area there are historical and pre-historical markings.

- CMTs were created by both Native tribes and white settlers
- Central Military Road marker – a historical marking on a 350 year old pine tree near Rigdon Meadows in the Sacandaga campground. See handout
    - Historical trails and roads often marked with a candlestick like mark.
- Prehistoric examples are tree markings from native people's use of trees for the cambium layer. These trees provide a preshitoric record in time of the people who were here.

    - Although not fully understood, Native people would create these trees likely to access the cambium in the bark as a winter starvation food and to use the sap as salves, there are also reports it was used as a chew for kids
    - Most often scars from peels are found on old ponderosa pines. *See handout.*
    - Spruce and Cedar trees will also have scars from being peeled.
    - Similar trees can be found throughout the west, in the Southwest and in Canada.
    - Its important to know where they are located to protect them from fire.
    - There are several ways to identify the trees such as a triangle that starts low near the base, and sometimes with cut marks. *See booklet handout.*
- In the Jim's Creek area there were ~70 CMTs found and expect another 70 or more exist in the Rigdon area.
- Measuring these trees has provided an idea of the period in time when fire was used as a tool by the Native peoples in this area.
    - It is thought that one reason prescribed fire was used by the native peoples to keep the area clear for hunting.
    - Wasn't until 1999 that the District started looking for and recording CMTs
- The big Ponderosa pines with prehistoric CMT features are common in eastern Oregon and the Deschutes and Klamath areas but to have such a high dense population of CMTs in western Oregon is very special and unique.
- Participant comment: It is important to find these trees and protect them. The CMT pines are dying because of being overcrowded, self-pruning with a crown ratio of 10-15%. When crown ratio becomes less than10-15% ponderosa trees will die. Need to act soon to save these historical and cultural features
- Rigdon Meadows
    - Long history of peoples in the area, key trade network area for southern Molalla, Calapooia, and Klamath peoples. Obsidian found here, used for trade
    - Through this area ran the Free Emigrant Road, 1854 was the first successful passage to the southern Willamette Valley
    - Rigdon's Way Station was set-up in meadow vicinity
    - More recently the meadow was the site of a US Forest Service office

Meadow enhancement, Molly Juillerat
In the watershed action plan there is a list of meadows that can use restoration: Big Pine, Rigdon and many meadows on the Calapooya divide. *See handout*

- The Rigdon area has dry meadows, openings, and wet meadows
- Dry meadows and openings were naturally maintained by fire. Some meadows can be treated by underburning: cutting back encroaching trees and reintroduce fire.
- Meadow restoration – when there is more native composition it is good.
- Rigdon Meadow Restoration
    - It was burned in 2009 after small trees were cut back
    - Not a species rich meadow because of high historical use – more burning could help a resurge of native seeds (30-40% native plant stock)
    - Meadows like this are good open habitats for big game
- High elevation meadows – there are some sensitive species in the high meadows that the FS tracks and protects.

- The Calapooya divide is the northern habitat range of a lot of different species. The FS has done a lot of meadow restoration but there is still more to do. The plan is also helpful to pursue grant dollars and internal FS funding to get this work done.

Tumblebug fire, Jose Mercado
Started from Sept. 12th 2009 lightning storm that started many small fires in the Tumblebug drainage.

- Almost all the fires were put out except for two that were in the tumblebug drainage.
- A wind event blew these two fires over the fire line and caused fire to grow rapidly. It is the largest sized fire on the forest, for as long as it has been a national forest.
- It eventually grew to 14,560 acres, which is a large fire for this area.
- Fire mortality - 57% burned mortality level 1 or 2 – relatively severe. *See map.*
    - The fire burned hot and mortality was pretty high.
    - Without the weather the fire would not have burned as large or hot. Normally would expect a more mosaic burn.
- Much of the fire area had been managed previously for commercial logging.
- Land allocations map: The fire did some good in some areas. Tumblebug is a special interest area for rock geology, which was not impacted.
- Wildlife special habitat areas – meadows and old clearcuts that hadn't grow back well looked good after the fire.
- In the meadows the fire did some good work pushing back encroachment. some of the fire was not good, and burned much hotter than preferred. Hotter than a prescribed fire would for example.
- Some areas the natural regeneration has been good and other areas not.
- The FS did some tree planting and the District silviculturist has been monitoring to monitor which tree species regenerate naturally.
    - In the higher areas there has been really good natural regeneration. Primarily true fir and some Doug fir.
- A few research PhDs have been done in the fire area
- A few hundred acres of LSR burned.
- Post fire restoration treatments: As part of the process a burned area restoration team took actions to reduce sediment flow into the Middle Fork, which is a listed fish stream.
    - Wood straw was dropped from helicopter in some locations. Some road sides were seeded to prevent weeds from coming in along roads
- Participant Q: Can landscape level treatments prevent severe fire? In some instances it can, but in a fire such as this, a severe weather driven fire, it can't. Research suggests that thinning and fuels treatments helps to hold fires when they are on the ground.
    - For low and medium severity burns then fuels reduction helps to be very effective in suppressing the fire.
    - Tumblebug was a wind driven fire during very low relatively humidity with dry fuel so it burned very hot. Some of the most severe fire was in the old growth stringers. Fire burned very hot and was hard to fight in those areas. This was a weather driven fire and everything was consumed.
    - Interesting to see post fire that 20 yr old stands or younger did not burn, they stayed completely green, but the fire burned the old growth around it because of a running crown fire in the canopy.