Implementation Monitoring

While implementation monitoring is not part of the new monitoring questions resulting from the 2012 Planning Rule, the Willamette National Forest is committed to implementation monitoring and was Monitoring Question 1 in the 1989 Forest Plan Monitoring Strategy.

MQ 1 could be paraphrased, "Did we do what we said we were going to do?" This is the definition of implementation monitoring and the focus of many of the monitoring activities that occur on the Forest. Various levels of interdisciplinary monitoring reviews were carried out in 2016 and 2017 to focus specifically on compliance with the Forest Plan.

Ranger District	Activity Monitored 2016	Activity Monitored 2017
Detroit	Marion Forks Day Use Improvements and Restoration EA	Cancelled due to White Water Fire
Sweet Home	2012 Canyon Creek Large Wood Enhancement CE Phase 2; Canyon Thin EA, Fall and Leave in Riparian Reserve	Camas Prairie Meadow Restoration, Dispersed Camping closure, NTLJ (Toll Joe EA) over 80 thin
McKenzie River	410 Hazardous Fuels Project; Middle McKenzie Side Channels Project (Delta Tree Tipping)	Deer Creek Restoration CE
Middle Fork	Little Fall Creek Steelhead Habitat Enhancement Project	Deception Danger Tree, Deception Fire Planting and OWTFR unit 17

Table 15: Projects monitored in 2016 and 2017

Standards & Guidelines

Monitoring Question 1. Standards & Guidelines

Are Forest Plan standards & guidelines being incorporated into project level planning and decisions?

A Forest Supervisor monitoring team visited all of the districts and monitored several projects in 2016 and 2017. The results and findings of each monitoring trip were documented and used to generate communication between districts and forest personnel as well as contribute to the overall evaluation of the Forest Plan. Very often these trips also result in recommendations to the Supervisor's Office (SO) for changes or clarifications to the Forest Plan standards and guidelines. The projects to be monitored may be from any resource program area. Criteria for projects are those under the current Forest Plan as amended by the NWFP standards and guidelines and those with a substantial amount of on-the-ground work accomplished.

Forest Plan Standards and Guidelines, Northwest Forest Plan direction, and overall consistency of projects to the general goals and objectives of the Forest Plan were reviewed. The documentation (NEPA analysis, decision documents, prescriptions) and the on the ground results were checked for compliance with the Forest Plan. The monitoring team consisted of the Forest Supervisor or, Deputy Forest Supervisor, SO Staff Officers, the Forest Interdisciplinary Team Leader, SO technical staff, District Rangers, and District staff.

Forest Supervisor Reviews

Objectives of Review

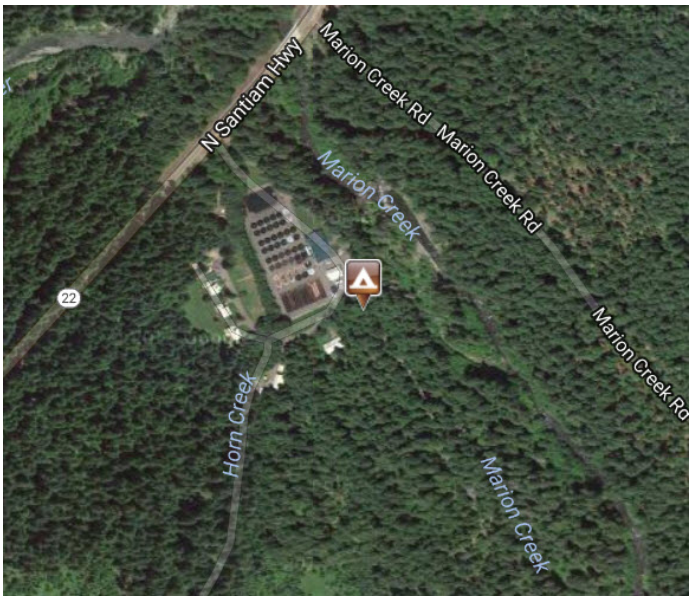
- Were the objectives, standards, guidelines, and management practices specified in the Forest Plan being implemented? "Did we do what we said we were going to do?"
- Were there lessons learned to improve future projects?
- What are the management issues currently faced by the district?
- Supervisor's expectations of the review was to have open and honest discussion.

Detroit Ranger District 2016-Marion Forks Day Use Improvements and Day Use EA

District Ranger Grady McMahan welcomed everyone and gave introductions. He also wanted to thank everyone who worked on the project, including some folks who are now gone and started the project. Suzanne Schindler gave the objectives of the review which was to evaluate the consistency of project design and implementation and to learn for future projects. Forest Supervisor by Tracy Beck shared expectations and also wanted to learn from completed projects for future project design. Tracy talked about his past NEPA experience and how he would like to see the Forest get ahead in its planning. The Forest should be 2 to 3 years ahead in planning and EA's should be 100 pages. Josh Weathers and Darrin Neff gave an overview of the project and its history The District Planner Lyn Medley, gave a safety briefing.

Stop 1- The review team traveled to the Marion Forks Day use area and spent the day there. During the day we looked at the Day Use Area improvements: starting at the new parking area, the relocated camp sites and the stream restoration work. The team also got a chance to look at the Fish Hatchery.

New parking Area



Josh Weathers spoke about the Marion Forks Day Use Improvements and Restoration Project EA. This project improved visitor facilities and parking, the site entrance at Highway 22, the riparian area along Marion Creek, and constructed new campsites in the upper campground loop. The original campground was built in 1960. The lower loop of the Marion Forks campground has seen increased use over the past decade, which has increased impacts to the riparian area. User impacts combined with minor flood events in Marion Creek have eroded the banks and reduced the size of some of the sites. The small parking area was never compatible for large recreational vehicles or buses, and the lack of wayfinding signs made the site hard to navigate for visitors. The project addressed these issues by expanding the parking lot and adding updated wayfinding and interpretive signage.

This project received $452,000 in 2013 from Federal Highways as a grant which was added to other District funds. In 2014 work on the project commenced and was undertaken by contractors, the district fire crew, Linn Country Juvenile Crew, volunteers and members of the Santiam River zone.

Darrin Neff spoke about the Marion Creek Stream Restoration Project. This restoration project improved spring chinook and potential steelhead habitat in side channels along 0.4 miles of lower Marion Creek. The need for the project was to increase the amount of large wood in this area. This lack of large wood was the limiting factor for fish habitat in the project area. There was off-site log recruitment, placement, and repositioning of existing project logs needing structure maintenance.

The instream log structures contract was done as an additional contract to the campground work. Since two different contracts cannot operate at the same time for the same area, there was some tricky coordination. The instream work started later than usual July 13 for this type of project. This resulted in delaying some work for a second season because of instream seasonal restriction that ended on August 31. Surveys were completed to address occupancy of Harlequin ducks and bald eagles; neither of these species were found.

Darrin wanted to add an underwater fish viewing area but was unable to do it with this project. An evaluation of the site and buildings needs to be completed before the viewing area can be added. Darrin still plans to analyze and complete the viewing area at a later date. The ownership and operation of the fish hatchery is complicated: the Army Corps of Engineers pays Oregon Department of Fish and Wildlife for operations and the hatchery is on National Forest land.

Mike Howard talked about engineering improvements that were completed. A bio-swale was put in off the new parking area to catch potential vehicle oils and prevent them from entering the stream. It is small and its use has yet to be observed, but it may be useful in a large storm event. The group also talked about upgrading and moving the outhouse away from fish hatchery to its current location just off parking area and from the steam. This relocation was a much needed improvement.

Suzanne Cable talked about the fact that this Day Use Area is not a fee site. The Forest service does pay for summer garbage removal in the campground. Recreation staff is trying to determine if the Day Use Area is being used for its intended purpose or if it is serving as a rest stop. They are also working on determining whether the campground is sustainable.

Chris Boyd from Oregon Fish and Wildlife talked about the fish hatchery which is directly across from the Day Use Area. He is the facilities supervisor and sees a lot of use of the picnic area. Users often come over to look at the fish hatchery. He invited the group to a tour, which he gave after the monitoring was completed.

Day Use Areas

The group walked down an asphalt trail from the parking area to where the picnic table day use sites are next to Marion Creek. This trail is universally accessible and has interpretive topic boards along it. The signboards are colorful and talk about what is going on along the trail.

The group then stopped at Marion Creek viewing site located off the asphalt trail. This viewing site is located where people naturally gravitate towards when viewing the creek. It is circled by log fencing to keep people off of stream bank and away from vegetation. The site has compacted gravel paving. A fish log structure was built near this viewing site and where adult salmon can be observed spawning every year. The logs came from trees previously on the new parking lot site, logs retrieved from Detroit Lake, Big Horn fire danger trees, and logs a purchaser didn't want from a timber sale.

The group continued down the trail which looped back around and was shaded by conifers. A few changes were made to the original plan. A culvert was added for drainage and a few large trees were able to remain next to the road and provide shade. Also, asphalt was used instead of a porous stone for the path due to less maintenance requirements.

The Day Use Area served as a good example that was used in requestiong grant funds for the Detroit Flats project. The asphalt and railings keep people off sensitive areas, and vegetation was able to grow back. The area was also compacted from prior use. An excavator was used to de-compact the ground and the areas that were previously compacted replanted. Some of the replanting was done by volunteers.

The group then walked over and looked at the potential site for underwater viewing across road from Horn Creek. Horn Creek is spring feed and is the backup water supply for the fish hatchery. Adult fish from the Minto collection facility are put into Horn Creek.

Campgrounds

After lunch and pie the review team went to the campground up the road. The new sites had post railing around the campsites to reduce impact to vegetation. The sites also had compacted gravel which was nicely raked. There were a total of 15 sites. With fish hatchery personnel presence there is reduced vandalism. However a campground host is still needed. To attract a host, improvements are needed such as water, power, and electricity. Also a pathologist did visit and review the campsite areas to determine if any other trees were diseased. The intent was to do tree removal for clearing new campsites and diseased trees at same time.

River Structures

Marion Creek Stream Restoration project was done because the creek is lacking gravels for fish to spawn and rear juvenile fish. The new log structures create pools and areas that would improve spring chinook and potential steelhead habitat in side channels. Past timber harvest, stream clean-out and the removal of trees along Marion Creek Road 2255, the Marion Forks Fish Hatchery and adjacent camping have reduced the amount of riparian structural wood.

The original plan was to pull trees into the river from the banks to form wood structures. However, the desired large trees were growing in groups and removing them would create large unwanted gaps near camping and day use areas. So instead logs were brought in from various places, some from the clearing of the parking area and new campsites.

An excavator was used to place the logs. Darrin Neff was on site with the operator of excavator to direct placement of the logs. Darrin worked with Mike Miller from Coos Bay who is a legend in restoration work.

The group then went to the fish hatchery to tour the facilities. In one of the holding circular pools the group saw some really big fish. Chris Boyd talked about how the fish are grown, and released.

Wrap Up

Thanks to the District for organizing monitoring trip and especially thanks for the yummy Marion berry pie at lunch.

Thanks for making the project work. There was great integration of different resources for restoration of recreation facilities and fish habitat.

This project was used as a very good template of restoration work and used as an example for grant requests for the Detroit Flats project.

Good follow through of implementation from planning. Adjustments were made where it made sense and still remained within the intent of NEPA documentation. There were some glitches such as the interpretive signs that had to be sent back because of the colors were off (brown streams) and the delay of the fish viewing site to some future date.

Really impressed by how well everyone worked together.

Tracy: Good job. Would like to see more done in NEPA documentation, can plan to do later parts as money allows but good to analyze in one document so have shelf stock.

Detroit Ranger District 2017-Canelled due to Whitewater Fire

Sweet Home District 2016-2012 Canyon Creek Large Wood Enhancement CE Phase 2; Canyon Thin EA

Introductions were started by District Ranger Nikki Swanson. Suzanne Schindler gave the objectives of the review which was to evaluate the consistency of project design and implementation and to learn for future projects. Deputy Forest Supervisor Expectations by Holly Jewkes: also wanted to learn from completed projects for future project designand to appreciate work being done.Lance Gatchell gave overview of project and history; this included partnerships with invited public. Ken Loree gave safety briefing.

Stop 1- Travel and park at Riparian Fall and Leave project in Unit 1 of Canyon Thin EA. Discussed benefits of fall and leave for stream restoration and downed wood.

To increase instream wood for hydrologic stabilization was purpose of fall and leave. By providing structures in stream, if the area had big storm event wouldn't get scouring of stream bed to bedrock. Wood in stream would also increase complexity and diversity in Riparian Reserves while maintaining a shade component. Also falling trees would open up canopy to encourage hardwood sprouting for diversity of desirable tree species.

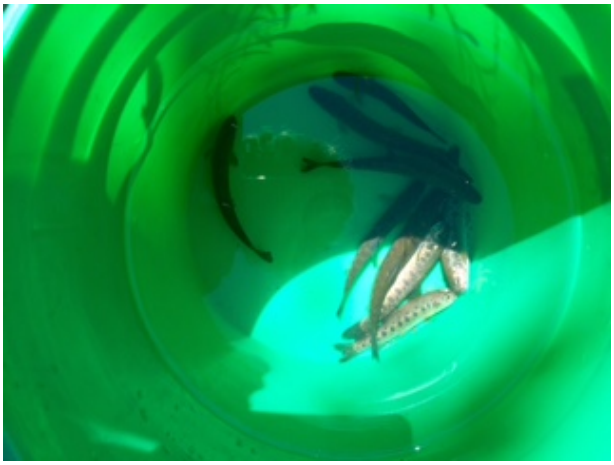
Initially about 1 tree per 100 feet were dropped into creek in unit by forest service crew. However, this was not enough so fell about 2 trees per 100 feet. First fell easiest trees near stream then added bigger Douglas-firs. Did consider safety in felling of trees and work was done by Forest Service personnel. This could be done with a stewardship contract. The results of felling trees was to easily maintain 70 percent canopy cover as required in EA.

An important discussion was about different purpose and need for adding wood to streams. For Canyon Thin EA it was for hydrologic stabilization. This stream in Unit 1 was steeply incised, without wood to slow down run off and the stream benefited with the addition of trees. Other project goals were discussed as follows. The purpose Canyon Creek Stream Restoration project was to create large instream structures to form pools for fish. The purpose of the Jude Ridge project is to provide down wood for nutrient recycling, habitat for aquatic and terrestrial species, gaps for diversity of structure, and recruitment for vegetation diversity.

Also discussed was need for thinning. In overstocked plantations thinning is needed to reduce inter-tree completion. When this is done it gives the remaining trees more space and nutrients to increase the depths of crowns. Some tree crowns seen ranged from 50 to 60 percent down the shaft of the tree. With the increased depth of crown the trees can withstand snow damage of wet heavy snow that is common in west Cascades.

Since the fall and leave of trees was within the unit boundaries consultation with Fish and Wildlife was easily done. It's important to note not all fall and leave is within units and must be consulted on.

Stop 2- Travel and park at Canyon Creek stream restoration project. Walk downstream to see different structures. Discuss implementation of the second phase and results of the project. Before almost no fish, now lots of fish.



When the review team got to Canyon Creek we met fish and wildlife personnel counting and tagging juvenile salmon. This was proof of successful habitat development for fish. The Sweet Home steelhead population is a genetic legacy above the dam. This genetic legacy is unique and found in Canyon Cr., Moose Cr., South Santiam and Soda Forks Cr. The Forest Service does monitor steelhead spawning or Redd counts.

Phase 2 of Canyon Creek Large Wood Enhancement Project CE created additional island jam large wood structures and reworked meander jams into more complex structures. This created habitat complexity of pools and a deeper channel, as compared to a relatively uniform shallow stream. An Island jam is created by placement of large logs on a gravel bar also call trash rack. This trash rack catches gravel, rocks and creates structures in the stream for winter steelhead to use. The wood also degrades overtime and attracts insects that are food for fish and other aquatic species like salamanders.

This placement and a majority of work occurred on private timber land as part of a cooperative approach to watershed restoration in the South Santiam River Watershed under the Wyden Amendment authority. Phase one was the initial meander jams or logs placed from the stream banks.

Logs where added to phase one structures with excavators. Instream work was done following project design criteria (PDC) between July 15 and August 31. There was short term effects of disturbance to stream but with long term benefits for habitat creation. Also no trees greater than 36 inches were used according to PDC's. Trees were from created gaps of old Flam Santiam unit that were about 120 years old. As part of this project a network of unauthorized ATV trails in the floodplain below the bridges was also decommissioned.

The Watershed Council received a grant from OWEB for work on private lands and help facilitate the project. The Forest Service matching contribution was in the logs provided for the stream structures.

Placement of log structures are situated one mile upstream of bridge to address potential impact may have on bridge. The group had a discussion about affects to bridge and there was a concern with Weyerhaeuser in the Little Fall Creek Steelhead Habitat enhancement project. This project did acknowledge there is potential and some movement of log structure is expected. Did talk about a large log jam above Moose Creek bridge but with winter storm events it moved and dissipated downstream and did not affect bridge.

Stop 3- Travel and park at unit 12 of Canyon Thin EA to observe no cut buffer on perennial stream and thinning in Riparian Reserves outside the no cut buffer. Unit was thinned in 90s without thinning Riparian Reserves and thinned again recently including thinning Riparian Reserves outside the no cut

stream buffer. Discuss benefits of Riparian Reserve thinning in 30-60 year old plantations of Douglas-Fir. Discuss of Riparian Reserves and wildlife habitat.

The group talked about the second thinning in Unit 12 and for this entry within Riparian Reserves outside the no cut buffer. The EA purpose was to encourage tree growth and vigor as well as to increase complexity and diversity in the Riparian Reserves. First thin in the 1990 did not thin Riparian Reserves and left the stand dark, dense and without much undergrowth. The discussion talked about thinning to meet Aquatic Conservation Strategy Objectives which were developed to address clear cut harvesting prior to 1994 when Record of Decision to approve the Northwest Forest Plan was developed. The thinning we now mostly plan and implement is to meet landscape diversity of structure and species.

Thinning in Riparian Reserves is especially appropriate in managed stands. These stands were generally over planted to ensure growth survival and intermediate thinning was expected. Effects of Riparian Thinning on Wood Recruitment: A Scientific Synthesis (Spies et al 2013) was discussed. The study states "benefits of thinning for older forest ecological objectives are less clear in stands over 80 years of age. Hence, our report focused primarily on plantations less than 50 years of age." While the results of this synthesis is useful it is avoids the more controversial thinning of older stands. However, some of the key point could be used such as: 3. Accurate assessments of thinning effects requires site-specific information; 13. The ecological effects of thinning needs to be placed in a watershed context; and 14. Variation in thinning is essential (i.e. don't do the same thing everywhere).

A conservation strategy plan for Red Tree Voles was also discussed and what might be done for thinning in older stands, as appropriate. This is still in the planning stages so it is not developed but would be analyzed on a landscape or watershed basis.

Wrap up – Supervisors Office and District staff all share brief observations from the review and Forest Supervisor close out.

Thanks to the lance and the District for organizing the monitoring trip. And thanks to Eric Anderson from the watershed council for coming on monitoring review.

Liked the discussions on thinning to develop crown depth. Also liked the discussion on the different reasons why create fall and leave or habitat structures.

Understand restoration more – we restore for different outcomes depending on what was lacking or needed to make systems function. Before almost no fish, now lots of fish.

Like variety of different aquatic settings. Learned layers of complexity of projects.

Appreciated revisiting project in Phase II, it's good to see how project work has changed overtime. Continue to learn after initial project completion and once a project has had time to evolve.

Nice to see rounded Interdisciplinary Team, that they work together to design a good project.

Fall and leave wood also creates bugs and is good for other aquatic species; not just fish and wildlife habitat.

Sweet Home District 2017-Camas Prairie Restoration, Moose Creek Dispersed Site Closure and Toll Joe EA
Background- The SHRD has several past, present and future projects in the Camas Prairie and Moose Creek area. Moose Mountain Road (FSR 2027) intersects Hwy 20 about 16 miles east of Sweet Home

and runs across the South Santiam River. Adjacent to the river on the north side of the highway is Camas Prairie.

Since the mid-1990's, Camas Prairie has been burned every other year to promote meadow longevity and Camas growth for Tribal use. There is historical evidence that the Tribes used fire as a way to manage Camas Prairie and Tribal members are frequently present for the bi-annual burns. Camas Prairie will be burned again in the fall of 2017. This summer, a crew from Northwest Youth Corps has been removing invasive blackberries in the area. It was recently discovered the SIA for Camas Prairie (dated 1999) was never signed and is outdated. The SHRD will take steps to correct this and update the document next winter. Unit 67 in the Trout Creek EIS proposes oak restoration treatments on the north side of Camas Prairie.

In 2015, a DM was prepared closing a dispersed camping site on the west side of Moose Mountain Road just across the South Santiam River. This has help eliminate long standing sanitation and garbage issues, and resource damage in areas around protected and listed fish habitat. Despite this, sanitation concerns from dispersed camping continued to be a problem along Moose Mountain and Moose Creek Roads. In June of 2017, a Forest Order was signed prohibiting dispersed camping from the intersection of Highway 20 and Moose Mountain Road (FRS 2025) road 500 feet on both sides of the road for .2 miles. The dispersed camping closures also cover portions of Moose Creek Road, FSR 2025-500 and the South Santiam River. The Decision Memo for the South Santiam dispersed site closure was signed 5/20/2015 by Cindy Glick. The DM also included a dispersed site closure in Quartzville. The Letter to the File for the dispersed closures on Moose Creek and Moose Mountain roads was signed by Nikki Swanson on 5/8/2017 and the Forest Orders were signed by Tracy Beck on 6/1/2017.

The NTLJ timber sale was a part of the Toll Joe EA. Unit 55 (over 80 years of age) was thinned in 2016. The unit is directly north of Highway 20 about 30 miles east of Sweet Home. Unit 800, above Unit 55, had been previously thinned. Unit 55 was treated to help strategically manage fuels in a high risk area and to preserve visual quality along Highway 20. Unit 30 is located off the 245 (Burnside) road. This unit presented a lot of challenges. There was an Area To Protect (ATP) on the Santiam Wagon Road and on a large meadow in the center of the units adjacent to a new temp spur road. The unit was ground base logged over the snow in the winter of 2016. Unit 30h was a heavy thin with gaps. The DN/FONSI was signed 6/6/2014 by Meg Mitchell.

Stop 1- We discussed the multiple projects in the Camas and Moose Creek area. Relevant background was provided by Fuels (Chris), Botany (Eric), Aquatics (Lance), the Trout Creek EIS (Joanie) and Recreation (Josh).

Burning of the meadow to promote camas growth every other year has been going on for 16 years. Because of the complexity of burning operations it is a Type 1 burn but over the years it has become easier. This project has had robust support from tribal groups and has been successful. The focus has only been in the meadow because of adjacent private land ownership, high value timber and the change in fuel type into the timber would be difficult to implement.

Documentation should to be updated for continuation of project. An old decision memo was done in the late 1990's/early 2000's and an unsigned Special Interest Area Plan. With a new decision memo a long life span of the project should be included and incorporate changes that have occurred since initial document. There are 16 years of burning information to disclose and effects from proposed actions can be incorporated into a new decision document.

One difficult result is that after repeated burning, small Ash trees are still sprouting. Also talked about Oak restoration that will be included in the Trout creek project. It proposes to remove Doulas-fir trees that shade out the Oak trees. This is on the north portion of the camas prairie.

The group talked about the negative dispersed camping issues. People were leaving a lot of trash and because of overnight camping monopolizing the area so that new visitors felt unsafe using the area for swimming and day use.

The expansion of the restricted area for dispersed camping in the Forest Order and Decision Memo had very good public outreach. Public outreach to targeted groups such as campers and local business groups was very helpful in getting the word out about changes. Also did news notices to local groups as well as wider audiences on the Forest web site. The District received thanks for the closure to camping and promoting a cleaner and safer experience to wider user groups.

Went down to the swimming hole on the Santiam River. Beautiful location. Did notice the Respect the River pole fencing was in tatters. A portion was gone and looked like it was chopped up for fire wood. Talked about the variable success across the Forest. Fencing stayed up where it was closer to roads and more visible. This location was not visible from Highway 20 but it was a short term solution to get people to reduce impacts next to river.

Stop 2- Unit 55 was thinned to meet visual requirement along Highway 20 and retained about 60 trees per acre. It was proposed to have 5 acre regeneration cuts in unit but was dropped for Draft Decision Notice. The group talked about the high cost of creating snags in thinning units. One suggestion was to put burn pile next to remaining tress. While this would be less expensive may want to be selective where implement on lower value trees. Also is conflict when require purchasers to not damage trees during operation.

During environmental analysis there is a necessity of decision maker with advice from team to weigh cost of snag creation after project versus how can incorporate fuels reduction as a snag creation device. Or balance overall project post sale activities needs and what project has funds to achieve.

Stop 3- This unit had a complicated prescription with unique features to protect, such as the Wagon Road and a meadow. The meadow was created by a frost pocket and past management. The general silvicultural prescription is thin to a Designate by Description (DxD) of 14 foot and there are also Dominant Tree Release gaps in unit.

Lizandra dug a soil pit and started the discussion about compaction. This unit is a managed stand that was clearcut harvested and planted 49 years ago. For the Toll Joe EA this unit was surveyed for the Soils analysis and it was determined to be at the Forest Plan 20 percent threshold of compaction. This unit was harvested over the snow and it helped to reduce compaction. Lizandra did plots and estimated the compaction was reduced down to 15% which met Forest Plan Standards. This unit was logged in 2015 and required 15 inches of dense snow before operations could occur for winter haul. The option in the sale package for winter haul gave the contract flexibility and reduced effects.

We talked about the DxD prescription and since this unit is in Late-Successional Reserve (LSR) there is a 20 inch diameter limit. The way to measure and track this for sale administers is to have a stump diameter limit. The stump diameter limit for this stand is 23.9 inches. This is calculated by taking measurements and averaging them to account for tree base swell which is usually larger than diameter breast height measurement.

The monitoring review team walked by the meadow and stopped at the wagon road. For both areas to protect, falling away from sites was required and accomplished. However, there was mentioned that flush cut stumps next to the wagon road was required but not done. Since this was a moderate retention thinning project this could be revisited to determine if still needed. There were concerns about weeds getting into the meadow and maybe blocking meadow with boulders. It was discussed that this was not a natural meadow but it was an opening because it was a frost pocket and little could grow. And it was then used at some time as a waste area for dirt storage so it was hard to recover to original state.

Wrap up – SO and District staff all share brief observations from the project review

Thanks to all the District IDT, and speakers for explaining their resource and making the monitoring review meaningful. We liked the soil pit evaluation from Lizandra Nieves-Rivera and hearing from retired Forest Service planner Anita Leach about her efforts for the Toll Joe project. Also liked Erick Larkins discussion on Camas Prairie and Joanie Schmidgall for organizing review.

Keep flexible in logging systems, offer winter haul.

Respect the River program results should be looked at across forest and analyzed where it was effective.

Like these monitoring reviews and shows we are a learning organization. Look at what works and does not work, so future projects can be improved.

Tracy Beck, Forest Supervisor, said he was proud of the Sweet Home personnel. We want to continue monitoring completed work and to make our work effective. The program managers out of supervisor's office are available to help the District be successful. We should be working on design elements to make them more consistent across forest.

McKenzie River District 2016-410 Hazardous Fuels Project; Middle McKenzie Side Channels Project

Overview of projects- Mei Lin, Kate, and Ray gave a nice overview of the projects. The main objectives of the 410 project were to reduce fuel loading and fire hazard reduction; open up stands to improve site distance for law enforcement to detect illegal camping; and therefore reduce stream side erosion. The purpose of the Delta tree tipping project was to enhance and restore channel conditions and habitat for at-risk fish. Kate Meyer showed a video of the tree tipping project done by Fresh Water Limited. The improvement of the side channels for the South Fork of the McKenzie River had many contributors to make it successful, some were: the McKenzie Watershed Council and OWEB.

Stop 1- The group traveled and parked at Strube Flat and then walked to the 410 Hazardous Fuels project area and discussed recreation and fire issues.

Dave Sanders talked about the need to reduce disbursed camping (or more appropriately called "Long Term Dwelling") in the area. One individual was living in the area for 7 to 8 months. With long term camping came safety issues of trash build up including mattresses and human waste; drug use and associated paraphernalia such as exposed hypodermic needles and people that could be criminal or dangerous. An updated Forest Order is in place to close this area within half mile of each side of the McKenzie River; this was also meant to reduce stream side erosion.

The thinning of the stand of less than 7 inches trees, between the 410 road and the river, not only reduced risk of fire but also provided a better field of view for law enforcement. Pre and post photo points were taken to track and disclose effectiveness of the project.

Fire personnel would like to increase cutting diameter limit to 10 inches. Effectiveness for fuels reduction would last longer. The fuels reduction work was contracted out from cost share dollars and covered 94 acres. If implemented an increase in diameter limit, may generate funds from selling of larger wood to cover treatment cost. However, there were resource concerns over disrupting stand dynamics and heavily decreasing the youngest cohort of trees. While there are no nesting northern spotted owls in the area, this stand is considered suitable habitat. In response it was brought up that this is no longer a natural area and is fragmented with roads, high use and fire suppression. Without fire there is no longer fire generated tree species such as sugar pine.

The group then walked on the trail to the riparian area along south fork of the McKenzie River and talked about riparian reserve Standards and Guidelines, important habitat features and Wild and Scenic River consistency.

The no cut buffer on the 410 road project was starting from a side channel or the mainstem South Fork, 80’ no cut buffer or buffer to the top of the river terrace, whichever was greater. This was primarily intended to protect habitat for aquatic insects. This no cut area included hardwoods such as alders; the leaves of hardwoods provide nutrients for the insects.

The group then walked north toward Red King Fire and talk more about fire issues. The 7 acre fire occurred in 2008 and was the result of an abandoned camp fire. Other escaped fires in this area have been caused by unattended camp fires. The Red King fire was put out by initial attack but it did have a couple retardant drops to help. However, the fire retardant did miss and some ended up in the river. The miss application of fire retardant across the country resulted in the National Aerial Application of Fire Retardant EIS and mandatory tracking requirements. The McKenzie Ranger District has reported these occurrences.

Stop 2- The group traveled and parked at Delta Old Growth Trailhead within Delta Campground (see attached map).We walked the Old Growth Trail and viewed the project side channel from 2 footbridges. We went off-trail to view large wood with root-wads up close.

The tree tipping and log placement was originally planned to create habitat for juvenile fish rearing but got spawning habitat too. The biologist recorded rainbow and Chinook reds, where they had not been

previously recorded. Behind the added trees they found little fines and gravel storage in the 2 miles of treated side channels of the South Fork of the McKenzie River. Beaver were also seen in the area. Before and after monitoring was done to determine increase of pebble count.

About 200 logs and tipped trees were placed in the side channels. About 60 trees were on the stream bank or near enough to reach the stream and the rest were added logs lifted in by helicopter. The preferred tipped trees usually Douglas-fir, western hemlock or cedar, were greater than 36 inches. The logs flown in were the same species, generally smaller but greater than about 18 inches diameter. The District aquatics team used existing log jams as a model for created new log jams. The intent was to make them appear natural. Logs flown in came from a boat launch improvement project. Sometimes finding appropriate logs to use can be difficult.

Other resource specialist were consulted on appropriateness of trees chosen for tipping. The Wildlife biologist made sure no tipped trees came from northern spotted owl nest tree areas. Also no survey and manage species were found. The Decision Memo (DM) design criteria number 4 stated “No conifer should be felled in riparian areas unless conifers are fully stocked.” – the trees tipped were approved by the District Silviculturist. There was good communication between resource specialists.

There was a Biological Evaluation done by the fisheries biologist and addressed in the Decision Memo where it addresses short term effect but long term benefits. Categorical exclusion direction for DM states: "The mere presence of one or more of these resources does not preclude the use of a categorical exclusion. It is the degree of the potential effect of a proposed action on these resource conditions that determines whether extraordinary circumstances exist." The proposed action is regionally recognized as an activity meeting long-term recovery objectives for listed species; effects on other listed species are either "not likely to adversely affect" or "no effect"; and the proposed action is consistent with the programmatic consultation and Biological Opinion.

Wrap up- In general many people thanked the District for their hard work in project design, implementation, monitoring and putting together a nice review. Great lunch stop at the Delta

campground amphitheater. Project standards and guidelines prescribed were implemented. Some other comments were:

It was a good review of diversity of projects, discussion and appreciate the completed work.

The restoration was great! It was a good learning day.

Congratulations to Ray and Kate on work well done! The disturbance to the ground was minimal.

Like seeing the completed project in person, good visuals of the burn area and fish habitat from the bridges.

Tracy and Terry expressed similar thoughts such as: The team was integrated and could see there was good communication. There was a lot of effort in talking to each other. Communication is what's needed to be successful.

McKenzie River District 2017-Deer Creek Restoration CE

Background- This project was designed to improve ecological function and biological productivity for Endangered Species Act (ESA)-Threatened spring Chinook salmon and bull trout, rainbow trout, cutthroat trout, and other native species. Its in the lower 1.6 miles of Deer Creek, adjacent floodplain (approximately 45 acres), and upland wood sources located within a five mile radius of Deer Creek. The project added large woody material (LWM) to Deer Creek. Up to 25 streamside trees were be pulled over into the active channel and floodplain using yarding equipment that would operate from existing roads. These large trees are between 26 and 63 inches in diameter and greater than 150 feet tall and were meant to function as relatively stable key pieces that would help retain wood within Deer Creek. An additional 400-500 pieces of LWM obtained from upland sources was placed with heavy equipment, primarily in the form of logjams. Trees within these units were removed with the rootwad intact, cut in half, and transferred to staging sites along Deer Creek on a log truck.

Stop 1-In Unit 1 four gaps where cut in the 130 year old stand to provide large trees with root wads for Deer Creek fish logs. The intact stand averaged 76% canopy closure and with gaps, went to average of 60% canopy closure as required to be maintained in the Decision Memo design criteria.

There was a discussion concerning required surveys. Under the Endangered Species Act surveys were done for Northern Spotted Owls by the HJ Andrews demographic study. However, under the Pechman Exemptions for the Survey and Manage settlement agreement - no surveys were required for S&M species.

The S&M Pechman Exemption for this project is:

Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions.

A discussion followed about getting fish logs adjacent to rock pits for stream improvement projects.

Stop 2-This area had tree tipping next to stream and large pieces of wood were added from upland unit sites to make large log jams to create pools and slow water for fish to spawn.

I addition, this is where large berms of rock placed to channelize Deer creek were redistributed. The intent was to create side channels for fish habitat. However, this movement of berm material was not discussed in the Decision Memo. It was determined three weeks before the contract was to start that restoration would be improved by filling the main channel with the berm material and allowing the water to create a more natural dispersed multichannel water flow and complex fish habitat. A letter to the file or Ranger should be done to document this change to the project. ARBO fish consultation was done and allowed the addition of gravel and the determination was Likely to Adversely Affect. The McKenzie Watershed Council administered the contract to implement this work with heavy equipment with Forest Service oversite and coordination.

Still developing new monitoring protocol to evaluate success of project overtime. However, spawning Redds and juvenile fish have been observed. Redd surveys were done with ODF&W. GPS photo points have been taken and will be revisited to monitor outcome overtime. Some vegetation islands were left undisturbed in the floodplain to create a diversity of habitat. Also planting will be done on shore of Deer Creek.

Stop 3- At this stop we talked about recreation impacts to restoration project. Some logs next to shore were cut for firewood, need to rethink protection of wood logs next to shore.

This project is next to the McKenzie River Trail and camping is restricted to 100 feet from trail. A dispersed camp site and fire ring was found within 100 feet. May want to think about creating fire rings and dispersed sites 100 feet away from MR trail. This should deter people from creating a new spots within the trail corridor. Or maybe put in Respect the River signage with buck and rail fence.

Next we discussed turbidity management. We are working with DEQ upfront to control timing of sediment into river. Had short term pulses of sediment, maybe do later in day so water runs clear the next day.

A Wild and Scenic section 7 determination was completed for this project. It was a “Direct Affect but not Direct and Adverse”

Wrap up-Thanks to all the District IDT, Forest and District hydrology and fisheries leads and flexibility of timber and silviculture personnel to make this project happen. Kate, Ray and Johan did a great job with the Regional leads to create habitat for our T&E fish and aquatic species. There have been many scientist and groups taken out to review this project.

This has been a perfect leaning project to set the stage for the larger South Fork McKenzie floodplain restoration project. Lessons learned can be directly applied. Use of changes made to the project should be documented so they can be referenced and used in the next project; such as rock berm dispersal.

Holly thanked the group and Kate for being honest in our discussions so our next project will be better and projects across the Forest and other places will be improved.

Middle Fork District 2016-Little Fall Creek Steelhead Habitat Enhancement Project

Background- Introductions, focus is field monitoring, and ice breaker by District Ranger Duane Bishop. Suzanne Schindler gave the objectives of the review which was to evaluate the consistency of project design and implementation and to have open and honest discussion. Forest Supervisor Expectations by Tracy Beck: year of reviewing aquatic projects, wanted to learn from completed projects for future project design. Doug Larson gave overview of project and history; this included partnerships with invited publics. Allen Hambrick gave safety briefing.

Topic of interest discussed concerned wildlife consultation determination for northern spotted owl (NSO) of Likely to Adversely Affect from disruption from helicopter and tree pulling. Work of putting logs in stream was done after operations restriction in October, monitoring was done to survey for owls and none were detected. The net effect was no effect to NSOs.

Stop 1- Travel and park at the 6000 Road Bridge. This is on Weyerhaeuser land and showed an example of a water structure designed by the Watershed Council for Weyerhaeuser.

Sarah of the watershed council talked about the Meyer Memorial grant received to work together with partners from Weyerhaeuser, Oregon Fish and Wildlife, the Watershed Council and Forest Service. The money facilitated partnership meetings to identify and prioritize projects, and design and implement projects. Had problem with Phase I design of fish structure which included a side channel construction. It was determined this side channel construction would undercut Weyerhaeuser road and was not implemented. Little Fall creek does not have a lot of habitat or different structures that provide slow water for spring Chinook or winter steelhead. Phase one did

construct small bolder barbs (weir) or jetties into the creek. This provided for some slow water creation behind boulders.

Phase II of project implementation was more productive. The design of rock structure placement was done by Oregon Department of Fish and Wildlife. This design met Weyerhaeuser concerns to not affect existing roads and infrastructure. By using Weyerhaeuser boulders to form pools, didn't have to be concerned if used large trees - that may damage downstream bridges, as seen with the 1996 flood damage. However, use of large wood provides other benefits. Large wood as it degrades provides habitat for not only fish but insects that fish feed on. It's important to note to use different tools (boulders vs. wood) for different places, as appropriate.

Phase II was completed in 2014 and effectiveness monitoring is ongoing. With the boulder placement it has created large pools where they were lacking. The weight of the boulders keeps them in place. These large pools create resting places for juvenile fish so they will have a greater chance of survival.

Stop 2- Travel and park at the Fish Ladder. This is also on Weyerhaeuser land and is essential for ESA listed fish to reach National Forest System land and streams.

Dough Larson talked about the history of the fish ladder. It was constructed in 1988 for summer and winter steelhead to pass up stream above the waterfall. Consequently putting anadromous fish where not naturally, which is debated but is now occurring. In 1996 the fish ladder was damaged by the flood. With the Wyden Amendment the Forest Service repaired and has since maintained the ladder on three different occurrences. This cost was about $25,000 and for about 12 years before repairs were made no maintenance was done.

The question that needs to be solved is who is responsible for maintenance of this ladder. Historically Rex Timber owned this land and Weyerhaeuser inherited this structure. It is an older ladder design but it works. However, this ladder design doesn't provide for lamprey passageway up stream. It is thought that they jump the waterfall. The ladder is very important to get spawning steelhead up stream. What is needed is a management plan. Kelley from Oregon Fish and Wildlife and Doug would like to get together with other interested groups to develop a plan.

Stop 3- Travel and park at the 1806 road junction next to bridge. This is where we had a look at the restoration structures on National Forest System land. Wrap up – SO and District staff all share brief observations from the review and Forest Supervisor close out.

From the bridge overlook you could see 1 of 20 log structures built on National Forest System land. Little Fall Creek is now rich with spring Chinook spawning gravels. The log structure design were based on what is seen in nature. Use tipped trees with root wads and ad logs to build structure. No longer use cable to anchor trees, expect some movement of structure.

Under the programmatic consultation for fisheries called Aquatic Restoration Biological Opinion (ARBO) there are Project Design Criteria (PDC). To be within this criteria there are certain restrictions to follow such as not blasting or machinery in water. The project followed these PDCs.

In developing which trees to use the trees desired were flagged and then reviewed by different resource specialist. Trees were dropped if concerns over potential effects to wildlife, botany, archelogy etc. Large conifer were preferred but used some hardwoods when necessary.

Also did public outreach of project proposal in addition to work done with partners. Would like to see more public exposure of completed project and effectiveness of project.

Wrap-Up:

The Meyer Memorial grant got people to table and thanks to partnership groups for coordination and successful project. There is still work to do.

Communication between wildlife and fisheries resources was very good.

With new Forest Fisheries coordinator may want to consider a Forest Watershed Restoration team to coordinate projects across Forest.

This is a building block for the future.

Like treatment of partners – respectful and professional.

Thanks from Tracy – appreciated the coordination and cooperation of District

Middle Fork District 2017-Deception Danger Tree, Deception Fire Planting and OWTFR unit 17

Background: The Deception Complex Fire burned approximately 6,033 acres during the summer and fall of 2014. The fire burned in the Deception Creek watershed about 10 road miles southwest of the city of Oakridge, in the southwest portions of the Middle Fork Ranger District, around the Deception Butte and Deception Rock area. The public, private contractors and Forest Service access this area for a variety of reasons, from recreation to vegetation management. Over the next several years, the standing trees killed by the fire will begin to fall along or across these roads at an accelerating rate, creating a significant hazard for road users and a significant maintenance burden for the Forest Service. By removing the standing dead trees while they have commercial value, it would compensate for the significant cost of felling, thereby allowing the Forest Service to provide safe public and personnel access to the area.

The main objective of OWTFR is to reduce long term potential fire behavior in the Wildland Urban Interface.

Stop 1- After the fire every tree believed to be dead was marked for salvage starting in spring 2015. Project was scoped in February 2015 as road side maintenance (20 miles of road), letter to the file decision was signed in October 2015, with bid in November. Bid was pulled to add wet weather haul and rebid in May 2016. There was one bidder, who was unable to pass requirements. Salvage was never done. This road is a haul route for a timber sale, road package will include cutting and leaving of dead trees along haul route.

Project was very challenging from a presale point of view.

Safety was, and still is, a huge concern.

Lessons learned: Maybe project should have been done under the salvage sale CE category, don't know if it would have made a difference. Duane would bring in a team to do the work to ease district work load. The decision to pull workers off other sales did put a pause in the district program.

Stop 2- A total of 332 acres were planted after the Deception fire. Planted 70,000 plugs at 14x14 foot spacing. Mix of DF, SP, WWP, WRC, IC. Monitoring has shown good survival. The planting was done in previously harvested young stands, there are many dead trees and hazards.

Planting is complete, the rest will be natural regen.

Ray emphasized safety during planting and monitoring.

Stop 3- Unit 17 is very close to town, with private land on 3 sides. The time between initial scoping and implementation of project resulted in the need to re-education the community on the need for the project (to reduce long term potential fire behavior in the Wildland Urban Interface).

Analysis "severely" underestimated the noise impacts. Analysis was for 500 helicopter trips within ½ of homes. Purchaser did not use landings analyzed for, instead used landings on private land, one was within 50 feet of homes. Lesson learned: be a good neighbor, don't fly every day.

Katie was busy responding to community and keeping them informed about when and where the helicopter logging operations would occur. The Forest and District used many ways to notify and educate the public. Good discussion about the need for and how to engage and communicate with the public.

Local resident John Milandin shared that the district did a good job reaching out to the community, and suggested presentations in the community to share information about the future burning of the unit.

The purchaser did a good job of interacting with the public, answering questions, etc. They respected the time restrictions.

District also worked with county to protect the county road that goes through the unit.

Fire is still working out how the unit will be burned.

Wrap up- Thanks to the District for hosting monitoring review. Katie did a great job pulling everyone and everything together. The review provided opportunity to talk about issues around roadside fire salvage, safety, noise, and working near/in communities that all the districts deal with.

Holly appreciated the safety and risk discussion and appreciated the district bringing forward a project that didn't work out. Special thanks to John Milandin for being here.

Forest Plan Amendments

A Forest Plan is a dynamic document that can be amended in response to :

- Errors and/or discrepancies found during implementation.
- New information.
- Changes in physical conditions.
- New laws, regulations, or policy that affect National Forest management.

We frequently learn about the need for amendments through monitoring.

Since first published in the summer of 1990, there have been 58 amendments to the Willamette National Forest Plan. In addition, the Northwest Forest Plan was completed in 1994 and amended all Forest Plans in the range of the Northern Spotted Owl including this Forest. Because all Forest Plans were amended at the Regional level, the amendment did not receive a number.

The following summarizes the amendments to the Forest Plan:

Table 1: Summary of the amendments to the Willamette National Forest Management Plan.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
1	10/30/1990	Vacates Regional Guide for spotted owls. (Decision by Assistant Secretary of Agriculture John Evans; Federal Register Notice published 10/03/1990.)
2	12/10/1990	Allows snowmobile use in certain parts of Santiam Pass area.
3	8/5/1991	Corrects errors and omissions in Forest Plan (errata).
4	8/5/1991	Requires roadside brush management methods be consistent with scenic resource needs and allows machine mowing.
5	8/5/1991	Corrects mapping error in boundary of Diamond Peak Wilderness.
6	8/5/1991	Changes and clarifies direction about retention of downed wood to better meet functional and operational objectives.
7	3/22/1992	Established Management Plan for the McKenzie Wild and Scenic River; places the river in a new Management Area(MA), MA-6d; and establishes a new Special Interest Area Carmen Reservoir.
8	3/22/1992	Establishes Management Plan for the North Fork of the Middle Fork of the Willamette River Wild and Scenic River; places the river in a new Management Area, MA-6e; and changes the scenic allocation of about 29,000 acres of viewshed near the river from Modification Middleground to Partial Retention Middleground.
9	2/20/1992	Changes official Forest Plan Map from manually drafted management areas on mylar USGS quadrangles to a digital version on Forest's Geographic Information System.
10	3/14/1992	Changes about 67 acres in Spring Butte area (Rigdon) from General Forest (MA-14a) to Special Habitat Area (MA-9d).
11	3/14/1992	Changes about 65 acres in Beaver Marsh area (Rigdon) from Special Interest Area (MA-5a) to Special Habitat Area (MA-9d).

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
12	4/4/1992	Adds Habitat Conservation Areas (HCAs) for northern spotted owl and adopts the standards and guidelines recommended by the interagency Scientific Committee. (Decision by Assistant Secretary of Agriculture James R. Moseley.)
13	7/29/1992	Makes initial allocation of about 640 acres of land acquired by land exchange not far from the South Pyramid area on the Sweet Home Ranger District to General Forest (MA-14a).
14	7/29/1992	Changes about 51 acres in the Long Ranch area, Sweet Home Ranger District, from Dispersed Recreation - lakeside Setting (MA-10f) to Special Habitat Area (MA-9d).
15	7/6/1992	Adds standard and guideline MA-1-20a to clarify that the visual quality objective for wilderness is Preservation, and deletes FW-059.
16	7/29/1992	Establishes new Management Area, Integrated Research Site (MA-3b) to support research on long-term site productivity on about 1,500 acres on Blue River Ranger District, and moves a pileated woodpecker site within the area. Also, relabels the H.J. Andrews Experimental Forest as MA-3a.
17	2/17/1993	Extends deferment of timber harvest and road construction in the Opal Creek area for up to an additional two years to allow time for resolution of various issues surrounding management of the area, including decision about how the Forest Service will meet Recovery Plan objectives for the northern spotted owl.
18	2/17/1993	Clarifies direction in Forest-wide standard and guideline FW-018 to provide more site-specific and objectives-based analysis for placement and remedial actions associated with dispersed campsites.
19	6/2/1993	Relocates about 1,100 feet of Bornite Brook and 900 feet of Vanishing Creek, and by so doing interchanges the actual location of affected lands between MA-14a and MA-15. Upon reclamation of the bornite project's tailings impoundment, creates about 5 acres of wetlands converting that acreage from MA-14a to MA-15.
20	5/17/1993	Adds S&G to require an integrated management approach for weed management. After identification, noxious weed sites should be analyzed for the most effective control methods, based on site-specific conditions.
21	6/23/1993	Makes initial allocation of 123 acres acquired through land exchange on the Blue River RD, 59 acres allocated to MA-5A (Gold Hill SIA); 64 acres allocated to MA-11d near Blue River Reservoir.
22	11/24/1993	Allows temporary reduction in availability of elk cover in Mill Creek and Anderson Creek High Emphasis areas (McKenzie RD) to allow stand management practices which will accelerate the development of high quality cover.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
23	1/5/1994	Establishes the Forest's Special Forest Products Management Plan, including implementing direction through several new Forest-wide S&Gs.
	5/20/1994	Establishes land allocations and S&Gs as described in the Record of Decision for Amendments to the Forest Service and Bureau of Land Management plans.
24	9/29/1994	Changes 1/2-acre in the Westfir area from Scenic-Partial Retention (MA-11c) to Special Use-Permits (MA-13a).
25	5/26/1995	Modifies the S&Gs for riparian reserves, wildlife tree provisions, and fueling loadings in MA-3b and AMA Long-Term Ecosystem Productivity project. This was a nonsignificant amendment to the Forest Plan.
26	5/17/1995	Modifies the S&Gs for visual objectives, big-game management, and the retention of large woody material. This was a nonsignificant amendment to the Forest Plan.
27	6/22/1995	Designates approximately 110 acres as MA-9d, Special Wildlife Habitat, in the Heart Planning Area on the Oakridge RD.
28	11/29/1995	Designates the electronic site as a Special-Use-Permits area (MA-13a). Prior to this decision the site was located within Scenic-Modification Middleground (MA-11a). For specifics see Santiam Cellular Environmental Assessment and Decision Notice.
29	1/12/1996	Expand the current Special-Use-Permit area (MA-12b) from 732 acres to 802 acres. Master Plan provides for improvements to the alpine ski facility, as well as adding other year-round recreational opportunities. For specifics see the Hoodoo Master Plan FSEIS and ROD.
30	4/17/1996	Within the Browder Cat timber sale boundary, decreases riparian reserve widths to 50 feet for both sides on four intermittent streams within and adjacent to harvest units and establishes riparian reserves of 175 feet for both sides on two perennial non-fish bearing streams adjacent to a proposed unit.
31	5/15/1996	Established the Rigdon Point RNA.
32	9/4/1996	Decreases the interim Riparian Reserve widths 21 acres for Class IV streams and 5 acres for Class III within the Augusta Timber Sale Planning area located in South Fork McKenzie Tier 1 Key Watershed.
33	1/23/1997	Assigns a management area to recently acquired land in the following way: 13 acres to McKenzie River Wild and Scenic River corridor (MA 6d), 11 acres to Scenic Partial Retention/ Middleground (MA 11c) and .25 acres to Special Interest Area (MA 5a).
34	1/23/1998	Changes approximately 1,900 acres of land from Scenic Modification/Middleground (MA 11a) to General Forest (MA 14a) and removes 275 acres of inventoried roadless area on the Middle Fork Ranger District.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
35	5/17/1997	Temporarily reduced winter range cover for elk in a high elk emphasis area below the 0.5 Habitat Effectiveness rating required by S&G FW-149 in the Robinson-Scott project area.
36	7/8/1997	Establishes new S&Gs for four sensitive plant species; Gorman's aster, *Aster gormanii;* Common adders tongue, *Ophioglossum pusillum;* selected populations of tall bugbane, *Cimicifuga elata;* and selected populations of Umpqua swertia, *Fraseran umpquaensis.*
37	5/19/1997	Assigns initial allocations for about 2,180 acres of acquired lands located on Detroit and Sweet Home Ranger Districts.
38	1/21/1998	Changes management emphasis to provide for a proposed action to build a replica fire lookout station museum on the Lowell Ranger District.
39	6/1/1998	Establishes two new communication sites on the Sweet Home Ranger District. The development involves less than 1/4 acre.
40	7/13/1998	Establishes the 2,877 acre Torrey-Charlton Research Natural Area (RNA). The RNA spans over both the Willamette and Deschutes National Forests.
41	8/24/1998	Establishes two new communication sites on the Detroit Ranger District. The development involves less than 1/4 acre.
42	8/30/1999	Allows the Forest to continue a program of noxious weed treatment based on the type of infection.
43	2/15/2000	Changes approximately 1,060 acres of MA 14a (General Forest) to MA 9b (Pileated Woodpecker habitat). Also a slight modification of MA 10e (Dispersed recreation) with no net change in acreage.
44	12/21/2001	Established the Walldo Lake Management Plan which addressed management issues in and around the lake. This decision has since been rescinded.
45[1]	7/1/2002	Establishes Opal Creek Scenic Recreation Area as Management Area 2C and includes goals, objectives, and Standard & Guidelines. [1]This Amendment 45 was inadvertently missed causing two amendments to be labeled Amendment 45.
45	6/16/2004	Thins 5.2mmbf on approximately 491 acres within management areas LSR and AMA. Three units are within Three Creek Old-Growth Grove requiring a non-significant Forest Plan amendment.
46	8/22/2006	Exempted the project from strict compliance with five specific Forest Plan standards and guidelines relating to the amount of even-aged harvest and size of harvest units within trail corridors and scenic allocations.
47	4/16/2007	Waldo Lake Managing Recreation Use – Phased in a prohibition internal combustion boat motors on Waldo Lake and the use of internal combustion engines (chain saws, generators, etc.) in the dispersed, nonmotorized management area around the lake.

Forest Plan Amendments

Amendment	Implementation Date	Type of Change
48	6/25/2007	Updated the Forest Plan direction concerning the prevention and control of invasive plants to be consistent with the Region 6 USFS ROD for Preventing and Managing Invasive Plants.
49	8/31/2007	Huckleberry Flats OHV Trail Expansion - Changed the designation of the Huckleberry BGEA (Big Game Emphasis Area) from Medium Emphasis to Low Emphasis and changed the designation of the adjoining South Christy BGEA from Medium Emphasis to High Emphasis.
49	10/22/2008	There are two parts to this amendment. First an implementation guide was not created for the Santiam Wagon Road. Second Standard and Guideline MA-10b-04 as changed to limited travel of all wheeled motorized vehicles to only designated trails and/or roads.
50	4/18/2008	Forest Plan Amendment #50 for Bridge Thin was required because we proposed work in the McKenzie River SIA, but had no Implementation Guide completed, which is required under the Forest Plan.
51	9/17/2009	Changed the location of MA9c- marten habitat from its current location. The new location is of higher quality habitat fuel reduction treatments could also take place.
52	10/14/2009	Travel Management Rule Amendment prohibits motorized travel off of a designated system travel routes in all Management Areas.
53	12/15/2010	Expanded the Gold Lake RNA to 463 acres. The original RNA did not incorporate the key wetland system.
54	04/24/2014	Reallocated 906 Acres of Dispersed Recreation Semiprimitive Non-Motorized Recreation Area (10e) to Special Wildlife Habitat Acres (9d)
55	06/06/2014	Thinning 95 acres in Tree Creek Old Growth Grove
56	04/07/2015	Reallocated 10 acres of Administrative Use Site (13a) to Developed Recreation Site (12a)
57	04/22/2016	Invasive Plant Management amendment to add aminopyralid to the list of herbicide ingredients.
58	07/06/2017	Green Mtn EIS Amendment allows programmed timber harvest in Management Area 5a – Special Interest Areas (SIAs). 206 acres in South Fork McKenzie SIA and 59 acres in Hidden Lake-Lulu lake SIA with thinning, gaps, and skips.

Forest Plan Updates

Forest Plan Amendments (discussed above) change decisions made by the Forest Plan, consequently, they also require environmental analysis under the National Environmental Policy Act (NEPA). From time to time other changes to the Forest Plan are needed which are not intended to affect earlier decisions or Plan objectives. Examples of such changes include corrections; clarification of intent; changes to monitoring questions; and refinements of management area boundaries to match management

direction with site-specific resource characteristics at the margin. We call these types of changes "Updates." Since they do not change any Plan decision, they do not require NEPA analysis. F

There have been 15 updates to the Forest Plan:

Table 2: Forest Plan Updates

Forest Plan Updates

Update	Implementation Date	Type of Change
1	7/6/1993	Makes two minor management area boundary adjustments on the Oakridge Ranger District (RD). Two acres were changed from MA-6e to MA-9d to correct a boundary line running through a pond. Two hundred sixteen acres were changes from MA-11c to MA-14a so management for visual sensitivity would better match actual topographic characteristics.
2	10/18/1993	Clarifies the Forest-wide S&Gs for prescribed fire in nonwilderness. Accomplishes this by deleting FW-248 through FW-252 and substituting in their place rewritten FW-248 through FW-250. The changed S&Gs better reflect management intent to conduct objectives-based fuels analysis considering a range of resource protection and enhancement needs appropriate to site-specific conditions.
3	10/18/1993	Updates and reprints the Forest's Monitoring Tables from Chapter V of the Forest Plan. Eliminates duplication, improves clarity, and refines data, and analysis requirements to better address monitoring concerns.
4	10/17/1994	Special Forest Products (SFP) Table IV-32a shows a type of collection allowed by management area. To clarify that the exclusion of commercial SFP collection applies only to the large, mapped Late-Successional Reserves (LSR) and not to all of the owl activity centers that are now 100-acres LSRs.
5	12/15/1995	Updates pertaining to the role of natural fires in Wilderness. Insures direction for prescribed natural fire is consistent with Wilderness policy through adjustments to the Forest Management Goals, Desired Future Condition, Forest-wide S&Gs, Management Area prescriptions, and Monitoring Questions.

Forest Plan Updates

Update	Implementation Date	Type of Change
6	1/23/1997	Updates to the Forest Plan Map of Record with changes to Swift Creek (MA 10f); corrections to 100 acre Late Successional Reserves (MA 16b), an AMA designation correction (MA 11f to MA 17), and a Hoodoo Master Plan boundary correction (MA 12b).
7	8/31/1998	Updates the Forest Plan Map of Record with refinements to the LSR222 boundary, establishment of MA 13B for the Middle Fork Ranger Station, the incorporation of Pileated Woodpecker and Marten areas, changes to 7 owl cores on the McKenzie RD and one on the Lowell Ranger District, the location of the already established Huckleberry Lookout (MA 13b) onto the Map of Record, the assignment of management allocations to newly acquired private land, refinements to the boundary of the McKenzie work center.
8	4/3/2000	Updates the Forest Plan Map of Record with RNA boundary refinements, the creation of Ma 1 for Opal Creek Wilderness and MA 2C for Opal Creek Scenic Area; an update that finalizes the boundary of the North Fork of the Middle Fork Wild and Scenic River, small refinements of the Forestwide wilderness boundaries, an LMP layer adjustment to reflect private land changes, adjustments to the boundary of Hills Creek LSR to allow scenic enhancement activities, and the creation of a MA 6b for the Elkhorn Wild and Scenic River.
9	4/9/2001	Documents the change of Inventoried Roadless Area maps from paper copies to an electronic Geographic Information system layer in the Forest Planning records.
10	10/17/2002	Updates the Forest Plan Map of Record with a Guistina Land Exchange of 173 acres for 237 acres; correct Shadow Bay campground from 12a to a 12b; vertical integration of administrative boundaries; update with the Finberry Timber Sale, correct the Three Creek RNA boundary; change land allocation from 11c to 13a at Carmen Air Quality Monitoring Site; reflect the Drury Land Purchase of approximately 28 acres; add names of special features into the layer, change an allocation from 14a to 12a on Timber Butte Lookout; and finally add the boundaries of the seed orchards.

Forest Plan Updates

Update	Implementation Date	Type of Change
11	6/21/2006	Updates to the Forest Plan Map of Record. The updates included labeling errors to Opal Creek Wilderness and to Hills Creek Reservoir. Two other updates included refining the boundaries to 100 acre LSRs in the Blowout Thin EA and correcting a previous error in a Bald Eagle Management Area across from Hills Creek Reservoir. None of the updates resulting in significant change nor was a result of a change in direction. A final change added several Bald Eagle Management Areas to the Map of Record was requested. No additional areas were added because no NEPA documentation supporting the areas was available.
12	5/19/2008	Updates the name of our elk emphasis' area from "Old Squaw" to "Latiwi". No boundary changes
13	9/5/2008	Adds the McKenzie Bridge Airstrip as a Management Area 13b.
14	9/17/2009	The updates stem from corrections to boundaries and from labelling errors. Updates included one 100 acre LSR, the Federal Highway Administration Easement, Hills Creek Reservoir, private land acquisition, Flat Creek warehouse, AMA Research Plots, Olallie Creek RNA, and a Pine Marten change documented in Amendment 51. A map of the changes are available.
15	2017	The 2012 planning rule required the Forest to reevaluate the 1990 Willamette NF Forest Plan monitoring questions. New questions were developed in 2015 and later updated and refined in 2017.

Acknowledgments

Monitoring activity on the Forest involves many people, far too numerous to list here. A few of these contributors or their organizations are acknowledged in the Findings section as their related work is presented. In addition, many volunteers contributed their time and expertise, as did Ranger District employees across the Forest.

Willamette National Forest 2012 Planning Rule Monitoring Program

Table 3: Willamette National Forest 2012 Planning Rule Monitoring Program Questions through 2017.

Forest Plan Component	Monitoring Question	Indicator(s)	Potential Data Source
(i) The status of select watershed conditions.			
Standards and Guidelines: WR-1 to WR-3, ACS Objectives	**i.a.** Are Standards and Guidelines maintaining or improving watershed conditions?	Watershed Condition Framework (WCF) analysis of key indicators at the 5th and 6th field watershed scales.	Watershed Condition Framework (WCF) analysis results. **Staff: Forest Hydrologist**
Standards and Guidelines: FW-087 to FW-102, TM-1, RF-1 to RF-7, RA-1 to RA-4, ACS Objectives	**i.b.** Have Best Management Practices (BMP's) been implemented and are they effective at managing water quality consistent with the Clean Water Act?	Temperature and turbidity	Stream temperature data, NorWest database, turbidity monitoring, USFS National BMP Monitoring protocols and results, travel analysis/roads management **Staff: Forest Hydrologist**
(ii) The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.			
Standards and Guidelines: FW-119, FW-4, ACSO	**ii.a** Are Standards and Guidelines preventing the spread of aquatic invasive species?	Includes non-native fish species (brook trout, bass, crappie, etc.) as well as aquatic invasives (New Zealand mud snail, zebra mussel, whirling disease, and non-native plants), aquatic and riparian.	NRIS stream inventory Aquatic and Riparian Effectiveness Monitoring Program (AREMP) data **Staff: Forest Fish Biologist**
Standards and Guidelines: FW-103 to FW-104, FW-114, FW- 117 to FW-118, FW-119, TM-1, RF-1 to RF-7, RM-1 to RM-2, FM-1 to FM-5, RA-1 to RA-4, FW-1, ACSO	**ii.b** Are Standards and Guidelines maintaining or improving aquatic habitat (instream, lake, and riparian areas)?	core and integrated targets habitat data (assessment of current condition) management related impacts to aquatic systems	1.Watershed Improvement Tracking (WIT) accomplishment data 2. NRIS stream inventory; lake surveys, landslides/debris torrents 3. Recreation, timber harvest, road management, etc. **Staff: Forest Hydrologist**
NWFP Standards and Guidelines: Survey and Manage Species	**ii.c.** Are projects contributing to the persistence of botanical Survey and Manage species?	Number of survey and manage sites identified and protected during project planning.	Monitoring accomplished during planning phase using GIS and field visits to units of 80 yrs of age, per ISSSP monitoring protocol. Annual Species Review Process completed by the Regional Office. **Staff: Forest Botanist**
Standards and Guidelines: FW-375 to FW-377, FW-384, Forest Plan Amendments #13 and #15	**ii.d.** Are known populations of invasive plants continuing to spread? Are new infestations occurring?	Acres of surveyed lands with new and active invasive species infestations; Acres treated.	Information tracked in NRIS. Accomplished through the monitoring requirements associated with the Regional Invasive Plant Environmental Impact Statement (EIS) (2005) and Site-Specific Forest Invasive Plant EA (2007, 2014). **Staff: Forest Botanist**
(iii) The status of focal species to assess the ecological conditions required under §219.9.			

Forest Plan Component	Monitoring Question	Indicator(s)	Potential Data Source
Desired Condition: Habitat is managed for marten.	**iii.a.** What is the trend for mature and late successional habitat above 4000' elevation needed for marten persistence on the Willamette?	Acres of montane mixed conifer (MMC/LP) forest by late successional forest index categories on the Forest tracked over time. Changes in snag and dead log levels in MMC/LP relative to historic condition by 5th field watershed on the Forest tracked over time.	Derived from Gradient Nearest Neighbor (GNN) data Derived from GNN data **Staff: Forest Wildlife Biologist**
Desired Condition: Habitat is managed for pileated woodpecker.	**iii.b.** What is the trend for mature and late successional habitat needed for pileated woodpecker persistence on the Willamette?	Acres of lowland conifer/hardwood (WLCH) forest by late successional forest index categories on the Forest tracked over time. Changes in snag and dead log levels relative to historic condition by 5th field watershed on the Forest tracked over time. Occupancy rate of pileated woodpeckers in pileated woodpecker management areas tracked over time.	Derived from GNN data Derived from GNN data Forest survey data **Staff: Forest Wildlife Biologist**
Desired condition: Habitat is managed in cooperation with Oregon Department of Fish and Wildlife (ODFW) to provide for deer and elk hunting opportunities.	**iii.c.** What is the trend in elk habitat condition and elk hunting levels and success?	Changes in elk harvest, success rates, and ODFW elk populations estimates by State Game Management Unit. Changes in estimated elk forage quality and habitat suitability by Big Game Emphasis Area tracked over time 5th field watershed on the Forest tracked over time. Acres of early seral habitat relative to historic condition by 5th field watershed on the Forest tracked overtime.	ODFW data Westside elk model run with GNN data GNN-need Ecologist/silviculture input to decide best query approach **Staff: Forest Wildlife Biologist**
Standards and Guidelines: RF-4, RF-6, FW-4, ACSO	**iii.d** Are Standards and Guidelines maintaining or improving the ecological integrity of focal fish species' habitat?	Population surveys of rainbow trout, cutthroat trout, Oregon chub, and Pacific lamprey.	Population surveys (redd surveys, screw trap, electrofishing, snorkeling, etc.). Regional fish distribution maps (new data or changes in distribution). Regional fish barrier database (showing habitat accessible due to barrier removal) **Staff: Forest Fish Biologist**
(iv) The status of a select set of the ecological conditions required under §219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.			
Standards and Guidelines: FW-115 to FW-116, RF-4, RF-6, FW-1, ACSO	**iv.a** Are Standards and Guidelines maintaining or improving ecological conditions for T&E fish populations?	Trends in instream riparian habitat conditions.	Tracked by stream inventory program (data documented in NRIS AqS database) and fish distribution maps. Fish listings, critical habitat listings and project specific analysis.

Forest Plan Component	Monitoring Question	Indicator(s)	Potential Data Source
			Staff: Forest Fish Biologist
NWFP Standards and Guidelines: Late Successional Reserves	**iv.b** What is the trend for mature and late successional habitat needed for Northern spotted owl persistence?	Acres of dispersal habitat, suitable habitat, and by old growth site index categories on the Forest tracked over time.	Northern spotted owl five year review habitat model. **Staff: Forest Wildlife Biologist**
NWFP Standards and Guidelines: Late Successional Reserves	**iv.c** What is the trend for the Northern spotted owl population?	Estimated number of territorial owls and annual rate of population change.	Demography of the Northern spotted owl on the H.J. Andrews study area in the Central Cascades tracked over time. **Staff: Forest Wildlife Biologist**
Standards and Guidelines: FW-154 to FW-161	**iv.d.** What is the trend for Oregon spotted frog populations on the Forest?	Changes in numbers of breeding Oregon spotted frogs tracked over time	Oregon spotted frog surveys from U.S. Geological Survey (USGS) and FS data **Staff: Forest Wildlife Biologist**
Standards and Guidelines FW-158-161	**iv.e.** What are the trends for botanical Sensitive Species? Are any species we are monitoring in decline? If so, have management actions been taken to restore their habitats?	Changes in numbers of individuals monitored in selected populations over time.	Project specific analysis and Threatened, Endangered, and Sensitive (TES) Plant long-term monitoring data **Staff: Forest Botanist**
(v) The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.			
Standards and Guidelines: FW- 262, FW-264	**v.a** Are significant (National Register eligible) historic properties being maintained, stabilized, and repaired according to historic	Monitoring data/site condition assessments.	Infrastructure (INFRA) database **Staff: Recreation Staff**
Desired condition: Outdoor recreation opportunities on the Forest are available in a variety of settings. Opportunities for dispersed recreation in a roaded setting are plentiful. Activities such as hunting, sightseeing, ORV use, dispersed camping, cross-country skiing, and fishing are typical. Opportunities for dispersed recreation in unroaded areas are less plentiful.	**v.b.** Are people having a high level of satisfaction during their visit to Willamette National Forest?	Percent visitor satisfaction for developed sites, general forest areas, and designated wilderness	National Visitor Use Monitoring Data **Staff: Recreation Staff**
(vi) Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.			
Information Needs Identified: page ii-10 of Willamette Forest Plan, Standards and Guidelines: FW-121	**vi.a.** Is the forest reporting and meeting expected adaptations as reported on the National Climate Scorecard?	Timely response to forest data calls.	Regional link to the scorecard. https://www.fs.usda.gov/main/r6/climatechange **Staff: Climate Change Coordinator**
Standard and Guideline: FW-255 and FW-256	**vi.b.** Is insect and disease below potentially damaging levels?	Acres affected by type and insect and disease	https://foresthealth.fs.usda.gov/portal/ **Staff: Forest Silviculturist**
(vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.			

Forest Plan Component	Monitoring Question	Indicator(s)	Potential Data Source
Standards and Guidelines: FW-252	**vii.a.** Are management activity- created fuels at or below the maximum acceptable ranges for allowable downed woody material as indicated in Table IV-32[1], on 95% of the affected	Tons/acre of activity-created dead woody material in activity units.	Brown's Transects or utilizing a photo series **Staff: Fire Planner**
Goal: The primary goal is to produce an optimum and sustainable yield of timber based on the growth potential of the land that is compatible with multiple use objectives and meets environmental requirements for soil, water, air and wildlife habitat quality	**vii.b.** How do the timber output estimates in the Forest Plan compare with actual production?	How does the volume of sold timber compare to the probable sale quantity (PSQ)?	Timber Information Manager (TIM) database and Forest Plan predicted outputs. **Staff: Forest Products Manager**
Desired Condition: Regeneration harvests are adequately restocked within recommended timeframes and levels (36 CFR 219.27). Standards and Guidelines: FW- 188, FW-189, FW-195	**vii.c.** Are we meeting the recommended stocking levels and timeframes required by National Forest Management Act (NFMA)?	Meeting stocking guidelines in Forest Plan as tiered to Forest Service Handbook.	Information tracked through FACTS database and required for target accomplishment. **Staff: Forest Silviculturist**
Desired Condition: Long term sustained yield capacity and timber growth since previous decade.	**vii.d.** How ecologically sustainable is the level of timber harvest on the forest?	What is the amount harvested timber each year compared to the amount of growth and mortality across the forest?	FIA and R6 Inventory Plots **Staff: Forest Products Manager**
(viii) The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).			
Standards and Guidelines: FW-079 to FW-081	**viii.a.** Are management activities being implemented so that they do not substantially and permanently affect soil conditions?	% of soils in disturbed condition at the unit and project scale.	Monitoring of management activities such as timber harvest, road management, and recreation including site visits and transects. **Staff: Forest Hydrologist**
Is Forest Plan standards and guidelines (Forest-wide and by Management Area) being incorporated into project level planning and decisions?			
All Standards and Guidelines: Willamette Forest Plan	Are Standards and Guidelines being adequately followed in project level planning?	Deviation from Standards and Guidelines. Deviation from desired results.	Annual monitoring trips and project review with staff and resource advisors. **Staff: Forest Planner**