Dolores Watershed Resilient Forest (DWRF) Collaborative Stakeholders Meeting

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dwrfcollaborative.org
draft - 6 pages

Present: Bill Baker (Professor Emeritus, University of Wyoming), Jimbo Buickerood (Lands and Forest Protection Program Manager, San Juan Citizens Alliance), David Casey (Forester, San Juan National Forest), Ryan Cox (Colorado State Forest Service), Andy Culpepper (Project Manager/Researcher, Mountain Studies Institute), Ashley Downey (Executive Director, Wildfire Adapted Partnership), Irvin Frazier (Manager, Town of Dove Creek), Anthony Madrid (Renewable Resources Staff Officer, San Juan National Forest), Mike Pasquin (Emergency Manager, Montezuma County), Mike Preston (General Manager, Dolores Water Conservancy District), Bruce Short (Retired, U.S. Forest Service); Danny Margoles (DWRF Coordinator), and Gail Binkly (Meeting Recorder). On speaker phone: Mike Battaglia (Research Forester in Silviculture, U.S. Forest Service Rocky Mountain Research Station, Fort Collins) and Derek Padilla (Dolores District Ranger).

Lone Pine Vegetation Management EA

Following introductions, Danny commented that the Lone Pine EA is a major EA and he believes this discussion of it is within the framework of the collaborative.

First, Dave Casey gave a brief overview of the Lone Pine EA. The project area is 62,000 acres, located east of the Dolores River Canyon. The predominant vegetation is ponderosa pine with a Gambel oak understory. Currently the area is infested by multiple bark beetles: the mountain pine beetle, roundheaded pine beetle, and Western bark beetle. The roundheaded beetle is the main concern.

Dave said the agency does not intend to cut trees on every acre. The goal is to re-establish ecological functions across the project area. Methods will include harvesting and thinning, followed by prescribed fire. The agency wants to see age diversity returned to the stands. The draft EA is out for comment until March 25.

He said the main goal of an EA is to identify a project, its purpose and need, and to open up an opportunity for information exchange to make sure nothing was overlooked during the analysis. The Lone Pine EA is a draft EA. The agency will review comments received and put out a final EA. Then there will be a period during which people who commented can register an objection. This triggers a 45-day waiting period while objections are reviewed. If there are no objections, the Lone Pine decision notice should be published sometime in June.

The remainder of the meeting was devoted to two presentations, one by Mike Battaglia and one by Bill Baker. The full PowerPoints are to be placed on the DWRF website.

Presentation by Dr. Mike Battaglia

Mike said not much research has been done on ponderosa pine in Southwest Colorado, so he is utilizing research from other places such as Arizona and New Mexico.

Ponderosa grows throughout the western United States and into Canada and Mexico, across regions with differing climates. Mike said a tree produces seeds every 2-5 years or so, depending on what region

it is in. Ponderosa seeds don't live long in the seed bank. A number of factors have to line up in order for successful generation to occur, including the right temperatures and good moisture.

He said ponderosa needs an existing seed source. It doesn't disperse very far. If there are no living trees within a certain distance, regeneration won't take place.

Seedlings:

- Like bare mineral soil
- Need sufficient moisture
- Don't like frost but also don't like high surface temperature
- Are shade-intolerant
- Don't compete well with grasses, Gambel oak and other trees, especially in moisture-limited areas.

Fires: Mature ponderosa is fairly well adapted to fire, with thick bark so it can heal itself. Low-intensity fire won't girdle trees. However, seedlings are very susceptible to fire.

Historically, ponderosa forests experienced frequent fires, which helped regulate forest structure and fuel loads. Fire frequency varies according to the region, but in the Southwest it averages 5 to 23 years and in the Colorado San Juans, 16-38 years.

Along with frequency, fire severity is an important factor in survival. Wildfires can vary in severity from surface fires to crown fires, with mixed-severity fires in between.

Gambel oak: Mike discussed Gambel oak, which may compete with ponderosa. Gambel oak occurs mostly in the Four Corners states. In the southern portion of its range it is more likely to be a tree. On Colorado's Front Range it is a shrub. In Southwest Colorado it can be either. Gambel oak can spread very quickly. It can reproduce via either acorns or sprouts, and following fires it will resprout quickly.

Tree density/basal area: Mike said basal area (how much of a given section of land is occupied by tree trunks and stems) is a factor in fire risk. Historically, basal area in the Southwest's ponderosa forests (in Arizona and New Mexico) was 22-90 square feet/acre. This may not have been the result of many trees, but rather of low-density, large-diameter trees. A few large trees can produce a large basal area. These historic stands were multi-cohort with different ages, and there was a mix of grasses and different tree species.

Grazing, logging, favorable climate and fire exclusion have changed the forests. Grazing removed fine fuels. The climate in the early 20th century was fairly wet. In the past, fire would thin the trees but then people began extinguishing fires, creating the dense forests of today.

Mike said there was a 179 percent increase in basal area from 1860 to 2012. Historically, the majority (80 percent) of stands were under 44 square feet/acre. Now only 10 percent of stands are under 44 square feet/acre. This has increased the forests' susceptibility to both wildfire and bugs. Now there is a trend toward more large, high-severity fires. Areas that experience fires of low to moderate severity regenerate well, but areas of high-severity fire do not. Gambel oak may take over after a severe fire.

Following a bark beetle outbreak, there will be many dead trees on the ground, about 2.5 times the amount in non-impacted stands, according to research done in the Southwest. Mike said a reburn was done in one site and it reduced the fuel load, but it also killed most of the regeneration.

Principles for restoration:

- Spatial scale is an important organizational framework
- Manage for diverse forest developmental trajectories across the landscape
- Importance of fire.

Presentation by Dr. Bill Baker

Bill warned that, if current trends continue, the pine zone may be almost entirely lost by 2060. Beetles, fire and droughts are the three mechanisms that lead to potential pine loss. Higher temperatures due to climate change will likely increase the rate of pine loss and discourage regeneration.

He recommended refocusing the Lone Pine EA and current proposed action on survival of the trees there now and recovery of the area. He said almost the entire project area will likely be affected by some type of bark beetle in 2019. Bill said the 2018 drought probably stressed the trees, but this winter's moisture may have helped them recover.

Bill said the beetles will reduce the basal area and could in fact produce a result by the end of 2019 that would be within the ballpark of the proposed action. While beetles may not leave as many large trees as silviculture would, they encourage adaptation in the forest by attacking more-vulnerable trees. The surviving trees will be better adapted to beetles. Bill said if the goal is to keep forests, the project should refocus on forest survival and recovery and on *sustaining* the current Montezuma timber industry rather than expanding it. In 40 years, if current trends continue, there may be no industry at all. During a period of tree decline it is probably not a good idea to expand the industry in this area.

He said it is difficult to stop beetle outbreaks. The best thinning might modify the extent of tree mortality, but ponderosa pines don't respond well to thinning. If all the trees around one tree are removed, it could take 10 years before that tree responds.

He recommended creating ideal landscapes that are resistant/resilient to beetle outbreaks. Research shows diverse and heterogeneous landscapes are the best approach to bark beetle management. Bill said in order to maintain or enhance extant forest survival and recovery, heterogeneous structure and stands are needed. The Idea is to "bet-hedge". His recommendations are:

- Keep all live large trees (because these are the most likely to survive fires). He noted that this is a difficult recommendation because large trees are the most valuable as timber, but they are needed every 100-300 feet in the landscape.
- Keep many live, surviving established trees, especially small ones, because those are more resistant to beetles and drought. People have been removing small trees to reduce wildfire risk, but there has been 2-3 times as much mortality from beetles and drought recently as from fires, so there is a need to keep trees under 16 inches in diameter.
- Avoid logging where there is an existing regeneration pool (seedlings, saplings) or many small trees. As temperatures rise, ponderosa regeneration will decline.

- Keep all live non-host trees (white fir, Douglas-fir, blue spruce) in the area – they can perpetuate a forest.

He said it is also important to accept and possibly stimulate new tree regeneration.

- Regeneration occurred after a historic bark beetle outbreak without removing downed trees (according to a historic photo). Downed wood probably provides shade, moisture, nutrients and protection from animals. There is no cost to implement this.
- Managers could monitor tree regeneration until 2-3 years after tree falls began. If there is no regeneration, then use prescribed fire (adaptive management).
- Fire could be used now to stimulate regeneration in areas with mostly live trees (not where most trees are dead).

Bill said, from an ecological standpoint, logging to maintain the current Montezuma industry would best be done:

- To protect infrastructure and high-value resources such as roads, power lines, WUI, and old trees.
- In green forests with lower ecological value. Some research says logging green forests is less damaging than salvage logging because green forests are not already damaged.

Logging could also be done in plantations.

Bill recommended conducting only limited salvage logging because it is a second disturbance in an area that has already suffered one serious disturbance. Also, dead trees provide nutrients for the soil.

He said most bug outbreaks either have no effect on fire severity, or reduce fire severity and/or the area burned.

He recommended against replanting efforts in beetle-killed forests because the trees that survive an attack are resistant to the bugs. Beetles will feast on new, vulnerable trees that are planted from outside the area.

His conclusions:

- Keep most of the live trees
- Don't remove dead ones
- Keep the timber industry alive but don't expand it.

Q & A

Mike Preston said the area of the Lone Pine project lies in the watershed for the Lower Dolores, while the next major project planned on the Dolores District is the Salter EA, which lies in the watershed for McPhee Reservoir. It is important that the beetles not spread. He wants there to be a pine zone here in 40 years and McPhee will be better off if there is one. However, he said It isn't possible to take a purely ecological approach to forest management because of the needs of people.

Dave Casey said the Lone Pine project is not just about reducing beetles, but about improving resiliency. Forest managers want to encourage regeneration because the forest is in trouble. Stands need to be

thinned and need fire. The 62,000-acre project area is peppered with beetle infestations, but the beetles aren't active throughout the whole area. He said logging is not a silver bullet. Adaptive management is a good approach and the EA has that built in.

Mike Battaglia said Bill made good points in his presentation, and the two of them are not far apart in their views. Bet-hedging is what the agency is trying to do. Beetles often cause more damage and leave more dead trees than wildfire, and the probability of fire is higher in a ponderosa forest than in fir. So he worries about not removing fuel that could promote a fire that will kill the seedlings. Material takes time to decompose to the point that it's not a fire hazard. He believes removing some of the dead material would be better. He agreed that logging won't stop the beetles, but said it can reduce the fuels that will fall onto the ground and burn.

Bill said the "red" stage, during which needles turn red on dead trees, is the most dangerous. After the needles fall off, the potential for crown fire is gone.

Mike agreed but said fires can burn on the ground.

Bill said that isn't happening. He added that these are tough trade-offs and it is good to experiment with different approaches.

Mike said forest managers don't want to remove every dead tree. However, they have seen some severe surface fires. Wildfire is definitely not desirable where there is a lot of material on the ground; that will result in converting the area to Gambel oak. But he said the DWRF collaborative knows the local area best.

Mike and Bill agreed adaptive management is a good approach.

Dave said it costs the Dolores District $700 to $1,000 per acre to do salvage logging, whereas if logging is done while trees are green, people will actually pay the Forest Service for that wood. Bill agreed that logging green areas is a good idea.

Mike Preston said there are enough variations in conditions on Lone Pine that all the principles and practices could be put into play. Dave agreed.

Derek said the Lone Pine EA offers different options. Managers understand there are a variety of things going on in that landscape and they want to keep the toolbox wide open.

Bill said there are so many options that it's difficult for the public to comprehend. Most of the area is eventually going to be affected by beetles and the EA is primarily focused on salvage logging in such areas. The other treatment options were intended for areas with more green trees, but those could be a minority of the project area by the end of 2019. He said salvage logging is a fairly severe treatment and every live tree will need to be retained to make it through this transition.

Bruce said clear-cutting in ponderosa is almost never desirable because it devastates site conditions, but he thinks although portions of the Lone Pine area are marked strictly for salvage, the vast majority is not. Manipulation of the stands to manipulate the pheromone plumes is important.

Dave described how the beetles are spreading. He said beetle infestations initially pepper the area, then gain momentum. Areas of infestation merge into 20-acre sites with full mortality, especially when infested with the roundheaded beetle. He said that insect is moving into the area of the Salter EA. Forest managers are seeing it peppering across a large landscape of approximately 250,000 acres. Lone Pine is the western edge of the pine belt in the Dolores District. The eastern edge is outside of Forest Service jurisdiction but there is an outbreak there as well.

Dave said the wild card is Gambel oak. Open areas where there would normally be ponderosa seedlings are being taken over by oak.

Bill said Gambel oak is remarkably well-adapted to beetle outbreaks and wildfire, but it will decline over time as trees regenerate. Frost can knock oak back as well.

Dave said fire is an economical way to deal with oak in salvage-logging areas but it is a wild card. Mike B. said burning those areas will kill pine seedlings. Bill said research shows it takes multiple fires to control oak and said, if things are left alone, trees will eventually outgrow oak anyway. Dave said the duff in places is 6-8 inches thick and is adding to the fuel load, which is a concern.

Dave said the Dolores District is proposing 5,000 to 6,000 acres/year of traditional timber sales. There is a total of about 20,000 aces in Lone Pine that is commercially viable. The plan is to run the commercial operations on the 5,000 acres first and then follow with thinning. The agency will have to look for grants to fund thinning of plantations and other areas that aren't commercially viable.

Anthony Madrid thanked the collaborative for hosting the presentations and reminded people to comment on the EA.

Danny said the Coordinating Committee met that morning and discussed having somebody draft comments regarding the EA and asking people to sign on as individuals, not as a collaborative, as the group has not come to consensus.

Next meeting: The next meeting is tentatively planned for April 3 and will be a half day to six hours long, led by a new strategic planning facilitator hired through the WaterSMART grant.