

**HIGHLIGHTS AND ACTION ITEMS | FIELD VISIT**  
**STAKEHOLDER SCIENCE COMMITTEE AND STAKEHOLDER COMMUNITY COMMITTEE**  
**LAKE TAHOE WEST RESTORATION PARTNERSHIP**  
Tuesday June 12, 2018, 8:30 am – 4:30 pm

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**Synopsis**

Lake Tahoe West stakeholders and agency representatives toured four sites around the Lake Tahoe basin to see current, recent, or future planned forest and watershed projects. The group discussed opportunities and considerations for using these types of treatments as part of the Lake Tahoe West project. As the group is currently in the process of developing a Landscape Restoration Strategy (LRS) for 60,000 acres of the west shore, the group also explored the relationship between site-specific planning and implementation and strategic considerations for a large landscape.

Themes included:

- The need for treatments to respond to the site’s ecology, hydrology, history, and constraints.
- The need for maintenance treatments.
- The need for adaptiveness, since we often do not entirely understand system drivers.
- Where is it appropriate to let natural processes (e.g., fire) play out, versus not? Closer to humans it is harder.
- How do we consider project sites as parts of bigger systems?
- To consider in the LRS and beyond:
  - The LRS can inform intervals for maintenance (ongoing treatments).
  - What type of fire (and severe fire) do we consider resilient? Acreage limit? Frequency limit? What’s the appropriate limit in the wildland-urban interface (WUI)?
  - Cost and time to implement forest thinning projects depend a lot on the technique used (e.g. cable yarding versus cut-to-length versus whole tree).
  - What might our strategy say about recreation, and co-existence of recreation with project implementation?

- Interagency coordination will be really important for any stream restoration projects, since streams tend
- Having everything under one environmental analysis document could slow things down. If one piece gets hung up (e.g. in litigation), everything does.
- How to create joint opportunities, e.g., to treat streams in concert with uplands so we can use the materials from the forest treatments
- Prioritization of stream restoration needs could be useful – show level of degradation and toolbox of treatments.

## Stop 1. Baldwin Beach Meadow and Emerald Fire Scar

### Baldwin Meadow

- Overview of the project (Shana Gross, Stephanie Coppeto and Brian Gross of the Forest Service)
  - The Forest Service has planned a 120 acre meadow restoration project at Baldwin Beach that primarily involves conifer removal (hand and mechanical) followed by pile burning, understory burning, and monitoring.
    - The project will remove as many conifers as possible, leaving 30” trees (which are potential seed sources).
    - There will be an extensive first treatment.
  - There are many reasons that conifers encroach; these systems are complex and it is tricky to identify the drivers, but treatment must be based on that understanding. The Forest Service will be tracking what works and does not.
    - Baldwin and Meeks are two of the most encroached meadows in the basin. Meeks is a little simpler.
    - Conifer encroachment can occur due to changes in hydrology, climate, increased seed pressure due to densification surrounding forest, grazing, small mammal populations, etc. Hydrology at Baldwin Meadow is impacted by the road. Historic grazing can increase conifers due to increasing bare ground, but can also be used to keep conifers down.
  - Fire is a natural part of meadow ecology – meadows burn patchy (some areas more severe) and generally recover very quickly.
  - This site overlaps with the planned Taylor/Tallac Restoration Project, focused on restoring the hydrology of the four swales, which are a unique feature. As part of that project the Forest Service wants to place culverts under the road (at swales 3 and 4) which currently bisect the swales.
    - Taylor Creek historically flowed through Swale 1 and out to the lake via Tallac Creek.
  - Another challenge here is bullfrog – there is a source population of bullfrog here, which are slow and laborious to remove.
  - This site is connected to the meadow system that runs all along the south shore.
- Q&A/Discussion:
  - Q: Historically, how much flooding would there have been in this meadow?

- A: It is lake influenced, especially in first 2 swales. We are not sure how much flooding would be required to kill lodgepoles, which can grow in very wet sites (e.g. fens).
- Q: Is grazing generally good or bad for meadows like this?
  - It depends. It might actually be beneficial to remove conifers.
  - Horses were the primary grazing animal and were removed from this site because of high E. coli.
- Q: What if encroachment continues after treatment?
  - We may do maintenance burning.
  - This was previously a fairly mature lodgepole stand. It was treated in the early 1990s with conifer removal (primarily removed trees killed by insects). The site was also a firewood gathering area for many years. The 1996 Cascade Fire burned portions of the meadow, and hazard trees were cut after the 2002 Kiva Fire.
  - However the trees around the meadow remained, and acted as seed sources to re-seed the meadow. So high seed pressure may limit effectiveness of conifer removal. We need to look not just at the meadow but at what is around it.
  - Meeks meadow is similarly surrounded by dense forest (seed sources).
- Q: Will the Forest Service have to continually manage this site, forever?
  - Yes, likely. Fire would help, and some managed fire may be feasible here but tricky because of proximity to human infrastructure.
- Q: Did you consider this project in the context of the larger meadow system along the south shore?
  - Yes, to an extent. But we also have to carve out a defined project from a larger landscape. For example we excluded the South Shore Fuels project from this project even though it is basically in the same meadow.
- Q: What is the historical influence of the fluctuating lake level on the meadow?
  - It is still tied to lake hydrology. The meadow is more or less wet because of both fluctuation in lake level (especially to swales 1 and 2) and snowmelt (swales 3 and 4).
- Q: Will fire kill the lodgepole seeds?
  - Yes and No. Fire helps lodgepole seeds open, but can kill some of the seeds. But fire can kill seedlings.
- Q: How much willow do you want in this meadow?
  - There is a fair amount now. We have willow flycatcher nesting habitat here. We can plant. The willow are also responding to removal of overhead conifers.
- Q: Can you use partners to do the lopping/pulling of lodgepole seedlings?
  - Yes, we might use school groups and volunteer days.
- Discussion:
  - The idea that we are ever “done” with restoring resilience is problematic. Sites need ongoing maintenance. The LRS could inform intervals for maintenance.
  - We live as part of the landscape and have a responsibility to maintain it.

## **Emerald Bay Fire Scar**

- Discussion theme for this site: how does the Landscape Restoration Strategy describe the role of high severity fire?
- The Emerald Bay Fire occurred in October 2016, 170 acres. It was stopped by rain or would likely have been worse.
- The Lake Tahoe West Landscape Resilience Assessment considered 40 acre patches of high severity fire the threshold for resilience. Is that appropriate? Historically these patches could have been bigger.
  - Modeling may help us think about that.
- Discussion:
  - Patch size and frequency:
    - 200-300 acre patches did occur historically. A threshold of no patches over 40 acres is pretty limiting in terms of defining resilience.
    - It's important to describe the threshold/target over time – a frequency threshold/target.
    - It's about heterogeneity. 40 acres was based on the historic fire regime in the Sierra.
    - Does the goal vary in different zones/ecosystems? Are bigger patches more appropriate in some places? E.g. meadow versus forest.
    - A lot of our forests are in wildland-urban interface (WUI) which makes it harder to apply the principles of GTR-220.
  - What are our expectations for human-started fire? It seems different than prescribed fire or lightning-started. For example, human ignitions are usually at the wrong time of year and the settings make the more severe.
  - Wind is also a factor that can change an acceptable location for fire into an unacceptable one.
  - Angora Fire research showed that areas that had been treated fared better.
  - Emerald Fire is south-facing; where you would historically expect more severe fire.
  - To consider in the LRS: what type of fire do we consider resilient? Acreage limit? Frequency limit? What's the appropriate limit in the wildland-urban interface (WUI)?

## **Stop 2: Spooner Cable Yarding Project**

Eric Roussel of the Nevada Division of Forestry joined us to describe the cable yarding project.

- This is a small pilot project (37 acres treated over 2 seasons). The goal is hazardous fuels reduction. It provides an opportunity for biomass removal on steep slopes. Treating dead and down fuel as well as timber.
  - Reducing from 100 tons (dead and downed) to 10-15 tons/acre. Removing a lot of volume.
  - Chipping some of the material and broadcasting out into the forest.
  - A major benefit is that this project only requires 1 entry. Doing the same job with a hand crew would require 5 entries.

- Cable yarding is great for steep slopes (the steeper the better). The system can also run on flat ground, such as sensitive meadows.
- Trees are hand-felled.
- Good opportunity for pilot project to test feasibility of cable yarding as thinning tool. Using the pilot to identify cost efficiencies and determine regulatory feasibility.
- The project is using inmate labor. If we did more of this type of project, would want to use private contractors.
- Challenges include: highway, power lines, steep slopes, and high surface fuel loading. Burning would cause smoke impacts to highway (and community of Glenbrook). Lots of site-specific thinking about how to make it work economically and logistically.
- Yarding works a bit like a ski lift: there is a static skyline with a carriage, and the mainline extends out from the end in all directions to pick up material. With this technique, can reach over 1000 feet out into the forest.
- Forest Service crew marked the barrier on each side of the creek, and the cable goes entirely over. It does not drag the material across. There is no thinning in the creek.
- The community of Glenbrook is pleased with the project and has requested more treatment near their property.
- Discussion:
  - This looks good post-treatment. In other cable yarding projects where they left the tops and limbs it actually created more fuels loading.
  - The group was generally impressed with this technique.
  - This is a small project. Cable yarding is much less time-efficient than some other techniques.
  - An advantage of this set-up is that they are not dragging the material across the ground. Creates fewer impacts than other cable yarding projects.
- The crew demonstrated the operation while our group looked on. Because of the noise there was not a lot of group discussion.

### Stop 3: South Shores Fuels Reduction Project

Overview (Brian Garrett with Nadia Tase – Calfire, formerly Forest Service – and Forest Service Timber Sale Administration Staff)

- This is a cut-to-length (CTL) mechanical harvest project. Cut to length has lower impact on soils than whole tree because of how the materials are removed from the landscape. Whole-tree is faster.
- CTL uses a harvester to cut the trees. A forwarder comes behind to drive the logs to the landing.
- Where the material will go:
  - Sawlogs to Lincoln
  - Biomass to Honey Lake
  - 3"-10" material to Martell for particle board
  - Some is masticated on-site

- The project is almost 200 acres, running from early May to end of June. Ground based treatment is much faster than cable yarding.
- Theme: impacts/opportunities for recreation. A popular recreation access road goes right through this site. (e.g., our group had to get out of the way of a logging truck that needed to pass by).
- CTL is useful to avoid sensitive resources. There is a stream environment zone nearby, and archaeological sites.
- Desired treatment density and canopy cover depends on the unit.
  - For example Forest Service is doing treatments in a protected activity center, where we left some ideal habitat alone but thinned parts that were not great habitat.
  - Forest Service used clumpy-gappy approach (GTR-220) where possible. It is more complicated for marking and requires an experienced marking crew.
- Q&A, Discussion with the managers
  - Q: What do you do to close a landing after you are done with it?
    - We put erosion control in place. We may also block it so people do not park there, etc.
    - Pine will germinate on them. Sometimes we plant them to increase diversity.
    - We try to keep the landings as small as possible (1-3 acres; 3 acres is unusual). Size depends on material.
  - Q: Why did you leave some small trees?
    - We leave some small trees to create structure for the future and retain structure. It helps mix up the even-aged stand (result of Comstock-era logging).
  - Q: How do you deal with bug kill?
    - If we mark, and then get bug kill, we adjust the mark for that. We will also take out diseased trees that we find while marking.
  - Q: Does the contract allow time for the material to dry?
    - Yes, it's a 4-year contract, so the contractors can take the material when the markets are best.
    - The contractor will also take biomass, and there will be light mastication.
    - Here the Forest Service does specify that contractors need to remove the biomass material.
  - Q: How have you managed recreation here?
    - The Forest Service put up a lot of signage. Did not do any closures. It has not been an issue.
- The group proceeded to view the harvester working in the field.

## Stop 4: Upper Truckee Reach 5 Restoration Project

Teresa Cody, Forest Service project manager, gave an overview of the project.

- This is a larger, more complicated stream restoration project than anything we would do on the west shore (largest that Forest Service has done in the basin). But there are overlapping themes in terms of interagency coordination and land ownership which are worth considering.
- Upper Truckee is the largest tributary to the lake, and produces the most sediments.
- Good example of interagency partnership and coordination.
  - There is a series of restoration projects planned on different reaches of the entire river. The reaches have different land ownership and different lead agencies.
  - Activities are coordinated through the Upper Truckee River Watershed Advisory Group (all stakeholders and public are invited). This group has been great for involving/educating the public and forming partnerships.
  - The projects on different reaches have proceeded at different paces. E.g. litigation has held some back. For that reason it has been good that the projects weren't all planned under the same NEPA/CEQA – the less controversial ones have been able to proceed.
- Reach 5 Project:
  - Implemented 2013-2016.
  - Ownership is about 2/3 Forest Service and 1/3 California Tahoe Conservancy.
    - The Forest Service and California Tahoe Conservancy did a joint NEPA/CEQA analysis.
    - Stream channel crosses both ownerships multiple times.
    - Different ownerships up and downstream. Downstream is owned by City of South Lake Tahoe.
    - This reach also goes right by the airport.
  - Challenges/considerations:
    - Airport and buried power lines were key infrastructure that provided constraints. Site access for machinery was also challenging.
    - Logistically challenging to implement, e.g., the project needed to use a temporary bridge and road, which is still being revegetated.
    - The native western pearl shell mussel – largest population is here. So had to relocate.
  - The project reconstructed the entire channel through this reach.
    - New channel was designed to avoid crossing the old one as much as possible. It was also designed to reoccupy the historical channel in some places.
  - The huge 2016-2017 winter occurred right after implementation. There was some erosion and the agencies did some emergency stabilization and revegetation.
  - The agencies are pleased with the outcome.
  - The planning process included looking at climate change and planning for that. All forest Service projects do.
    - Specifically, the agencies implemented different types of treatments and used different types of vegetation to increase heterogeneity and diversity. This is key for resilience, since different treatments and vegetation will respond differently.

- We are also doing extensive monitoring.
  - Q&A/Discussion with Teresa Cody and Stu Roll (California Tahoe Conservancy)
    - Q: How much of the new channel was constructed before you diverted the water into it?
      - Most of it, except for the tie-ins. We constructed the channel and let it season (for a year) before diverting water into it.
    - Q: How did you relocate the western pearl shell mussels and other organisms?
      - It was a huge relocation effort.
      - Before diverting the water, we lowered the flow through the old reach to very low. We had crews hand collect all of the aquatic organisms including the mussels. Put into tanks, etc., and relocated to different sites.
      - We eventually relocated some of the mussels back into the new reach.
    - Q: How did you deal with the complexities of project coordination/planning?
      - The Forest Service – California Tahoe Conservancy partnership was formalized in 2005-2006.
      - The Upper Truckee River Watershed Advisory Group has also been really beneficial. It evolved from a monitoring program and morphed into a larger role, including conducting project prioritization in the watershed.
      - Everything was planned at the project scale (a bit different than Lake Tahoe West model where we are looking together at the entire landscape). There are pro's and con's to that approach.
        - Some projects were able to move forward more quickly without being held up by others.
        - The complicated acquisition history here made for a better fit with a project-by-project approach.
        - Some activities have happened at watershed scale, e.g. monitoring.
        - Landscape-level planning could have been useful at times.
        - We did have a watershed assessment that identified level of degradation, potential restoration actions, and potential funding. Basic but gave a common starting point.
          - Something similar could be useful for the Lake Tahoe West watersheds – e.g. identify level of degradation (red/yellow/green), identify a toolbox of potential treatments and rough costs.
          - It might be hard to get hydrologists to agree on the level of degradation – these systems are complicated.
      - Funding really dictated which projects moved forward; sometimes lower project priorities moved forward first because there was funding. That has been unpredictable.
      - This is a priority watershed for the Forest Service, so lots of forest health and recreation work.
    - Joint opportunities for linking stream and forest restoration:

- Lake Tahoe West should consider joint opportunities among stream and upland restoration. For example, the airport wants to do conifer removal at the end of the runway; could have done that in better coordination with the stream restoration.
- But doing projects jointly does have drawbacks, e.g. nearby neighborhood experienced fatigue when a lot was happening at the same time (roads, channel work, forestry treatments).

## Wrap Up

Participants offered some final thoughts on favorite sites and key insights:

- Favorite things:
  - Cable yarding project!
  - Exciting to see the forest materials getting used, i.e., at the CTL site.
- Insights about project dynamics and challenges:
  - 5-year floods are more common now; have to plan for that (e.g. 2 in one month, plus a 10 year flood, in the Upper Truckee project).
  - Fluctuating markets dictate ability of a project to use the material/biomass.
  - Interesting to think about scaling up from project to landscape scale for LRS.
  - Collaboration is key – nice to see everyone talking/thinking about the projects together.
  - Great to hear from managers to understand their thinking about how to implement projects at the sites, how dealing with challenges, etc.
  - New understanding about the complexity of sites, for example the feeder bullfrog population at Baldwin Meadow.

## Participants

Jack Landy, Sue Britting, Jennifer Quashnick, Roland Shaw, Maria Mircheva, Zack Bradford (Lake Tahoe West Stakeholder Committees)

Brian Garrett, Stephanie Coppeto, Shana Gross, Teresa Cody (Forest Service LTBMU)

Jen Greenberg, Whitney Brennan, Jason Vasques, Stuart Roll (California Tahoe Conservancy)

Silver Hartman (California State Parks)

Christina Restaino (Tahoe Regional Planning Agency)

Ben Letton (Lahontan Regional Water Quality Board)

Nadia Tase (CalFire)

Kathy Murphy (former Forest Service)

Todd Gilens (Lake Tahoe West Artist)

Sarah Di Vittorio (National Forest Foundation)