DRAFT - SUMMARY

JOINT STAKEHOLDER SCIENCE COMMITTEE AND STAKEHOLDER COMMUNITY COMMITTEE MEETING

LAKE TAHOE WEST RESTORATION PARTNERSHIP

Tuesday, June 5, 9:00 am to 4:30 pm
Forest Service Lake Tahoe Basin Management Unit, South Lake Tahoe, California

All meeting materials are publicly available on the Lake Tahoe West website http://nationalforests.org/laketahoewest. For questions please contact the program manager/facilitator Sarah Di Vittorio at sdivittorio@nationalforests.org or (530) 902-8281.

Meeting Synopsis

The Lake Tahoe West Restoration Partnership (LTW) Stakeholder Science Stakeholder Community Committees met jointly to further development of the Lake Tahoe West Landscape Restoration Strategy. The meeting began with a discussion of the Sagehen Forest Project, a collaborative effort to restore forest ecology at the Sagehen Experimental Forest north of Truckee, California. The Sagehen project drew heavily from the principles of General Technical Report (GTR) 220 (*An ecosystem management strategy for Sierra mixed-conifer forests*, by Malcolm North, 2009), and the group considered the applicability of GTR-220 in the Lake Tahoe West landscape. A key conclusion was that the differences between the Sagehen and LTW landscapes are primarily social rather than ecological, so principles of GTR-220 do apply at LTW but our strategy must also address the unique social context of LTW. The group also learned about Blackwood Creek restoration efforts and discussed lessons for Lake Tahoe West, and discussed the status and role of modeling in development of the Strategy. Finally, the group discussed and provided feedback on draft concepts for revision of the Environmental Improvement Program Thresholds for vegetation; that discussion was led by Christina Restaino, Forest Health Program Manager for the Tahoe Regional Planning Agency.

The next Stakeholder Meeting will be a Stakeholder Science Committee Meeting on July 10 from 9am to 4pm, at the Tahoe Environmental Research Center in Incline Village. The goals will include review of a draft framework for development of the Landscape Restoration Strategy and discussion of a proposed approach to non-modeled elements.

Contents

1. Sagehen Collaborative

Following a welcome and introductions led by Sarah Di Vittorio, Lake Tahoe West facilitator, Jeff Brown presented on the Sagehen Forest Project. The Sagehen project is a restoration and research effort initiated following a series of historic fires in the Central Sierra region. Jeff played segments of a video, currently under development, that tells the story of the Sagehen Forest project.

Taking place for thousands of years, from Native Americans to Europeans, human land management practices are an ingrained piece of the ecology in this region. Native Americans once used fire to control the landscape, while Europeans clear-cut the forests and suppressed fire, contributing to build-up of fuels observed today. Millions of acres across the Sierras are now in need of some form of fuels reduction.

The Sagehen Forest Collaborative was initiated as an effort to test the concept of Strategically Placed Landscape Area Treatments (SPLATs) to reduce catastrophic fire risks and to improve the economic efficiency of thinning treatments. The project grew into a collaborative approach to build consensus among land managers, scientists, and other stakeholders for how to improve forest health.

Sagehen is a unique landscape of 9,000 acres of highly studied stands, offering an exceptional opportunity to draw conclusions about the effectiveness of treatments and allow for the observation of long-term trends. The project leveraged San Pedro de Martir National Park, in Mexico, as a reference site to understand what Sagehen may have looked like in the past, with more regular, low-intensity fire. The project also used GTR 220 principles and divided treatments into land management areas based on habitat types and forest characteristics.

The project utilized a special process for laying out the site. A succession of wildlife biologists, vegetation management officers, and timber officers would cruise the sites and mark trees, looking for wildlife habitat, old forest structure, and areas for recruitment. Cruisers were instructed to preserve randomness to the greatest degree possible. Marking each tree was not as time-consuming as anticipated, and also allowed for increased efficiency during treatment implementation.

Mr. Brown opened the floor for questions/comments:

- Q: What are the green dots on the map and why are they in greater concentration in some areas than others?
    - Each dot on map represents a plot; plots were placed to examine the effect of treatments (especially on wildlife) and based on funding requirements.
    - Some units were geared towards preserving habitats – higher basal area, retention of downed woods, snags, clumped trees, etc.
        - American marten was once common at Sagehen.
    - Yellow shading represent areas of less retention of structure, and brown shading even less.
    - **ACTION ITEM**: **Ms. Britting** will provide Stakeholders with Sagehen Collaborative treatment summaries.
- Q: What is the timeline for completion?
    - Contractors will finish treatments by the end of the year.

- Q: Was exclusion of treatment in goshawk/owl PACs beneficial to the overall project?
    - To avoid conflict, which was then significant, treatment in goshawk/owl PACs was not considered. The context today is different, so maybe today we would have considered it. We did use PACs as "no treatment" controls.
    - Suggestion: Have discussion about treatment in PACs, restrictions and language – Stakeholders are open to a conversation. It's not about treating versus not treating PACs; it's about how to treat PACs.
    - Suggestion: Consider use of Sagehen's tree marking method.
- Q: What is the scale of the prescriptions?
    - Prescriptions are at a fine scale (Ex. pink – girdling trees).
- Q: How do we evolve/ adapt Sagehen's strategy to other areas with different ecosystem priorities, or more ecosystem services as goals?
    - Sagehen attempted to minimize choices of different ecosystem services to prioritize. For example, Sagehen utilized an umbrella species (Marten) to design habitat considerations.
    - Sagehen is exploring the expansion of 8 emphasis areas to the greater Sierra, though is proceeding with caution.
    - Methods could be applied elsewhere, though the tool would have to be adapted.
- Q: How were aspen and riparian areas treated in Sagehen?
    - Aspen and riparian areas were removed from the project for regulatory reasons.
        - One aspen unit was hand thinned, lopped and scattered.
    - Working with LRWQCB to determine impacts of treatment on riparian areas.

2. Applicability of Sagehen's Approach to Lake Tahoe West?

The group discussed: (1) What restoration principles from Sagehen seem most applicable to LTW? (2) What might be different about LTW?

- Q: What was the overarching planning document at Sagehen? Was it landscape level?
    - Planning for Sagehen was done on the project scale. Documents on the Sagehen blog describe desired conditions.
    - By contrast, the LRS will speak to the landscape scale, not the project scale, and will describe desired conditions and how to get there at the landscape scale.
- Suggestion: "Treatment" needs to be clearly defined, especially with regard to PACs.
    - A process for treatment needs to exist – if things aren't expedient, they tend to get pushed off the table.
- Q: Could PACs serve as intentionally unmanaged area?
    - Could be useful for modeling, has value for a diverse landscape.
- One difference between LTW and Sagehen – Sagehen has no WUI.
- Q: How does the process of openings, recruitment, and treatment interact together?
    - Suggestion: Reforestation after fire, maintenance should be a piece of LTW
        - Some replanting methods can allow for fire soon after.
    - Dinkey strategy doesn't say where to replant, but it does suggest how.
- Q: How did Sagehen deal with biomass?
    - The original plan was to chip and haul it to the Loyalton bioenergy facility, but market volatility caused the facility to go out of business.

- o Suggestion: NFF has a Master Stewardship Agreement (MSA) to help move biomass.
- o Suggestion: Think about including the make-up of biomass in designing prescriptions – this will help in fostering the biomass industry.
- Q: What are some additional lessons of Sagehen?
  - o Treatment strategies in PACs, riparian zones should be defined and addressed explicitly.
    - ▪ Treatment in PACs represents an opportunity to change engrained culture.
  - o Perform NEPA across the landscape when possible.
    - ▪ Sagehen only did NEPA where they did the project, and there were drawbacks to that approach (e.g. did not address PACs).
  - o The project should determine the product (e.g., biomass, timber), not the other way around.
- Q: What are the sizes of the different collaborative?
  - o Sagehen: 9,000 acre study area; 2,500 acre treatment area
  - o Dinky: 170,000 acre study area; the largest NEPA was for a 5,000 acre treatment area
  - o Suggestion: Try to go bigger with environmental analysis.
  - o Suggestion: Have NEPA be an overlap of different treatments.

Sagehen considerations for treatment design:
- Topography
- Aspect
- Structure for wildlife
- Variability/patchiness
- Reintroducing fire to landscape

What's unique about LTW?
- The LTW project area is ecologically very similar to Sagehen, the main differences are social and economic.
  - o High recreation (and human presence in general) in Lake Tahoe.
  - o More extreme water quality focus in Lake Tahoe.
  - o In July/August there are many visitors (and second-home residents) who want clear skies, and do not want any trucking traffic.
  - o Suggestion: Vision and project of LTW should be one of the same. It is important to be telling the story of "why."
- The scale of LTW is new opportunity to implement the level effort that will be needed to address the challenges our forests are facing.
- LTW can help evaluate and identify current protection measures that are counterproductive to achieving resilience.
  - o Suggestion: Refer to "constraints" as "protection measures." Design some protection measures for specific places/situations.

Regarding Lake Tahoe West's approach relationship the basin-wide threshold update:
- Q: Are evaluations of the effectiveness of current protection measures/thresholds being built in upfront to modeling? Or are they being added in after?
  - o Yes, modeling scenarios were designed to do this (ex. 30% slope).
  - o The first round of analysis will be used to determine if there are regulations whose effectiveness we want to analyze further.

- o Any needed changes to regulations may take time – strategy development may need to happen first.
- Q: Will modeling examine the impact on soil and erosion of any changes to the current rules about treatment on steep slopes?
  - o Yes, if initial modeling suggests that these restrictions are limiting our ability to achieve resilience.
  - o Suggestion: Considering using demo/pilot projects to examine impacts of changing slope limitations. That could help build public support.

3. Blackwood Creek Restoration

Craig Oehrli, Hydrologist at LTBMU, presented on the Blackwood Creek Phase 4 stream channel restoration project to provide insight into instream work.

Blackwood Creek has been severely degraded and lost a significant amount of its sinuosity, in part due to a history of sheep grazing, logging, and gravel mining. Industry in the area manipulated and flattened the streambed to allow for transport of products.

As a result, a dramatic amount of work was required to restore the stream and improve sinuosity and habitat. Due to the intensity of disturbance during restoration, public perception was mixed. The project was also challenged by a lack of log availability, and rocks were substituted for logs where possible.

Despite these challenges, the project has been overall a success – with vegetation moving back in after five years and the stream channel withstanding storms and showing resilience. There is a planned next phase of the project, which will be smaller in scale due to a combination of factors (funding, need, etc.).

Discussion followed:

- Q: Was the use of rocks helpful to stability?
  - o Yes, the rocks helped with stability, but ideally more logs would have been used in place of some of the rocks. We could have used more logs if we had timed forestry and watershed treatments to overlap.
  - o Regardless, some positive changes in stream sinuosity have been reversing in recent history.
  - o Suggestion: Use material from forest health projects in creek and floodplain restoration.
    - ▪ Some key factors to achieving this will be timing, staff availability, and funding.
- Q: Is the history of disturbance unique to Blackwood?
  - o Blackwood has had a unique response to resource extraction. But all of the west shore streams have some level of historical use and impact.
- Q: Was it hard to get the root wad that was used for the project? Removing root wads is not a normal part of forestry.
  - o Root wads are not as big as one might think and the holes they leave can be filled in.
- Q: What size of material should be sought out for stream restoration? Where do future inputs come from?
  - o Logs that are 14" DBH and above.
  - o Future inputs come from floods - river moves large wood during floods/storms.

- o Sinuosity traps wood and debris - if the river was straight, it would be pushed out of the system.
- Q: Did the project respond as expected to 25-year flood?
    - o In some places, yes. However, there were surprises in other places.
- Q: Is it better to design stream restoration over a larger area less intensely? Or a smaller area more intensely?
    - o It depends on the situation.
- Q: Do you plan, fund, and implement completely separately from fuels reduction? Are there institutional barriers to doing this in a more coordinated way?
    - o Stream restoration is planned separately.
    - o No institutional barriers are apparent.
- Q: Would the outcome have been different if a storm happened closer to when restoration was first completed (ex. 2011)?
    - o No, rock structures were in place, vegetation only made a little bit of difference.
- This is the start of the conversation. There will be future opportunities to have conversations with Mr. Oehrli and to think about how to apply some of these techniques via the LTW project.

4. Environmental Improvement Program Threshold Update

Ms. Restaino outlined the concept of the Environmental Improvement Program's thresholds and the vision for Lake Tahoe West's (LTW's) role in threshold review.

Thresholds are management strategies for goals that we would like the landscape (in this case, vegetation) to look like. Current thresholds are difficult to assess (it is hard to measure progress toward achieving them). The Regional Plan is a collection of documents developed by TRPA that outlines goals and policies to attain and maintain thresholds. Codes (a subset of Regional Plan) are specific policies designed to enforce the Regional Plan.

The thresholds were written in 1980's, with vegetation thresholds updated in 1990's. In recognition of the need to update thresholds, TRPA is planning a "code cleanup" so that they may more accurately reflect and encourage management activities that restore forest health and resilience to fire to the landscape. Any changes to thresholds will become policy. TRPA intends to vet vegetation thresholds changes though LTW teams and TRPA-identified stakeholders. All thresholds are being updated (noise, scenic, recreation, aquatics, etc.), but vegetation thresholds will be updated first, with the goal to take recommendations to the board in October 2018.

TRPA aims to leverage existing collaborative efforts like LTW to provide support and feedback. The goal is for LTW to help provide some of the scientific underpinning for proposed threshold changes. Ultimately, TRPA intends to move toward a system that defines thresholds as outcomes that can be measured and quantified, which currently is not always the case.

- Old thresholds: old growth, native vegetation, pattern
- Proposed thresholds: composition, structure, health

Ms. Restaino asked stakeholders for questions/comments. Discussion followed:

- Q: What is the timeline for adoption of threshold changes?

- o The plan is to hold formal stakeholder vetting in Jun/July, with revisions occurring over the next few months.
  - o Suggestions must be passed through several working groups – need time.
  - o Vegetation updates will go for adoption to the TRPA board in October (threshold language only, not code).
  - o Changes in the regional plan will likely not be necessary (the regional plan more contemporary in its goals).
- Q: How will threshold updates be timed with modeling results? How will they interact?
  - o TRPA is hopeful to work with and integrate with modeling. Steps are being taken now to prepare so modeling results can inform the update.
- Q: Is there a risk of rushing into the threshold update?
  - o There is a desire to move forward now, given the current board which is very supportive.
- There is a tension between setting desired conditions/goals and being too prescriptive.
- Q: What the relationship between this and the indicators from LTW's Landscape Resilience Assessment (LRA)?
  - o Values for thresholds are coming from indicators, but the LRA indicators are more expansive.
  - o Suggestion: TRPA thresholds should integrate with LRA indicators.
- Q: How is this different from the conversation on LRA indicators?
  - o LRA indicator results weren't perfect and need some revision.
  - o Roll-ups may also be informative.
  - o Suggestion: Don't want to have LTW indicators that are different from TRPA thresholds. Don't want to be monitoring for different things.
  - o Timelines also won't match up perfectly - TRPA has its October deadline.
- Q: If we lose a species of the landscape, how would we still meet thresholds?
  - o Losing species to climate change may be inevitable, and thresholds may actually assist in indicating such loses. Thresholds would have a process to address this.
  - o Suggestion: Numerical targets may be difficult to attain, consider other avenues.
- Q: Will thresholds address uncommon and sensitive plant communities?
  - o Though this would be less associated with LTW efforts, TRPA would like to explore.
- Suggestion: Distinguish by location between the east side and west side.
  - o The current distinction between forest types may capture some of this.
- Suggestion: Consider thresholds that are a range of values over a portion/area.
- Ms. Restaino can meet with interested parties one-on-one.
  - o Suggestion: A webinar could be a possibility if there is information to share.

- **ACTION ITEM**: **Ms. Restaino** will consider the following suggested edits to the *Terrestrial Ecosystem Health Thresholds* two-pager, and bring a revised draft to the next Stakeholder meeting on July 10:

Suggested edits to the *Terrestrial Ecosystem Health Thresholds* 2-pager:
- Include a justification - the "why" is not explicit.
  - o Forest Health could be the "why." Native plants, structure, etc. could be the bins of how to get there.
- State that the distribution of forest types is determined by best available data source (LiDAR, eVeg).

- "Meadows" may be too arbitrary - use "fens," or another term.
- Clearly define early seral, mid-seral, etc.
- #16: Change "the use of fire" to "the use of fire or fire surrogates" and consider the use of something more outcome based (fire severity or patch size). Credit surrogates and tie to elevation or vegetation type.
    o "The use of fire severities are geared towards achieving…" an outcome.
- #17: Change to "should *not* occur." Include more flexibility in patch size.

5. Science for Strategies: Discussion

Jonathan Long presented S*cience Issues in Lake Tahoe West and Sierra Nevada and Southern Cascades Science Synthesis,* briefing the group on how GTR-237 and GTR-247 build upon GTR-220. GTR-247 complements LTW in terms of the breadth of the issues under consideration, the main themes of which are: integrating social and ecological considerations, designing treatment based on reference disturbance regimes and ecological trajectories, evaluating treatment effects in an adaptive management framework, and including priority areas (riparian, wildlife core habitat, red fir, etc.). A key recommendation was to apply phased strategic treatments at a landscape scale to allow for an evolution of strategy and acceptance from public.

Mr. Long then provided an update on modeling efforts thus far. A main goal of the use of science in LTW will be to close research gaps, but limited time and resources mean that questions will have to be prioritized.

Water Quality
- 3 runs are done. Results are being generated for the 20 watersheds being examined.
- The water quality team is working with the Design Team to understand what outputs/analyses are most useful.

Fine Scale Fire
- The sub-team is currently examining effects of fire on aspen stands and of changing from conifer dominated fuel types to deciduous dominated fuel types (deciduous fuels appear to slow down fire). Results will ready in next few weeks. Results will allow for greater understanding of dynamics in gaps created by treatments.
- Q: Could previous aspen restoration projects be used to inform shrub response?
    o Unlikely – treatment of aspen in the Lake Tahoe Basin differs from other locations in the Central Sierra in that there are less grouse issues and less intensive thinning takes place.
- Q: With the sub-team model the effects of pile creation and burning?
    o Yes.
- Q: Will modeling results be applicable to stream riparian systems, rather than just aspen and meadow systems?
    o Yes, the modeling will examine both upland and wet aspen stands – some of the sites have streams in them.

LANDIS
- Initial results are ready for Scenarios 1, 2 and 3. The sub-team is working with other modeling sub-team science leads to develop methods to integrate LANDIS results into their modeling where necessary.

- Suggestion: In one of the upcoming Scenarios, explore the effect of breaking up landscape with fuel breaks (using ridgelines and valleys).

Continuing questions:
- How can we increase the use of fire?
- What treatments are appropriate for steep slopes?
  - **ACTION ITEM**: **Ms. Restaino** will send out Ceon et al. publication on the King Fire.
- Which concerns are most significant in constraining restorative treatments in forested riparian areas?
  - Suggestion: Training Exchange (TREX) could be a good educational tool for burning in the Lake Tahoe Basin (location at Meeks Meadow?).

Ms. Di Vittorio provided a brief update on project processes and timeline. Modeling is taking longer than expected. Consequently, teams are moving forward with strategy development without the modeling being complete, first by looking at non-modeled elements. Given the need to move forward strategically at this stage, Ms. Di Vittorio presented the following framing questions for thinking about the role of modeling in LTW strategy development:

Framing questions:
1. What do we already know?
2. What are the key things that the modeling is going to inform?
3. What are the hard questions that modeling isn't going to inform?
4. What issues may need adaptive management?

Ms. Di Vittorio opened up the floor to questions/comments:

- Q: Is modeling going to give insight into sites at greatest risk of change? Or contributors to change?
  - Insights would likely need to be derived from landscape modeling, and will depend on the balance of priorities. Scales may make it difficult - larger watersheds will show up (Blackwood, Ward, etc.), smaller ones might not.
  - Other models, such as wildlife modeling may be too fine-scale to show effects.
- Q: What are the key things that the modeling can do?
  - Examine the effects of climate.
  - Examine changes over time.
  - Serve as an opportunity to extrapolate, integrate and parse data.
  - Allow for the ability to look at short term vs. long term effects.
- Q: What is the timeline for building the structure of the Ecosystem Management Decision Support (EMDS) tool?
  - Some EMDS structure will be necessary to examine results of Scenarios 1-4 and to build Scenarios 5 and 6.
  - EMDS structure will also be needed to integrate with Fine Scale Fire and WQ, etc.
    - Suggestion: Have fine scale answers/components complete before designing Scenarios 5 & 6.
  - Water Quality modeling may have some spatial/temporal scale issues, especially with regard to wildfire.
    - Suggestion: Use risk score or most extreme results to gain context.

- Q: Will modeling results include any data with respect to nitrogen levels?
  - LANDIS has a nitrogen output, but should be interpreted at a coarse scale.
  - Fine scale modeling will also address nitrogen in part, but there is no real designated measure for the purposes of designing policy/regulation.
- Q: How will modeling address roads? And ghost road modeling?
  - Ghost roads analysis was performed in Fall. Talked about extending. Decided roads are more of a project scale issue then a landscape scale issue. Could help in determining best/work places for roads overall.
  - Not a modeling challenge, more of a science/management challenge.
- Suggestion: Hold standing webinars to periodically present updates on modeling results.
  - **ACTION ITEM**: **Ms. Di Vittorio** to schedule periodic modeling results webinars beginning in mid to late July.
- Suggestion: More clarity is needed around scales and how they interact (landscape scale and project scale).

6. General Business

In closing, Ms. Di Vittorio briefed Stakeholders on General Business items:
- A Steep Terrain Hazardous Fuels Treatment Demonstration will be held on June 8, in Pollock Pines, CA.
  - **ACTION ITEM**: **Ms. Di Vittorio** will gain clarity on logistics for the steep slopes demo and share with the group.
- The June 12 Field Visit will explore sites on the south and east shores to examine actions we might take, how they relate to landscape scale, and opportunities for interaction with different pieces. Meet at 8:30am at Taylor Creek Visitor Center.
- The July 10 Stakeholder meeting will be held at a venue in North Lake Tahoe, specific location TBD.
- **AGREEMENT**: Stakeholders agreed to finalize April and May Meeting Summaries.

Closing Remarks

There were no closing remarks or interested party comments.

Action Items & Agreements

Action Items:
1. **Ms. Britting** will provide Stakeholders with Sagehen Collaborative treatment summaries.
2. **Ms. Restaino** will consider the suggested edits to the *Terrestrial Ecosystem Health Thresholds* two-pager, and bring a revised draft to the next Stakeholder meeting on July 10.
3. **Ms. Restaino** will send out Ceon et al. publication on the King Fire.
4. **Ms. Di Vittorio** will schedule periodic modeling results webinars beginning in mid to late July.
5. **DONE - Ms. Di Vittorio** will gain clarity on logistics for the steep slopes demo and share with the group.

Agreements:

1. **AGREEMENT**: Stakeholders agreed to finalize April and May Meeting Summaries.

Meeting Attendees

Organizing and Participating Agencies
CTC – California Tahoe Conservancy
FWS – Friends of the West Shore
LSLT - League to Save Lake Tahoe
NFF – National Forest Foundation
SFL - Sierra Forest Legacy
State Parks – California State Parks
SPF – Sugar Pine Foundation
TRPA – Tahoe Regional Planning Agency
USFS LTBMU – U.S. Forest Service Lake Tahoe Basin Management Unit
USFS PSW – U.S. Forest Service Pacific Southwest Research Station
US EPA – U.S. Environmental Protection Agency

Stakeholder Science and Community
Committee Members
1. Jennifer Quashnick
2. Sue Britting
3. Maria Mircheva
4. Jeff Brown
5. Maureen McCarthy
6. Zach Bradford
7. Jack Landy, US EPA

Staff
8. Jason Vasques, CTC
9. Jen Greenberg, CTC
10. Sarah Di Vittorio, NFF
11. Evan Ritzinger, NFF
12. Svetlana Yegorova, State Parks
13. Christina Restaino, TRPA
14. Brian Garrett, USFS LTBMU
15. Stephanie Coppeto, USFS LTBMU
16. Victor Lyon, USFS LTBMU
17. Jonathan Long, USFS PSW
18. Patrick Wright, CTC
19. Kim Carr, NFF