

DRAFT SUMMARY
STAKEHOLDER SCIENCE COMMITTEE MEETING
LAKE TAHOE WEST RESTORATION PARTNERSHIP

Tuesday, July 10, 9:00 am to 3:00 pm
Tahoe Environmental Research Center, 291 Country Club Drive, Incline Village, NV 89451

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 sdvittorio@nationalforests.org or (530) 902-8281.

Meeting Synopsis

The Lake Tahoe West Restoration Partnership (LTW) Stakeholder Science Committee (SSC) met on July 10, 2018, from 9am to 3pm at the Tahoe Environmental Research Center in Incline Village. Specific meeting objectives were to: (1) Collect feedback on a proposed framework for Landscape Restoration Strategy development, and components of the framework: goals, principles, and validity criteria. (2) Share and collect feedback on draft revised Environmental Improvement Program Thresholds for Vegetation. (3) Provide an update on modeling efforts for the Lake Tahoe West project. The discussion mainly highlighted questions and comments about the framework of the Landscape Restoration Strategy (LRS) and TRPA’s Vegetation Threshold Update. Participants suggested language changes and structural adjustments to the LRS Framework, and discussed how potential TRPA Threshold targets may be set to be measurable and accurately reflect temporal and spatial variability across the Lake Tahoe Basin.

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Action Items

1. **ACTION ITEM:** Evan Ritzinger will update LTW website with draft stakeholder meeting summaries. Mr. Ritzinger and Ms. Di Vittorio will update Exavault files. .
2. **ACTION ITEM:** Forest Schafer will deliver a summary of TCSI Intended outcome statements to assist in LRS Development.
3. **ACTION ITEM:** Sue Britting will ask her colleagues about better ways to develop a target for TEH9 and report back to Christina Restaino.

Welcome, Agenda Review, and Introductions

Sarah Di Vittorio welcomed the SSC and reviewed the meeting agenda. The meeting began with general updates on modeling results, most of which are still arriving. The next item was to review the Design Team's *Proposed Framework for Landscape Restoration Strategy Development*, which is intended to describe the process for developing the LTW strategy and the elements the strategy will contain. In doing so, it will assist in identifying where modeling results are most needed. The Framework is a working draft and the Design Team seeks feedback from Stakeholders before moving forward. Finally, Stakeholders provided a second round of feedback to Christina Restaino on the *Terrestrial Ecosystem Health Threshold Standards* document, revised since the June Stakeholder meeting. Ms. Restaino is co-leading TRPA's effort to update Terrestrial Ecosystem Health Thresholds. TRPA is seeking to gain efficiencies through coordinating their efforts with the greater LTW Partnership. Input from Stakeholders reflects a process of outreach to interested parties.

There were no interested party comments.

1. General Business

Ms. Di Vittorio reviewed General Business Items:

- The next Stakeholder meeting will be held on August 14, not August 7 as originally planned.
- **AGREEMENT**: Stakeholders agree to finalize the June 5 Joint Stakeholder Meeting Summary and June 12 Field Visit Summary.
- **ACTION ITEM**: Evan Ritzinger will update LTW website with draft stakeholder meeting summaries. Mr. Ritzinger and Ms. Di Vittorio will update Exavault files.
- Ms. Di Vittorio and Ms. Restaino are working on a timeline for roll-out of modeling results to the Design Team and SSC.

With regard to Modeling Updates:

Ms. Restaino presented updates from LANDIS modeling. Over the past month, we have been running Scenarios 1-4. Much of this time has been spent verifying modeling results and determining the sensitivity and role of the different model components (ex. fire suppression, fire spread, etc.) in shaping outputs. This process has taken longer than anticipated. Since other models derive their inputs from LANDIS outputs, delays in the LANDIS timeline have propagated delays elsewhere.

The LANDIS sub-team has found that "amount of treatment" and "climate" are two of the primary driving factors in determining modeled fire behavior. To simulate the range of future potential climates, the Design Team determined that the models should be run under "moderate" and "severe" climate change projections. Scenarios 1-3 were also run using historic climate data projections. While the product of a miscommunication, these runs were useful in improving understanding and in calibrating the LANDIS model, and may still inform analysis where appropriate. In the meantime, Scenarios 1-4 are now being re-run under "moderate" (already complete) and "severe" climate change projections. Mr. Kretchun is developing a preliminary assessment and will present LANDIS modeling results from "moderate" climate change projections to Design Team members on Thursday (7/12).

Ms. Restaino also presented updates on Water Quantity modeling efforts. Adrian Harpold has completed a preliminary analysis of the effect of over-story tree cover on snow melt, however, it is site specific (to the Rubicon site) and narrow in scope. Mr. Harpold is now working on expanding the scope to the entire west shore using a second model.

Discussion followed:

- Q: Are runs using the “moderate” climate change projections considered the baseline? If it occurs that changing climate doesn’t change the outputs significantly, will we have confidence in our results?
 - There is some precedent – in Brandon Collins’ study using LANDIS, the Basin also did not observe a lot of high severity fire in modeling either.
 - That said, on-the-ground knowledge appears to suggest that we are at a high risk for a high severity fire. LANDIS sub-team members are working to tease out the mechanisms that are creating the pattern of low/no high severity fire on the landscape (ex. climate, suppression effectiveness, etc.).
 - The use of historic fire data to guide fire risk parameters may be a contributing factor and is being explored.
 - Fire Weather Index also impacts the severity of fire in modeling. There are stochastic elements (ex. wind speed) in Fire Weather Index that influence the occurrence of high severity fire.
- Suggestion: Explore how bounding a time range for historic fire occurrence may be impacting modeling (are the current bounds correct?).
- If we are modeling using historic fires, we may be misrepresenting risk. Historic fires have been started by people at the “wrong time of year.” If a fire occurred at the “right time of year,” it could be of higher severity.
 - Suggestion: Modeling should address natural ignition factors. Addressing human vs. natural ignition is an important difference to make for telling the story the actions we need to take.
- Q: Do human vs. natural ignitions need to be analyzed in modeling? Could we arrive upon similar conclusions using existing literature?
 - There may be multiple ways to address this issue, and LTW members may have different ideas on how to address human vs. natural ignitions (ex. campfire restrictions). Not addressing it could prevent successful strategy.
 - Climate was different during historical instances of human ignited fires (ex. fall is more dry). It is becoming more about conditions than the time of year.
 - Suggestion: Plan to have a conversation around the issue of how to address human vs. natural ignitions in the analysis and LRS.
 - Suggestion: The LRS should be pointing out when conditions are acceptable for putting fire on the landscape.
- Q: Does LANDIS take into account variability/fluctuations in climate?
 - Yes.
- Q: Is Adrian incorporating sap flow into the hydrologic model?
 - Adrian did not present results on sap flow.
- Suggestion: The LRS should document what we know and where information gaps are, then suggest how we may be able to address these gaps. Pull from existing literature where possible.

- Also important to share the story of how confidence was developed in the models, the steps that were taken, what was learned, etc.

2. Proposed Framework for Landscape Restoration Strategy Development

With modeling taking longer than expected, teams realized the necessity to move forward with strategy development, beginning with outlining the strategy and assessing non-modeled elements. Ms. Di Vittorio, Jen Greenberg, Stephanie Coppeto and Jason Vasques have been working with Design Team on a framework for developing a strategy, with the intention of transparency and collaborative feedback. Ms. Greenberg presented the LRS Framework to Stakeholders.

We intend the framework to provide a systematic and transparent approach to developing the strategy and identifying landscape-scale treatments to achieve resilience.

The LRS Framework contains 5 key elements, listed in loose order from broad to narrow (Design Rules and Protection Measures are still in progress and were not presented to Stakeholders):

- Goals: What we want to achieve at the landscape scale. Overarching.
- Principles: Fundamental guiding touch-tones/philosophy for our approach.
- Required Components: Elements that the LRS should address in order to achieve consensus support.
- Design Rules: “Meat” of the Strategy. Rules for strategically defining treatments on the 60,000 acre landscape to achieve resilience.
- Protection Measures: Tools to narrow down the Design Rules and provide sidebars on project implementation.

The Design Team has been working on developing non-modeled elements of the Strategy, but has not brought these pieces into the LRS Framework yet. To avoid confusion by presenting two different frameworks, non-modeled elements will be incorporated into the LRS Framework as it develops.

Sue Britting has been asked to provide expertise based on her experience in Dinkey and other efforts toward developing the framework. If other Stakeholders feel they would like to be involved in the process of LRS Framework development, please contact Ms. Di Vittorio.

Discussion followed:

- Protection Measures:
 - Suggestion: Use a different term than “Protection Measures” – could cause some confusion with CEQA documentation. Think about NEPA/CEQA processes in developing terminology.
 - Consider hanging “Protection Measures” to “Design Criteria.”
 - Suggestion: Project specific Protection Measures do not need to be in the LRS, but should help land managers to look at landscape and make judgements about what needs to be done to bring the landscape to a desired condition using a specified “tool box.”
- Design Rules:
 - Design Rules will help with setting pace/scale, and then set priorities.

- Constraints will be addressed when projects are being planned/implemented.
- Suggestion: Keep options open – do not limit. Plan for all, and implement what you can
- Suggestion: Ordering matters. All the right ideas are there; ordering will provide emphasis.
- Q: Does the Strategy set goals for time-steps? Outcome focused (ex. X amount of late seral)?
 - Time-step goals will be incorporated where possible (where modeling can inform the component - need a way of gauging).
 - Suggestion: Build in anticipation of growth over time.
- Q: Should we prioritize areas that are least resilient? Or areas that are in better condition that are the least work (efficient)?
 - It will likely be a middle ground.

Stakeholders broke into small group exercise and identified elements of the LRS Framework to suggestions additions and edits, as follows.

LRS Framework Elements – Stakeholder Feedback

Goals:

1. *The goal of Lake Tahoe West is to restore resilience of the west shore’s forests, watersheds, recreational opportunities, and communities to disturbances such as wildfire, persistent drought, changing climatic conditions, and bark beetle epidemics.*
 - Call out “biotic disturbances.” Insects, pathogens, and invasive plants.
 - Make clear that we are enhancing existing recreation opportunities, not making new ones.
2. *We aim to achieve resilience as defined by:*
 - a. *The “capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks” (Walker et al. 2004) (from LRA, page 2).*
 - b. *The findings of Landscape Resilience Assessment*
3. *LTW will assess and make informed tradeoffs between the following landscape values and their associated Intended Landscape Outcome in order to move the system forward toward overall resilience.*

General Comments:

- The Intended Landscape Outcomes need to be re-written. Currently they are just directional; they do not indicate what you want on the landscape or how you get there..
- The Framework document table should clarify that is just providing examples.
- Add goal/principle that the LTW planning scale moves beyond a project – designing for the landscape scale.
- **ACTION ITEM:** Forest Schafer will deliver a summary of TCSI Intended outcome statements to assist in LRS Development.

Principles:

1. *LTW recognizes the importance of reducing the threat of uncharacteristically severe wildfire, while promoting resilience for multiple landscape values and to multiple disturbances.*
 - Acknowledge fire as a natural disturbance and ecological process.
2. *LTW recognizes the west shore as a dynamic landscape that may face significant changes over the coming decades. Our understanding of resilience may also evolve. Our starting point will be based on current conditions and model results of future landscape change, recognizing that reliability of model projections will decrease over the timeframe analyzed (i.e., model projections for 10 or 20 years from current year are more reliable than those for 50 or 100 years from current year).*
 - Call out that the LRS is a living document - it needs to have flexibility.
 - Discussion about whether “living document” is the right concept. We want the LRS to last for awhile; not have to be re-written every year.
 - Should include discussion about how managers should use the document and how they should reconcile the Strategy with ongoing change on the landscape.
3. *LTW aims to obtain a consensus approach among key stakeholders – including agencies and organizations representing conservation, recreation, business, and other concerns – and buy-in from the wider public including residents and visitors.*
4. *LTW aims to leverage our effort at broader scales by: developing a process and approach that is applicable beyond the Lake Tahoe basin; aligning with the state’s priorities and thereby maximizing funding potential; and working as part of the Tahoe Central Sierra Initiative to address regional needs, e.g. for increased biomass utilization capacity.*
5. *LTW aims to optimize the applicability of the LRS to environmental planning and analysis at the project/stand (or other sub-landscape) scale.*
 - Be clear about timescale and how managers can reassess project planning.
 - Include a vision for how managers will use the LRS.
6. *LTW incorporates a scientific approach wherever possible to inform the restoration strategy. The LRS heavily relies on the work of the LRA and the scientific modeling in combination with expert opinion to create a defensible strategy.*

General Comments:

- Think about long-term plans/timeline.
- Include bucket for “adaptive strategy.” How would you actually do that adaptive strategy?
- Include a separate bullet for encouraging industry/markets.

Required Components:

1. *Recognize the role of natural ecological disturbance processes (e.g. fire, drought, flooding) as a critical part of the ecosystem and aim to allow for these processes to the extent possible.*
 - Recognize the role of fire – make a principle?
2. *Identify the scale of treatment (including type and pace) across the 60,000 acre landscape to move the system forward toward resilience for the landscape values listed in the Goals.*
3. *Identify a geographic strategy that would yield the most benefits for resilience if restored. Prioritize treatment locations while allowing for flexibility as conditions and opportunities change. The Design Rules and Protection Measures will tell managers how to treat in specific areas, e.g.:*
 - a. *Consider how to best reduce fire threat to PACs while maintaining/enhancing habitat value.*
 - b. *Consider how to treat in meadow/riparian areas.*
 - Remove “geographic” or clarify meaning – be clear that it is not site specific, but can point out geographical recommendations (slopes, ridgelines, WUI, etc.).
4. *Identify treatment targets/approaches that are realistic and achievable, while also identifying ways to expand implementation efficiency and capacity to meet the necessary levels of treatment to move the landscape on a trend toward resilience, e.g.:*
 - a. *Expand opportunities to use innovative management tools such as technologies for steep slopes and stream environment zones, mixed severity large scale prescribed fire, managed natural ignitions, etc.*
 - b. *Maintain a sustainable pool of staff/contractors to plan and implement the necessary projects by providing an increased and steady stream of work.*
 - c. *Discuss LTW in the context of biomass utilization in the region, to minimize material left on-site and reduce the need for pile burning.*
 - d. *Improved public outreach and institutional capacity for prescribed fire.*
 - e. *Manage for wildlife habitat at multiple scales.*
 - f. *Improve and prevent deterioration of downstream hydrology and water quality.*
 - g. *Limit invasion from non-native species, or control or eradicate existing invasives.*
 - h. *Create treatments that augment or create benefits for recreation.*
 - Move a-h to Design Rules. There are too many sub-bullets and they need to be condensed. Be clear about how the strategy will address elements and where.
 - Change wording in “d.”
 - Include a sub-bullet about community wildfire protection. Include things communities can do to improve resilience, not just agencies.
 - Have actions that address how the public will interface with the strategy.
 - Call out constraints/barriers (and potential ways to address them).
5. *Identify areas of agreement/disagreement between potential benefits to ecosystem values and identify how we will address the areas of disagreement (w/ adaptive management or other).*
 - Add “tradeoffs,” these need to be explicitly called out

- Needs to be discussion of economics.
6. *Incorporate an adaptive management approach that will help us monitor our effectiveness at achieving resilience. This includes:*
- a. *Identify restoration priorities, steps, and major milestones.*
 - b. *Identify an adaptive management framework, key questions, and timescale.*
 - c. *Identify a clear method for assessing/measuring resilience so that we can monitor our effectiveness.*

General Comments:

- Timescale is missing. Over what timescale do the goals and other elements operate?

3. Environmental Improvement Program – Vegetation Threshold Update

Christina Restaino reintroduced the *Terrestrial Ecosystem Health Threshold Standards* document, which has been revised, based on suggestions from the June Stakeholder meeting. The document is still in draft form.. Ms. Restaino opened the floor for further suggested edits.

Discussion followed:

- Q: What is the process (legal staff review, public review, etc.)?
 - TRPA is developing a draft with input from all interested parties, Stakeholders included. There are no planned public meetings (stakeholders represent public)
- Concern – thresholds shouldn't eliminate aspects that are only found in the code.
 - Target vs. regulation – how to put in right bucket.
 - Thresholds should be measurable and specific, but not prescriptive.
- Suggestion: Include absolute values vs. percentages – 10% of a specific type of forest doesn't say how much of the forest is desired on the landscape.
 - The threshold was designed using percentages in response to the tension between having thresholds that are measurable, but also not prescriptive. In addition, the landscape is dynamic and future climate is uncertain – an absolute value could be too restrictive.
 - Suggestion: Be clear about percent of forested landscape.
- Suggestion: Be clear about policy differences between the “built environment” and the “forest.”
- Suggestion: Clarify/identify a source of plant associations and make them more descriptive of entire communities (CNPS, FES, land fire could be useful).
- Suggestion: Address inconsistencies between “Yellow Pine” and “Mixed Conifer” (list dominant species).
- Q: What is the process for monitoring TRPA Thresholds?
 - Every 4 years, TRPA collects data from partner agencies and combines information with its data. Afterwards, it evaluates and publishes results. EIP reporting will be included in TRPA's Annual Report and presented at the Tahoe Summit.
 - Updated thresholds will be coarse in scale though quantifiable in some way (potentially will use EcObject/LiDAR).

- Suggestion: Thresholds should have flexibility to account for a dynamic landscape and uncertainty due to climate change. Otherwise, thresholds may have to be revisited in the next couple decades.
 - It could be advantageous to have rigid goals, and show with science that climate change is why goals are not being reached.
- Q: How do thresholds relate to project-level reporting?
 - Thresholds may help influence project prioritization/design, but they are coarse, landscape-level measures. Projects should be able to be monitored and evaluated within the context of thresholds.
 - Suggestion: Create a stronger link to project-level reporting.
- Q: Will new LiDAR maps be available every 4 years?
 - Yes, the goal is to have new spatial data to assist with threshold evaluation and reporting.
- Suggestion: Break up the landscape by scales (regional, WUI, built vs. forest).
- Suggestion: Be consistent with use of common vs. scientific names.
- Suggestion: Define “mixed conifer.”
- Suggestion: Include ponderosa pine.
- Suggestion: Include monitoring of invasive species.
 - Some spatial data available.
 - NFF has hired an intern who may be able to assist. The intern is working to compile existing monitoring efforts, and could be directed to include invasive species in his research.
- Suggestion: More measurable thresholds are needed to pinpoint causes underlying trends.
 - Codes may also be amended to address this – they are more malleable.
- Suggestion: Consider adjusting the targets (40%-70%) for mid-seral and late-seral open canopy (esp. for Yellow Pine) - give thought to going lower than 40%.
 - Suggestion: Use Landfire as a guide.
 - Suggestion: Add a “total” percentage of landscape for different seral stages.
- Suggestion: Consider adjusting size class definitions: 20” for late seral may be too low, or over-representing. Consider a lower bound of 24”, 25”, or 30.”
- Q: What is the scale at which threshold targets are measured?
 - Thresholds are measured across the entire Tahoe Basin, and will examine trends over time (every 4 years).
 - Suggestion: Be clear about the scale – will assist in approval of projects.
- Suggestion: For targets, use minimums instead of ranges.
 - Either way, the targets need to account for differences across the landscape (ex. east shore vs. west shore).
- Suggestion: Make TEH1) more concise.
 - Include information on what it is today and what is expected under a natural regime. The threshold could be designed to state, “no less than what it is today.”
 - Another threshold could be a target/desired condition, which would also provide a rate of increase.
- Suggestion: Address higher elevations. We may not want to maintain the conditions associated with late seral in these areas.
- Suggestion: TEH7) Include stand density in thresholds – potentially break it down differently (ex. seral stage). Define “dominant type.”
 - Look at data in LRA to gauge proper densities

- Desired stand densities will depend on the objectives.
- Consider using target diameters instead.
- Q: Can management agencies set their own targets? Risks are minimized by the agency's own checks and balances.
 - No, this is not feasible.
- Suggestion: TEH4) Consider a different measure than fire return interval - it is currently too restrictive (ex. red fir could be up to 300 years max or more).
 - Fire rotation may be a better measure – “within X number of years, fire should be on the landscape.”
 - Could be used to define pace - we would need to some designated level of work to accomplish the desired fire rotation.
 - X number of acres burned per year.
 - Suggestion: Do not include built environment.
 - Suggestion: Think about elevation and fire severity.
 - Suggestion: Be clear that fire is ecologically beneficial, but not high severity fire.
- Suggestion: TEH9) Clarify what is in/out.
- Q: What is meant by “non-degradation”?
 - “Non-degradation” is intended to refer to “no disturbance,” or “no management.”
 - Suggestion: Use “protect and sustain,” or “maintain and expand.” By preventing disturbances we may be allowing for degradation. In these areas, identify the current condition and state that we should prevent degradation to that level.
- Q: TEH9) “Maintaining a minimum number of sites” – what is the condition of the site? What is considered an occurrence?
 - One plant could be counted as an occurrence.
 - Suggestion: Would need an index of what creates a healthy community. If the community is disturbance dependent, “non-degradation,” clause could hurt.
 - **ACTION ITEM**: Ms. Britting will ask colleagues about better ways to target/make TEH9 and report back to Ms. Restaino.
- Ms. Restaino will revise thresholds based on stakeholder input.

Ms. Di Vittorio thanked all attendees for their participation and adjourned the meeting.

There were no interested party comments.

Meeting Attendees

Organizing and Participating Agencies

CSP – California State Parks

CTC – California Tahoe Conservancy

NFF – National Forest Foundation

TFFT – Tahoe Fire and Fuels Team

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

USFS PNW - U.S. Forest Service Pacific Northwest Research Station

Stakeholder Science Committee Members

1. Jennifer Quashnick
2. Sue Britting
3. Roland Shaw
4. Tricia Maloney
5. Jeff Brown
6. Matt Freitas

Staff

7. Silver Hartman, CSP
8. Whitney Brennan, CTC
9. Jen Greenberg, CTC
10. Evan Ritzinger, NFF
11. Sarah Di Vittorio, NFF
12. Christina Restaino, TRPA
13. Brian Garrett, USFS LTBMU