

SUMMARY | STAKEHOLDER SCIENCE COMMITTEE MEETING

LAKE TAHOE WEST RESTORATION PARTNERSHIP

Tuesday, March 7, 2017, 10:00 am to 3:00 pm

Tahoe Mountain Lab, 3079 Harrison Ave., South Lake Tahoe, CA 96150

All meeting materials are publicly available on the Lake Tahoe West website <http://nationalforests.org/laketahoewest>. For questions please contact the program manager/facilitator Dorian Fougères at dfougeres@nationalforests.org or (530) 902-8281.

Meeting Synopsis

The Lake Tahoe West Restoration Partnership (Lake Tahoe West) Stakeholder Science Committee met on March 7, 2017, at the Tahoe Mountain Lab in South Lake Tahoe. Stakeholders advanced the development of three major work products. Regarding the essential management questions, the group deliberated how to design these guiding questions, have them be inclusive of wide-ranging inquiry yet still provide direction, and how to sort them. Regarding the landscape resilience assessment, Mr. Scott Conway from the US Forest Service Region 5 Remote Sensing Lab presented on the EcObject tool, which helps segment the landscape into ecologically meaningful units that can be used in an assessment. After lunch, the group deliberated the appropriate scale of assessment units and how to select indicators, including how to ensure the indicators amount to a resilient system, as well as the importance of trends and sudden ecological disturbances. The next Stakeholder Science Committee (SSC) meeting will occur from 9 am to 12:30 pm on April 4, 2017, at the Tahoe City Public Utility District office in Tahoe City, and the next Stakeholder Community Committee meeting, including SSC liaisons, will follow immediately after from 1 pm to 5 pm at the same location.

Contents

Meeting Synopsis	1
Action Items	1
1. Welcome and Opening Remarks	2
2. Essential Management Questions	3
3. Landscape Resilience Assessment	6
4. Planning Scenarios	11
5. Action Items, Next Steps, and Closing Remarks.....	12
6. Attendance	13

This meeting summary paraphrases individual comments and suggestions. Statements do not indicate consensus of the group unless they are preceded by the word "AGREEMENT". Statements are not attributed unless spoken by one of the organizing or participating agencies, or by a presenter.

Action Items

1. **SSC members by COB Tuesday, March 14**, to send Dorian one or more essential management question based on the March 7 discussion and revised categorization.

2. **IADT** to meet on March 9 and begin to re-sort questions into the revised five categories, and also begin to tier key questions, particularly after receiving SSC suggestions.
3. **Randy Striplin** to help Scott Conway improve the fuels layer for EcObject.
4. **Stephanie Coppeto and Randy Striplin** to create examples of how the landscape would look if polygons were grouped into various hydrologic unit codes (e.g., watersheds, sub-watersheds).
5. **Dorian** to work with IADT to provide a small number, to start, of map layers for the analysis/project area.
6. **IADT** to meet on March 9 and begin to think through indicators of resilience to disturbances in terrestrial and aquatic ecosystems, and for public health and recreation as well.
7. **Randy Striplin and Maureen McCarthy** to provide a prefatory paragraph describing climate assumptions for the planning scenarios.
8. **IADT** to meet on March 9 and determine who can draft consistent biophysical conditions and management references, and a statement on the scenario construction, as well as other revisions for the planning scenarios.

1. Welcome and Opening Remarks

- Ms. Jamie Orr, Co-Founder of the Tahoe Mountain Lab, welcomed people to the meeting, noting that the lab is South Lake Tahoe's first co-working space and hosts over 50 different businesses.
- Mr. Mike Vollmer, Lead for the Lake Tahoe West Restoration Partnership's (LTW) Interagency Design Team (IADT), also welcomed people to the Stakeholder Science Committee (SSC) meeting, noting the several IADT members in attendance.
- Following introductions, Mr. Dorian Fougères, LTW Facilitator, reviewed the agenda, noting that Mr. Michael Hogan could not join the group today. He informed the group that the Executive Team had approved the application of Friends of the West Shore (represented by Ms. Jennifer Quashnick) to join the Stakeholder Science Committee; that Mr. Toby O'Geen, University of California at Davis, might also join to augment the SSC's expertise with soils; and that Mr. Roland Shaw, Nevada Division of Forestry, might also join the group to provide comparative expertise in forestry and fuels. Mr. Fougères noted the importance of all participants in LTW taking an open-ended stance toward inquiry. He also requested to extend the April 4 SSC meeting to end at 12:30 pm.
- Mr. Patrick Wright, Executive Director for the California Tahoe Conservancy, reiterated the importance of thinking creatively and rigorously about how to approach forest and watershed restoration. While each agency and organization has approaches and practices that it prefers, LTW aims to find new and more effective ways to treat the landscape.

Interested party comment period #1:

- The commenter introduced himself, noting his long-time residence in the Basin and work on a wide range of resilience, regeneration, and sustainability issues.

2. Essential Management Questions

Mr. Vollmer and Mr. Fougères reviewed highlights from the handout, including the intended use of the “essential management questions,” and criteria to use in designing them.

Discussion followed:

- Can we modify the questions?
 - Mr. Fougères: Yes, per the Charter, the SSC has a peer-to-peer, collaborative relationship with the IADT. The IADT brings draft materials to the SSC for review and reworking as needed. These will also be shared with the Stakeholder Community Committee (SCC). Eventually the SSC will recommend a final set of questions to the Executive Team for approval.
- The intended use mentions executive priorities; are these explicitly stated anywhere?
 - Mr. Wright: These are not written. However, the executives share several interests. First, taking a landscape rather than piecemeal approach, and working across jurisdictions. Second, working as a team of agencies to implement projects that have multiple benefits. This is a challenge because the agencies have different missions and traditionally have separated fuels treatments and watershed treatments. We need to merge these, so we move away from focusing only on mitigating impacts to include equal emphasis on restoration. Third, to look carefully at tradeoffs associated with roads, smoke, and other concerns.
 - Mr. Fougères: The purpose of developing these questions together is to ensure that the SSC, IADT, and Executive Team agree on what we need to focus on. It takes time but will provide a solid foundation for all subsequent work.
- What is the time scale for the questions? If the duration is only a year (e.g., July 2018), then the questions cannot be strategic.
 - Mr. Fougères: The time scale varies according to how the questions are used. The LTW charter aims to conduct restoration projects over a decade. The planning scenarios have a horizon of 35-40 years (i.e., 2052-2057). Topics like carbon sequestration occur over many more decades. Practically, the questions are designed to guide inquiry throughout LTW, particularly during phase 1 (landscape resilience assessment) and phase 2 (landscape restoration strategy including modeling), but also during project planning, implementation, and monitoring.
 - If so, then design criterion (e) should be revised or deleted, because the questions will extend beyond July 31, 2018 (i.e., beyond phase 2). We would want to incorporate new information throughout the initiative, including implementation. This would allow for strategic questions.
- Similarly, one cannot conduct research in such a short period.
 - Mr. Fougères: In creating LTW, the executives sought to apply the wide range of completed research in the basin, rather than conducting new research. The Science Team’s role is to bring existing research to bear on management, and through their modeling to try and address specific questions that remain.

- Criterion (g) should be revised to emphasize questions where information exists but has not been applied, and/or questions that phase 2 modeling can address.
- The choice of topics (fire, water, wildlife, and recreation) seems to miss vegetation, which overlaps but is not limited to the initial draft questions. Public health and safety also is another major area that seems embedded in the fire and water questions, but could benefit from being called out clearly. An alternate categorization would be:
 1. Terrestrial/upland ecosystems
 2. Aquatic ecosystems
 4. Public health and safety
 5. Recreation
- Such a categorization would let us variously address ecosystem (including vegetation) structure and composition, as well as the ecosystem processes and their functions.
 - For example, the fluctuation of carbon stocks is a long-term process that influences the functioning of entire upland ecosystems.
 - Such a categorization would also let us variously address ecosystem services.
- Such a categorization is also easier to communicate and more clearly connected to what people value. We may want to further craft the language to speak to what laypersons understand, such as forests and wildlife, streams and fish, community and culture.

The group then moved into discussion of example questions.

- The first fire question presumes that prescribed fire and managed natural ignitions are preferred. We need broader latitude to explore alternatives to mechanical treatment and prescribed fire treatments. The question is framed too narrowly.
 - We will have to explore tactics and what we can achieve with different tools, but should not start here. The larger question may be, How can we reduce fuel loadings?
 - Mr. Fougères: This is helpful, and at the same time, a great deal of research and experience exists in the basin, so framing a question at the broadest possible level does not provide much focus for inquiry.
- In a different project, everyone was able to agree from the start that they were interested in more prescribed fire, and this let us move through the National Environmental Policy Act (NEPA) review process more quickly.
- Mr. Wright: We have multiple levels of management questions, and it would help to sort questions accordingly. For example:
 - Management questions focused on ecological processes
 - Management questions focused on achieving desired conditions
 - Management questions focused on tradeoffs
 - Management questions focused on impacts (per regulations)
- It is beneficial to distinguish between questions that focus on mitigating impacts, which is a common emphasis, and questions that focus on enhancing resource values. These questions are often mixed together which leads to confusion.
- If terrestrial and aquatic values are equal, and yet we want to integrate resource values at the landscape scale, we should also recognize that there may be questions that apply

to watersheds as a whole or to the landscape as a whole, and combine terrestrial and aquatic systems. Therefore, a slightly revised categorization would be:

1. Terrestrial/upland ecosystems
 2. Aquatic ecosystems
 3. *Combining #1 and #2 as needed, you get #3, Watershed (and/or Landscape)*
 4. Public health and safety
 5. Recreation
- It is important to distinguish the context of the question. Fire is an ecological process without which the forest will not function. The proposed categorization would allow us to explore the necessity of fire for terrestrial and aquatic ecosystems, as well as talk about the associated social and public health issues.
 - Parsing out how these questions apply to the landscape will provide a foundation for having clear reasoning when we arrive at a specific location and have to address the tactical question of whether to use fire or mechanical or other treatment.
 - Accordingly, an improved question might be something like, “How can we make better use of the fire regime we have?” This would help us be clear – when do we want to do broadcast burning, when do we have a better option than pile burning?
 - This reframing is clear, although efforts in the Basin focus on fire suppression, so it is not entirely accurate to characterize this as a fire regime.
 - Landscape carbon is tightly linked to vegetation and soil. How we assess the forest as a sink or stock for carbon, and how carbon fluctuates in the near and long-term is critical. One of our questions should be how we can get the forest to be a long-term carbon sink.
 - Putting the pieces together, one could frame the question as, “How can we facilitate an ecologically beneficial fire regime that minimizes public health impacts, including air and water quality?”
 - We should also be thinking about not just using existing burn days better, but how we might have more burn days.
 - This was the intent of the second fire question – to increase the comfort of managers, decision-makers, and the public with using prescribed and managed fire.
 - Mr. Fougères: The Executive Team noted their desire to see parallel structure across the topics of questions, so that each topic had a question like this which emphasized exploring how we might approach restoration differently than historical forest and watershed treatments.
 - This is not a new problem. Perhaps we should focus on the barriers to using fire.
 - The primary impediment to doing more burning is limited staff. The Basin has a large number of burn days.
 - Other significant impediments are weather conditions, prepositioning of resources, and personal liability for burn bosses.
 - Prepositioning is so important because when an opportunity to burn exists, one has to move very quickly, within a few days, to take advantage of it.

- On this topic, a key question is, “How can we mitigate wildfire?” The answer is prescribed fire. We need to recognize that wildfire will occur and we cannot always minimize impacts to air quality.
 - This points to the encompassing social question, “What is the fire regime that we will allow here in the Basin?”
- As we talk about public health and safety, the questions start to involve institutions and communication.
 - In developing questions we do not need to draw a bright line around ecology and biology. However, if there are questions that involve institutions, we need to clearly link them back to management.
- **ACTION ITEM:** SSC members by COB Tuesday, March 14, to send Dorian one or more essential management question based on the March 7 discussion and revised categorization.
- **ACTION ITEM:** IADT to meet on March 9 and begin to re-sort questions into the revised five categories, and also begin to tier key questions, particularly after receiving SSC suggestions.

3. Landscape Resilience Assessment

Mr. Fougères briefly reviewed the main components of the proposed landscape resilience assessment, as described in the handout. Mr. Scott Conway, USFS Region 5 Remote Sensing Lab, then presented on the EcObject tool he has developed, which helps segment the landscape into ecologically meaningful units that can be used in an assessment. Mr. Conway’s slides can be downloaded at the FTP site listed at the start of this summary.

Discussion followed.

- Does the tool include wildfire history? Yes.
- What is the timeline for product delivery?
 - Mr. Conway: EcObject should be delivered by March 31. The work flow for the Illouette Basin should be complete by April 28. Work with Van Kane and Derek Churchill from the University of Washington on a statistical “resilience envelope” will take more time. This could include some work on quantifying individual-clump-openings (ICO) as an indicator for resilience, based on the literature on the importance of ICO. The envelope could serve as an upper bookend for reference (that is, what would be here if there were a natural fire regime?), recognizing that there would be many additional considerations in the Basin. I would recommend that the group continue its work rather than waiting for this product, which involves research and development as well as production; its information could be integrated down the road.
- Could you re-run the fire modeling to simulate post-treatment conditions?
 - Mr. Conway: Yes, if there were a treatment to use it should provide realistic information about placement, but especially intensity and size. One could also

re-map the carbon stocks, particularly using terrestrial LiDAR as shown in the slides to document carbon flux during, for example, a stem exclusion phase.

- How far out in time could post-treatment simulations go? Could they include stochastic events? I recognize the tool is not designed to be predictive.
 - Mr. Conway: Yes you can go out in time, but no it is not predictive. The treatments had to be manually entered, which is cumbersome and would be very time consuming to do at a large scale; right now the task is not automated. Positively, the work does include EDart, which updates data to include percent change and the intensity of change.
- Could EcObject be applied to understanding drought resilience, beetles, and ecophysiology?
 - Mr. Conway: We could look at climate exposure, but right now it's hard to determine species from the data, so we could not look at vulnerability. We would need a better way to identify species to have value.
- Could you redesign the clump algorithm?
 - Mr. Conway: Yes, but there is no perfect algorithm, different professionals might design this slightly differently. Regardless, the point is that it still accurately characterizes patterns.
- Can EcObject characterize heterogeneity or connectivity? Could one compare this across units or somehow combine units?
 - Mr. Conway: Yes, a landscape ecologist could rasterize the polygons then run them through FRAGSTATS. The hard part could be determining how to make sure the analysis is ecologically meaningful.
- Mike Flaxman, Geodesign, worked with the Core Team to help develop the planning scenarios material used on February 7. He specializes in developing decision-support tools, and might be able to develop a tool that incorporates heterogeneity and connectivity.
- Mr. Striplin: I will work with Mr. Conway to provide some improvements to the fuels layer.
 - **ACTION ITEM:** Randy Striplin to help Scott Conway improvement the fuels layer for EcObject.
- How well do aerial and terrestrial LiDAR detect surface fuels?
 - Mr. Conway: Terrestrial LiDAR is significant here, it provides measurements for 100% of the canopy and does this well because the intensity of the data. Aerial LiDAR does not. Terrestrial LiDAR is stil just plot data that has to be spliced with aerial LiDAR and imputed statistically.

After lunch the group continued its deliberations.

Regarding assessment units:

- Regarding how to construct assessment units, we might want to create different units that overlap, such as connectivity and meadow and early and late seral units, rather than discrete units that do not overlap.

- Before choosing the right unit, we need to be clear how we will use the assessment. Will this be used to set priorities of some sort? In that case, the prioritization process would inform the scale.
 - Mr. Fougères: The assessment will not lead directly to project planning and operations, but will provide the foundation for the landscape restoration strategy. The presumption is that we will want to build the strategy around parts of the landscape that are least resilient.
- Details from EcObject could be summarized to provide, for example, ranges, FRAGSTATS, indices, or averages that are integrated.
- Alternate groupings could include biophysical zones or species ranges.
- Conditions in the Illouette Basin could also serve as a reference.
- Another consideration would be, at what scale has the Lake Tahoe Basin Management Unit done landscape planning in earlier efforts?
 - The Forest Service used a watershed condition framework three or four years ago. What we do here should be compatible with that effort, even if it was at a larger scale.
 - **ACTION ITEM: Stephanie Coppeto and Randy Striplin** to create examples of how the landscape would look if polygons were grouped into various hydrologic unit codes (e.g., watersheds, sub-watersheds).
- One consideration is what is practical. EcObject likely has thousands of polygons for the west shore. If the entire analysis area is 153,000 acres, would polygons of approximately 3-5,000 acres be a reasonable number? If the size is too coarse, a unit will conceal as much as it reveals, and have to be unpacked again to be meaningful.
 - We may want to separate units into some different types, for example, what's in the planning area and what's in the analysis area.
- Focusing on hot spots would be helpful – areas of high connectivity, high fire risk, etc.
 - There are two steps that might be being blurred. First is identifying what we are trying to compare – the assessment units. Second is how we will summarize the indicators therein and compare the units. If we are trying to identify hot spots, this would presumably be something that can be seen when you aggregate indicators.
- The scale of the assessment units will also be data dependent, and EcObject provides a fine grain. At the same time, this fine grain would miss emergent properties of the landscape.
- Why do we need a set scale?
 - If we are trying to assess how resilience varies across the landscape, we need to be able to compare different parts of the landscape and the multiple values that exist in the same places. The assessment will integrate multiple indicators to help identify areas that have multiple values and/or conflicts. While the high value of a small spot may be missed and the assessment will not answer all our questions, it should help us focus. If people feel that there are lots of highly valuable small parts of the landscape, then we should choose a smaller scale.

- Choosing a scale does not mean that every unit will be exactly the same time, but will be roughly the same size range.

Regarding categories of landscape value:

- At least for the moment, we will use the same categories of landscape value as the categories used for the essential management questions. This would help the two work products stay compatible and also make communication easier by not introducing new divisions.

Regarding indicators:

- To the extent possible, we should also gather information about the trend of an indicator, whether better or worse, not just its condition. For example, it is more helpful to know whether an area is becoming more or less favorable for cheatgrass, not simply whether cheatgrass is found there.
- We need to say focused on indicators that tell us something about resilience.
 - Mr. Fougères: Yes, this is why we circulated the paper by Quinlan et al (2015), because it distinguishes between simply measuring resilience by looking at individual parts, and assessing resilience and understanding the system as a whole. It is also why, per the work flow product diagram, we will develop “desired resilient conditions” as part of the assessment process.
 - And yes, we also will need to be parsimonious and focus on the indicators that have the greatest value – this is the landscape resilience assessment handout’s first consideration for selecting indicators (page 2, point 6(a)). Having a large number of indicators will be unwieldy for analysis.
 - This is also why, in the handout (point 4), and in the earlier discussion about essential management questions, we flagged the importance of thinking about ecological processes, which underpin forest and watershed ecosystems. Paying attention to the constitutive processes of west shore forests and watersheds would be a way to ensure that the assessment presumably informs us about the landscape’s resilience.
- Where do landscape values fit?
 - Mr. Fougères: See the work product flow diagram. When working toward resilience, we first need to answer, “Resilience of what to what?” In the Angeler and Allen paper (2016) that we circulated, they give the example of a coral reef system that becomes algal-dominated; this is a resilient system but not a desired system. In our case, per the goal of LTW at the start of the charter, we are focused on the resilience of west shore forests and watersheds. The landscape values that we included in the stakeholder survey from December are the things that people care about, and help to answer, “Resilience of what to what?”
- The Fisichelli et al (2015) article you circulated was helpful in distinguishing between “persistence” of current conditions, “directed change” towards a specific desired new future, and “autonomous change” in which a resource responds to change with no management response intended to drive the system towards a specific state.

- Mr. Dan Shaw: It sounds like we are focused on engineering resilience to stay in a range of desired conditions, when in practice resilience can be understood as the capacity for self-renewal. We are assuming forest health will get worse if we do nothing. On State Parks lands, we are finding that the forest is in a stem exclusion phase and not getting more dense over time nor having higher fuel loads. We are comfortable with current regulations and open to letting the forest develop without management interventions.
- Looking internationally, resilience is the ability of a system to respond to disturbance and shocks.
 - Mr. Fougères: The Charter draws on a similar definition, and emphasizes staying in the same system, in our case remaining a forest rather than shifting to a grassland or some other ecosystem. [“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, B.H., C.S. Holing, S.R. Carpenter, and A. Kinzig (2004), “Resilience, adaptability, and transformability in social-ecological systems.” Ecology and Society 9(2): 5. <http://www.ecologyandsociety.org/vol9/iss2/art5>]
- Mr. Fougères: In our work we are probably going to have some elements of persistence and directed change.
 - This is not the same as engineering resilience which assumes that there is an equilibrium. We recognize that the system is dynamic and conditions may change significantly; this was the purpose of developing planning scenarios.
 - Persistence is likely to be important because within the timeframe of our initiative is unlikely that habitat or air or water quality regulations will disappear, so we are going to have some legal requirements that we must manage for. At the same time, presumably we will have more flexibility in other areas and be able to manage for a range of conditions associated with a forest ecosystem.
- The modeling during phase 2 should help tell us also about autonomous change – what would occur in the forests if we do not further intervene.
- Mr. Wright: Whatever we do, we are going to have to be able to translate this back to simple terms that people care about and can understand.
- If resilience centers on the ability of a system to respond to disturbance, then we need to further specify the disturbances that we know about and care about.
 - Mr. Fougères: Staff have had some initial conversation about this and identified fire, drought, flooding, insects, disease, windthrow, avalanche and mudslide.
- We might not be aiming for uniform resilience across the landscape, and may be okay with some level of disturbance impact.
 - One could imagine that, say, we are okay with 4 of 20 basins being disturbed, so long as these 3 are not disturbed.
 - There is also a temporal element too – how often we are okay with the disturbance recurring. If it happens once in 20 years we may be okay with this, whereas we might not if it recurs annually.

- Such disturbances need to include both ones that we know are occurring today, and ones that may occur in the future as conditions change. We will need to understand the trajectories of disturbances.
- Mr. Fougères: In this case, it seems we should consider building the assessment around the disturbance processes that occur in the five categories identified earlier:
 1. Disturbances in terrestrial/upland ecosystems
 2. Disturbances in aquatic ecosystems
 3. *Combining #1 and #2 as needed, you get #3*, Disturbances in watersheds (and/or the landscape)
 - Recognizedly, this may play out differently for public health and safety where the concern is about negative impacts, and recreation where the focus is opportunities derived from restoration.
 - This approach would help us have a greater chance of ensuring that the indicators we choose and assessment overall does focus on system resilience.
- Maps of the landscape would also help us begin to better understand it.
 - **ACTION ITEM: Dorian** to work with IADT to provide a small number, to start, of map layers for the analysis/project area.

Mr. Fougères: In terms of next steps, based on discussion there is value both in allowing staff to digest and begin to work with SSC feedback, and continued dialogue between SSC and IADT members in between meetings. IADT staff have roughly a two week period to do work before they check-in, and then a few more days before they mail out materials a week in advance of the next meeting. They have worked in small teams that correspond with each of the three current major work products – essential management questions, landscape resilience assessment, and planning scenarios. There should be opportunities for short check-in calls with IADT and SSC members in the week before material mailout.

- If we do such check-in calls, I request a small number of SSC participants with great interest in a given work product, perhaps 1-3 people, rather than a large number, which will not allow for much conversation. For example, based on today’s discussions, perhaps Mr. Singer with questions, and Ms. Hurt and Ms. Britting with the assessment, or others.

ACTION ITEM: IADT to meet on March 9 and begin to think through indicators of resilience to disturbances in terrestrial and aquatic ecosystems, and for public health and recreation as well.

4. Planning Scenarios

Mr. Fougères reviewed the next steps for refining the planning scenarios, including:

1. Filling in topical gaps
2. Ensuring the writing is clear and accessible
3. Ensuring each scenario is internally consistent
4. Ensuring there is enough distinction between scenarios

Discussion followed.

- Where do the scenarios capture climate variability? The average of the models for two major emissions scenarios show that as temperature increases, precipitation doesn't change. As these diverge in the future, with temperature in one leveling off while the other keeps increasing, the difference between the modeled outcomes is a surrogate for shocks.
 - Mr. Fougères: The upward-downward axis contracts “moderately warmer climate and moderately variable participation” with “substantially hotter climate with much greater participation variability.” The intent was to not simply end with the top and bottom describing a trend of shorter and faster change, but distinctly different endpoints and futures.
- The climate assumptions should be made explicit and thus consistent across the scenarios. It appears that the groups were more or less optimistic, even though they were on the same side of the climate axis.
 - **ACTION ITEM:** Randy Striplin and Maureen McCarthy to provide a prefatory paragraph describing climate assumptions for the planning scenarios.
- It does not appear that the scenarios including mention of flooding. This is a gap that should be filled.
- A helpful way to parse out the different parts of the planning scenarios includes:
 - *Biophysical Conditions* on one side, and *Management Actions* on the other
 - Both feed into *Hypotheses* about what will occur
 - While lead to *Speculative Conditions*
 - Sorting the descriptions into these areas would make it easier for readers to distinguish how the scenarios were built and how to view the different statements therein.
 - This also would help inform modeling by calling out hypotheses and allowing us to test whether the speculative conditions turn out to be accurate, including what would occur without further intervention per the earlier comment.
- Similar to climate assumptions, it would be helpful to also specify a corresponding consistent set of biophysical conditions for the top two scenarios and bottom two scenarios.
- Also similar to climate assumptions, for the management axis, during the February 7 meeting participants had to make assumptions based partly on the literature and partly on their professional expertise. Given the range of different professional backgrounds, it would also be helpful to standardize the management assumptions based on published literature.
- It would also help to explain how the scenarios including the axes were constructed.
- **ACTION ITEM:** IADT to meet on March 9 and determine who can draft consistent biophysical conditions and management references, and a statement on the scenario construction, as well as other revisions for the planning scenarios.

5. Action Items, Next Steps, and Closing Remarks

Mr. Fougères summarized the action items, reminded SSC members that the next meeting on April 4 would extend to 12:30 pm, and solicited SSC volunteers to stay for the second half of the April 4 meeting to liaise with the Stakeholder Community Committee, reiterating that the SSC members would share and rotate this responsibility over time.

- Volunteer SSC liaisons for the April included Ms. Britting, Mr. Singer, and possibly Mr. Freitas.

Interested party comment period #2:

- The commenter noted the importance the approach to restoration being systemic and sustainable. He also emphasized the importance of evapotranspiration in relation to carbon sequestration, and the spatial heterogeneity of climate change.

Mr. Striplin closed the day by thanking members for their time and contributions.

6. Attendance

Organizing and Participating Agencies

CTC – California Tahoe Conservancy
NFF – National Forest Foundation
RWQCB Lahontan - Lahontan Regional Water Quality Control Board
State Parks – California State Parks
TFFT – Tahoe Fire and Fuels Team
TRPA – Tahoe Regional Planning Agency
USFS – U.S. Forest Service

Invited Stakeholder Science Committee Members

- | | |
|-----------------------------|-----------------------------|
| 1. Ann Hobbs | 13. Mollie Hurt |
| 2. Brett Storey | 14. Patricia Maloney |
| 3. Bruce Springsteen | 15. Patrick Wright, CTC |
| 4. Candice Thomas | 16. Randy Striplin, USFS |
| 5. Daniel Shaw, State Parks | 17. Scott Conway, USFS |
| 6. Dorian Fougères, NFF | 18. Stephanie Coppeto, USFS |
| 7. Harold Singer | 19. Sue Britting |
| 8. Jennifer Quashnick | 20. Teresa Cody, USFS |
| 9. Jonathan Long, USFS | 21. Whitney Brennan, CTC |
| 10. Matt Freitas | |
| 11. Maureen McCarthy | |
| 12. Mike Vollmer, TRPA | |

Interested Parties from the Public

22. Garry Bowen