

SUMMARY

STAKEHOLDER SCIENCE AND STAKEHOLDER COMMUNITY COMMITTEE FIELD VISIT

LAKE TAHOE WEST RESTORATION PARTNERSHIP

Wednesday, June 7, 8:00 am to 4:00 pm

Ward Creek, Blackwood Canyon, and Meeks Bay

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) held its first Stakeholder Science Committee and Stakeholder Community Committee Field Visit on June 7, 2017. The trip included exploring Ward Creek, Blackwood Canyon, and Meeks Bay, on the west shore of the Lake Tahoe Basin. The goals of the field visit were to examine places that embodied difficult restoration challenges on the west shore, and help each other begin to see and read the landscape in new and different ways. In each location, stakeholders learned about the history of vegetation treatments and prescribed fire; shared what they were seeing on the landscape; broke into small groups to travel deeper into discussion; and came back to share highlights of small group conversations. Topics covered steep slopes, stream channels, ecological fire, riparian corridors, sensitive wildlife, aspen stands, the structure and composition of vegetation, meadows, and cultural resources, including how these interacted with public health & safety and recreation values on the landscape. The next Stakeholder Community Committee and Stakeholder Science Committee meetings will be on Thursday, July 6, from 9 am to 12 pm, and 1 pm to 5 pm, respectively. The location will be the U.S. Forest Service Lake Tahoe Basin Management Unit, in South Lake Tahoe.

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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. **Documentation & Permitting Coordination Team** to review TRPA slope treatment restrictions.
2. **Dorian** to share fisher marking guidelines including clump identification from the Dinkey Landscape Restoration Project.
3. **Dorian** to draft high-level, general goals for SSC review, and subsequent refinement during Phase 2.

1. Welcome and Opening Remarks

- Mr. Mike Vollmer, Lead for the LTW Interagency Design Team (IADT) and Tahoe Regional Planning Agency (TRPA), and Mr. Brian Garrett, IADT and Lake Tahoe Basin Management Unit (LTBMU), thanked everyone for attending, and reviewed the design of the day, the agenda for the stops, and the map. They noted that the goal of the field visit was to collectively examine several sites that embody difficult restoration challenges on the west shore; and help each other begin to see and read the landscape in new and different ways. They also briefed the group on safety protocols.
 - The field visit map is on the next page.
- Mr. Dorian Fougères, Lake Tahoe West Restoration Partnership (LTW) Facilitator and National Forest Foundation, led introductions and reviewed the ground rules.
- Mr. Mason Bindl, TRPA, reminded the group that the LTW online geospatial mapping tool is live and can be accessed by anyone at <http://gis.trpa.org/laketahowest/> Mr. Bindl also briefed the group on the electronic tablet & laptops that he had loaded with EcObject layers, to allow participants to locate themselves at the field, verify the accuracy of data, and improve their ability to interpret the data.

There were no interested party comments.

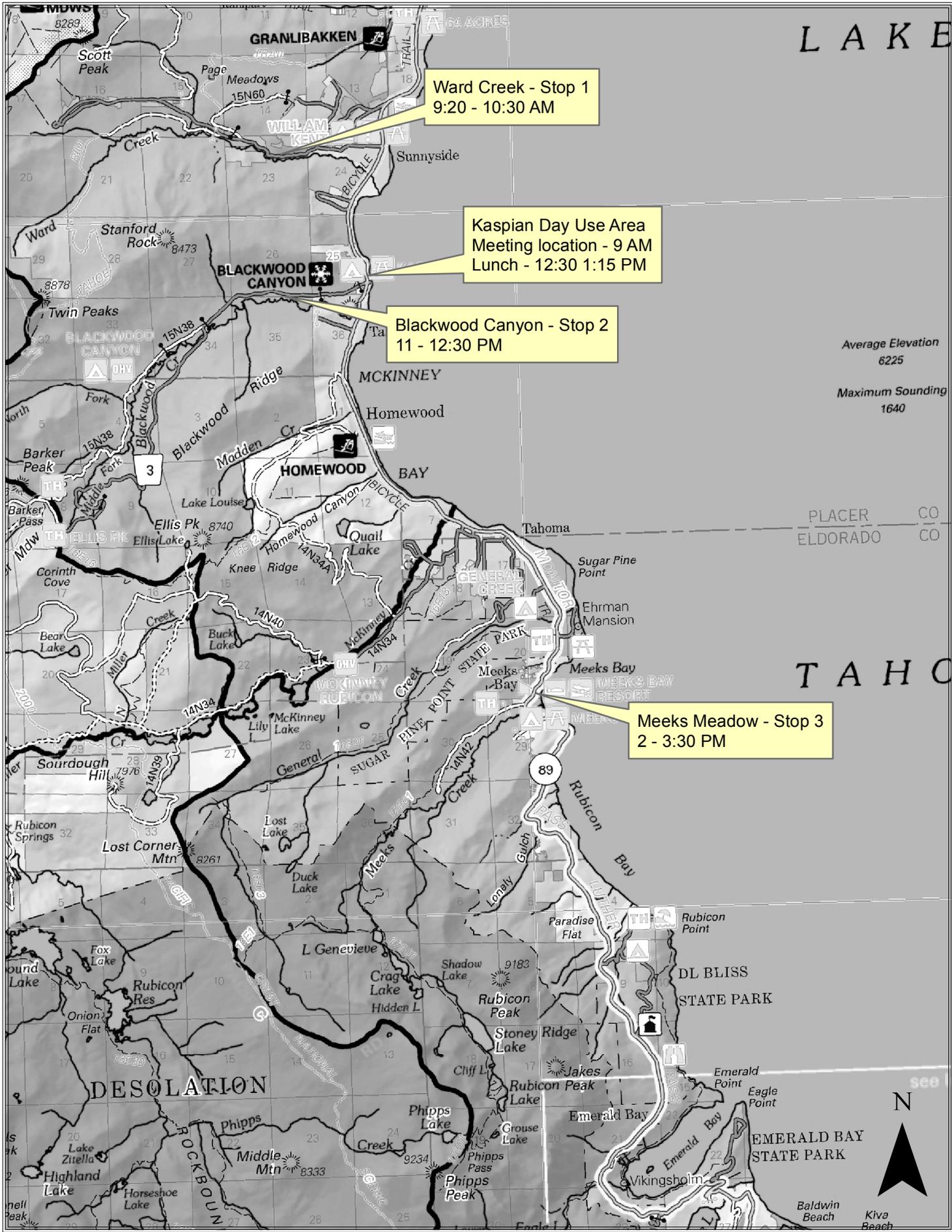
2. Ward Creek

Mr. Garrett and Mr. Vollmer oriented the group to the location, including a description of field conditions a brief review of historical vegetation and prescribed fire treatments.

- The land is primarily Forest Service. The area has the kind of homogeneous forest structure that is characteristic of the west shore. Steep slopes and ephemeral streams make access difficult. Conifers are encroaching the aspen stand. Prescribed fire was used in 2004 fuels reduction treatments. The land uphill is California Tahoe Conservancy land, and has had some small tree hand-thinning and pile-burning (but no broadcast burning), as well as mechanical thinning up to 24" diameter at breast height (dbh) followed by mastication. The area is in the defense zone of the Wildland Urban Interface.

Discussion followed.

- Historical treatments were part of fuels treatments that did not pay attention the **heterogeneity of vegetation.**



- There is younger, good ground vegetation where there are openings. Mortality is showing up in some places.
 - You can see evidence of armillaria disease and stalactiform blister rust, which are part of a common package of diseases on the west shore.
- The north side is more dense than the south as one would expect, there is a large amount of pine, the aspen look good and regenerating.
- The trees look to be all of a similar age.
- Because of past disturbances, one can't assume that the size of a tree equals its age. We would be more interested in variability in size class. This is not mapped out well.
- **For spatial variability, EcObject** shows that across the creek is a north-facing slope that is dominated by small clumps that are all connected. We will need to either combine this indicator with others or see the polygons to further interpret this.
 - **Regarding climatic water deficit**, the scale is coarse (270 meter pixels), but generally low deficit.
 - **Regarding vegetation type**, both sides show up as white fir, mixed conifer, and red fir, as one would expect.
 - EcObject appears powerful in that it lets you see so much from one vantage. Typically you will also want to see sites from several different viewpoints.
- **The contour of the canyon makes it hard to use prescribed fire** here, because each night smoke goes down the drainage, which is precisely where home are. People are reluctant to deal with smoke each night.
 - There is also a large neighborhood several miles up the canyon, and Ward Creek Boulevard is an evacuation route for them. This raises the priority of fuels treatments.
 - The steep slopes might mean that prescribed fire is the only option.
 - Hazard refers to the fuel loading on a plot, while risk is based on the hazard plus the value of structures and access.
 - If I could do anything I wanted, I would **invest in high-hanging fruit**. We would need to build fire containers that increase the comfort of fire managers – as in our Essential Management Questions (#9). Typically we build what is easy and cheap. We need to change our approach.
- **The area has good warbler and vireo habitat**, they are closed-canopy associates, and aspen.
 - In thinking about resilience and biological integrity and fire, the canyon is part of a large watershed that supports larger biota. Connectivity (or continuity) especially along the riparian corridor is important for large-bodied animals like American marten, a medium-sized carnivore.
- **Soils look loose in many areas**, and there is high tree density.
 - The creek looks unstable and eroding.
 - The canyon was built through glacial moraines so is naturally down-cutting.
- **It would be difficult to treat the creek channel** by removing some of the lodgepole pine that are encroaching, because of equipment exclusions. Power lines also make tree

removal difficult. More dead trees in the area would increase the chance of fire carrying up the stream corridor like a wick.

- One approach to treating vegetation could be to revise the **current TRPA restrictions on treating slopes steeper than 30%**. The state Forest Practice Rules would allow this, and we could explore new technologies like tracked, articulated harvesters with self-leveling cabs, and walking excavators. You still would want to keep any heavy equipment out of some zones.
 - The LTW Documentation & Permitting Coordination Team (D&PCT) should examine TRPA regulations now.
 - **ACTION ITEM: Documentation & Permitting Coordination Team** to review TRPA slope treatment restrictions.
- There are also **historic logging roads**, like the grade across the creek. Touching them would active concerns about the State Historic Preservation Act.
 - There is a gate closing the start of the road across the creek and through an aspen stand.
 - There would also be prehistoric and historic archaeological concerns along the riparian area.
 - Assessing impacts to historic roadbeds per the Tribal/State Historical Preservation Office is very costly. This is why the Forest Service typically prefers to avoid treating those areas, and will often create a new road parallel to a historic roadbed if access is required. This can end up increasing erosion impacts.
 - State Parks has had success working with their cultural resource specialist to, for example, have trees grow into old foundations, and avoid using fire in historic areas.
- Thinking about vegetation resilience, one needs to consider this year's snowfall in the context of **climate scenarios around substantially warmer temperatures** in January and February. With more rain falling as snow, floods similar to 1997 would be expected to occur more often, but run off rapidly compared to snow and flow less far into the summer.

3. Blackwood Canyon

Mr. Garrett and Mr. Vollmer oriented the group to the location, including a description of field conditions a brief review of historical vegetation and prescribed fire treatments.

- This area is primarily Forest Service land in the WUI. We are at the boundary of an area that was mechanically treated and an area left untouched because it is a Riparian Conservation Area (RCA).
 - Mechanical harvesting and mastication was done in the mid-2000s for fuel reduction, from the campground onward. This included mechanical thinning up to 30", up to 19" in the California spotted owl (CSO) Protected Activity Center (PAC), and up to 24" in the goshawk PAC.
- People have petitioned several times to list the spotted owl as a threatened species. It is not widespread in the Basin, only 5 on the west side and a sixth in the northeast. The

management approach for PACs typically is to leave 300 acres around the nest for foraging, and then out to 1000 acres as the home range core area (HRCA), for the territory of the breeding pair.

Discussion followed.

- **Regarding EcObject**, it does pick up different stand density well. The LiDAR it is based on was taken in 2010, so after the treatments. It shows a lot of homogeneity around the mid-seral stage of vegetation, rather than a diversity of seral stages.
- Even if we were to thin right up to the diameter limit, we probably would not meet fire objectives.
- It's important to not only look at this stand, but rather all of Blackwood.
- The driver of this treatment was fuels reduction. One could design a fuels treatment for the PAC.
 - The high fuel loading and even-aged nature of the stand means that fire would likely cause short-term impacts to the birds, even though the aim was long-term resilience.
- **The management directive for how to treat PACs** is fixed, and will remain in place unless the habitat is deemed no longer suitable.
 - This has happened on the Rim Fire and King Fire landscapes. The habitat was burned hence the PACs no longer exist.
 - We are not aware of examples where PAC habitat has been designated as no longer suitable based on some combination of other criteria, like duration since last occupancy, etc.
 - We need to think about how even what's currently a high-value resource can become more fluid over space and time, because the landscape is dynamic.
 - The ability to disperse treatments over space and time to reduce their short-term impacts on sensitive wildlife constitutes "the promise of landscape" – it's what landscape-scale restoration makes possible, compared with only looking at a few thousand acres.
- We do not know the **activity status of the birds in this PAC**.
 - If they're active, this would be a critical place to monitor.
 - Some new monitoring activities are being planned and might already include Blackwood Canyon.
 - Other factors that can influence goshawk reproductivity are cone crops, late wet storms, and other variables. So monitoring data requires careful interpretation.
- The historical treatments we have done have not made this area resilient to insects or drought.
- We could burn in the untreated area, but this raises the question of **how much fire-caused tree mortality people would be willing to accept**. The public often has a hard time understanding why we would be killing trees.
 - Further, dead trees would then fall over and could, given the density, increase fuel loads. Then in turn, we might not reburn the area unless we were to first

thin it. So it seems there is a circularity which means that sooner or later you're going to need to do some mechanical thinning to be able to then eventually start using fire as the regular maintenance management tool on its own.

- This points to the need to plan treatments in a way that **anticipates a changing sequence of treatments over time.**
- The type of untreated conditions we see have high species value, which suggests this kind of stand was represented on the historic landscape.
 - The IADT has been looking at the diversity of seral stages as an indicator.
- Most PACs in the Sierra have had treatment, there is a good amount of published literature.
- **As a recreational user**, the viewshed created by thinning, even just 50 or 75 in from the road, is valuable. It also would reduce the risk of incidental fire from a cigarette or vehicle along the corridor. Such thinning also increases the sunlight on the roads, making for more rapid snowmelt, and also better driving visibility.
 - We need to take advantage of existing recreation sites to **build education before starting treatments**, including meeting people in high-use areas.
 - Fire has multiple benefits but people do not like black trees and smoke, so education will have to anticipate and provide a foundation for accepting this.
 - More burning will affect the Basin's recreation and tourism economy. Aggressive education and as much specificity as possible about the timing and duration of burning will be critical.
 - Mr. Fougères: Along these lines, the importance of education and information-sharing is called out in the LTW Communication & Education Plan, and staff have discussed the idea of developing messaging around a designated "Burn Season in Tahoe" so that business and visitors can more easily anticipate when smoke might be prevalent.
 - If such an idea were developed, it should line up with the shoulder season for recreation. Many hotels already shut down during this period.
- Blackwood does not have elevated levels of tree mortality currently. With regard to maintaining future resilience, many of our trees have **incredible capacity for gene flow**, if there are future conditions that our treatments cannot mitigate.
- Regarding climate, scientists can provide innumerable future scenarios, from which one can pick and choose or bundle. What's likely more helpful is to **look at the extreme episodes in the predictions, and focus on the break points – not the averages – in future climates.** These are likely most informative for vulnerability and resilience.
 - The temperature difference between the treated area and the riparian area is notable and points to microclimatic differences. There is also more windthrow in the treated area, and snow would melt faster.
 - In the WUI or even outside, multiple objectives risk creating more homogeneity on the landscape. From a climatic perspective, **microclimate variability will be your friend.** For resilience, one would want pockets of different habitat.
 - **Regarding cold pooling**, the Basin holds cool air to a degree not seen elsewhere in the Sierra, likely because the size of the lake.

- **To get away from homogeneity**, one would have to create openings, and figure out how to write this into marking guidelines, and identify where gaps might occur.
 - **ACTION ITEM: Dorian** to share fisher marking guidelines including clump identification from the Dinkey Landscape Restoration Project.
 - If the primary objective is community protection and fire reduction, this kind of homogeneity is likely. LTW, however, purposely includes not only the general forest, but also the WUI. We have an opportunity to develop maintenance treatments that also advance forest heterogeneity.
- One could **create more microclimatic differences** by creating a mosaic of individual trees, clumps of trees, and gaps, like the EcObject polygons, by modifying tree density, and by modifying fire.
 - Alternately, the South Fork of the American River (SOFAR) project recognizes there are certain social values occur throughout the landscape, but sorting them into zones where there are greater or fewer constraints. Then different treatments create more diversity across the landscape.
 - Such an approach may be useful for the LTW Landscape Restoration Strategy (Phase 2).
 - State Parks has stands that have not had treatment for a long time, and are now self-thinning, with surface fuels decreasing too. We need to identify the areas that are already moving in desirable directions on their own, and let them create microclimatic diversity.
- **Microclimatic variability and forest heterogeneity are a positive feedback loop:** one would expect that increasing the diversity of fire effects would increase forest heterogeneity as well as microclimates.
 - The challenge is to get over the hurdle or deficit of current conditions, so that ecological fire can do this work without such a threat to public health & safety. We need to communicate this anticipated trajectory of treatments, from more intensive early on to create a subsequent positive feedback loop.
 - It's also important to recognize that if an area has high fuel loading and we're using fire that kills trees, this will in turn become the future opening we're looking for. Diseases and beetles also create gaps, so these types of disturbances also have positive aspects.
- **A major constraint on prescribed fire is the lack of dedicated crew and stable funding.** It's doubtful we will ever be able to burn as much as likely burned here historically. This applies to both state and federal agencies.
 - Mr. Fougères: Another aspect of the "promise of landscape" is the ability to plan several years of treatments over a large-scale, which allows for more certain work load planning and funding. This is written in the Multi-Jurisdictional Fuels Strategy amendment from April 2017.
 - Mr. Fougères: There are also examples where some National Forests are trying to train their staff who serve as fire suppression crews during fire season to then work as prescribed fire crews during the off-season. The aim is to better ensure they have the staff on-hand to burn opportunistically and take advantage of small windows.

- If staff could develop a proposal for an interagency prescribed fire team, and map and plan out 10 years of treatment, agency executives could work to secure reliable funding for this period.
- Along these lines, regarding the Forest Service, on June 1 U.S. Secretary of Agriculture Sonny Perdue said,
 - “First, it must reorient its culture to embrace a generational approach to responsible forest management. Trees take decades to grow to maturity. We must think about how the forests will provide cleaner water and air, more biofuels and more useful products for consumers. If we do not take the long view, we will never be able to preserve delicate ecosystems or prosper from the thousands of jobs that our forests could provide. We must treat our forests so that we are not spending more on fighting fires than we are on making sure that our forests are healthy.”
<http://www.idahostatesman.com/opinion/readers-opinion/article153760404.html>

Mr. Patrick Wright, Executive Director for the California Tahoe Conservancy, asked staff to not censor themselves when they think about opportunities but then think about all the constraints or barriers. He encouraged staff to not assume that we cannot do something, and noted it would be much better to identify barriers and start working on them now. He reminded them that the Executive Team wants to push the envelope, and can take up and try to modify policy and regulatory constraints if needed.

- Another member noted that in the Sagehen Creek Field Station collaborative restoration work, they started with a map and the location of PACs. In hindsight, he would have preferred to start with no constraints. He also noted they had many “false no’s” – things that people said were not possible, but after hard work were indeed possible.
- Mr. Fougères noted that, similar to the earlier discussion of zones, in developing the Landscape Restoration Strategy the IADT and stakeholders could also consider whether to build a series of layers with progressive constraints.

4. Meeks Bay

Mr. Vollmer and Mr. Garrett oriented the group to the location, including a description of field conditions a brief review of historical vegetation and prescribed fire treatments.

- The area is a mix of private property, California Tahoe Conservancy, and Forest Service land. The Wasiu timber sale reduced meadow encroachment through skyline yarding from a central station in the meadow. The Qualls fuels reduction project also included thinning. This was in the mid and early 1990s. Hand-thinning by the Conservancy followed. However, there has been little follow-up and conifers have encroached again, raising questions about the longevity of treatments, the need for repeat fire entries to maintain treatments, and the long-term resilience of the meadow – whether it is futile to try to stop encroachment in light of expected droughts.
- The area has stream channel concerns, cultural resources, and a large meadow with heavy lodgepole pine invasion associated with drought.

- A pile burn burned unexpectedly hot and spread into the brush. This created some local political controversy and concern about public safety. One can see the houses right across the meadow.
 - The density of the forests means that even though there is a subdivision on both sides of the meadow, you can only see very few houses, most are hidden in the vegetation.
- Meeks Meadow is a pretty unique feature – a large marsh at the south end of the lake that is subject to regular flooding – and an important component of the west shore landscape. It has an incredibly rich concentration of birds and wildlife.

Discussion followed.

- The LTBMU has a **project with the Washoe Tribe of Nevada and California** to remove conifer and restore the meadow, including follow-up with prescribed fire. It has been a highly valued cultural site that involved regular burning for the promotion of the plants used for basket-weaving.
 - We are not certain how regularly burning took place when the meadow was traditionally managed by the tribe. Studying charcoal layers could help identify this.
 - There are some large tree stumps in the meadow which suggest that encroachment has been a regular phenomenon.
- **Regarding the Meeks Marina**, the current plan is to remove the marina and restore the marsh. The Washoe Tribe has the concession for the marina, and plans to extend its cultural programs inland.
- In the past, the meadow would get extremely dry at times.
- A challenge has been that **once you remove the conifer they re-occupy the meadow**, so we need more fire, and also conditions that are dry enough to burn. The burn windows are limited, and removing biomass is hard because the ground tends to be so wet.
 - Given the current fuel loads, the risk of a fire getting away – given the proximity to homes and location in the WUI – also increases the reluctance to burn. This is another situation where mechanical treatment will be needed either now, before the first entry, or after prescribed fire.
 - Fire could also kill the young lodgepole.
 - One would also still have a seed source.
- Conifer removal would increase the water table, and the restoration of the marina would also affect the water table over the long term. We need to look at the meadow-marina complex, including the road in between.
 - With climate, once could expect bigger storms and hence more meadow flooding.
 - The road would pull Caltrans into our work.
 - Cedars also encroach the meadow, the ones we can see appear resilient and have significant fire scars with green crowns.
- It seems like part of our work is to clearly acknowledge the element of uncertainty inherent in treatments, as written in the Essential Management Questions. In this way,

perhaps we can manage our own and public expectations, and **be more opportunistic with regard to uncontrolled outcomes.**

- While it's difficult to say anything climatological with certainty, one thing that is certain is that **marked swings between dry and wet years will become the norm.**
 - For example, the 2015 winter's 5% snowpack is expected to become significantly more frequent by the end of the century.
 - Furthermore, two types of "snow drought" will become more frequent – snow droughts caused simply by dry years, and snow droughts caused by warming temperatures that mean precipitation falls as rain rather than snow.
 - As noted earlier, LTW may want to focus more on resilience to the extreme episodes associated with ecosystem tipping points.
 - Lee Tarnay, USFS Remote Sensing Lab, is working on new modeling of "snow-off" – the time at which different parts of the landscape lose their snow cover – and how this is changing with climate.
 - Alex Hall, UCLA, has also recently published on the albedo effect of snowmelt. His work used a regional climate model; it would be difficult to replicate this at a smaller scale, because of the types of data required.
 - This variability is inherent in California's climate. There is no meaningful "average year."
- Given the extremes of snowpack and hydrology anticipated, is it realistic to assume that the meadow would remain here in the absence of intervention? The logistics of tree removal are very difficult, and yields small, low-value material.
 - Historical grazing likely also helped limit conifer encroachment.
 - Mr. Fougères: One alternate approach to thinking about value is through the ecosystem services provided by a meadow. Ms. Kim Rollins, University of Nevada at Reno, will be working with the LTW Science Team on an economics analysis for Phase 2.
- The area that is south-facing faces sun all day, and looks restored – it has evidence of fresh burning and also brush regeneration.
- Increased fire frequency can also increase the potential for terrestrial invasive species.
 - **A recent study of cheatgrass survivability** raises the question of whether it will come to the west shore with increasing temperatures and a different fire regime.
- It sounds like we are all in agreement in our support for vegetative heterogeneity at different scales, for the use of fire in areas with heavier fuels and higher severity burns and the creation of clumps and gaps.
 - Mr. Fougères: A suggestion from colleagues last week was to develop some general goals like this to further communicate the intent of LTW, beyond increasing forest and watershed resilience. Per the Calendar of Activities, based on the Landscape Resilience Assessment we would then refine and make these more precise at the start of Phase 2, the development of our Landscape Restoration Strategy.
 - **ACTION ITEM:** Dorian to draft high-level, general goals for SSC review, and subsequent refinement during Phase 2.

- To get those high severity fire effects, one will have to accept killing trees, which is hard to sell to the public.

5. Closing Remarks

Ms. Teresa McClung, Acting Forest Supervisor, LTBMU, thanked participants for their time and preparation, and noted the importance and excitement of being able to think about the landscape without all the constraints.

Mr. Wright asked staff to think about multiple-year projects that are soon to begin on the west shore, like State Parks work in Sugar Pine Point State Park and Forest Service West Shore WUI work, and see if those projects could pilot treatments that can then inform LTW project planning. There is an opportunity to start pushing on barriers now.

- Mr. Garrett noted that while West Shore WUI focuses on fuels, in the next year we might see opportunities to add some additional work based on the Landscape Resilience Assessment. This might even include work in the WUI defense, which we also seek to move to a more resilient condition.

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

Stakeholder Science Committee Members

1. Jeff Brown
2. Mollie Hurt
3. Patricia Maloney
4. Maureen McCarthy
5. Roland Shaw

Stakeholder Community Committee Members

6. Doug Barr
7. Amy Berry
8. Zack Bradford
9. Beth Kenna
10. Jack Landy

Agencies

11. Rich Adams, State Parks
12. Mason Bindl, TRPA
13. Kim Caringer, TRPA
14. Becky Estes, USFS
15. Dorian Fougères, NFF
16. Brian Garrett, USFS
17. Ross Gerrard, USFS
18. Amy Jirka, TFFT / CAL FIRE
19. Brian Judge, RWQCB Lahontan
20. Patricia Manley, USFS
21. Teresa McClung, USFS
22. Tamara Sasaki, State Parks
23. Dan Shaw, State Parks

24. Randy Striplin, USFS
25. Nadia Tase, TFFT / CAL FIRE
26. Mike Vollmer, TRPA
27. Patrick Wright, CTC
28. Lesley Yen, USFS

Interested Parties from the Public

29. Mike Dettinger, US Geological Survey
30. Geoff Thornton, AECOM
31. Jessica Mitchell, Ascent Environmental