STAKEHOLDER SCIENCE COMMITTEE MEETING WEBINAR

LAKE TAHOE WEST RESTORATION PARTNERSHIP

Tuesday, January 9, 1:00 pm to 3:00 pm
Webinar; California Tahoe Conservancy, 1061 3rd St, 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 Sarah Di Vittorio at sdivittorio@nationalforests.org or (530) 902-8281.*

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Action Items

1. **Sarah** will distribute the Science Team Modeling Overviews to the Stakeholder Science Committee.
2. **Design Team** will revise the draft Strategy Descriptions based on stakeholder feedback, including: consider the need and potential for adjacency rulesets for LANDIS, improve Table 3 content/format (including more clarity on how PACs are managed), improve titles of the draft strategies, and add more specificity on reforestation, roads, and watershed treatments including instream work.

Welcome, Agenda Review, and Introductions

Sarah Di Vittorio welcomed the group, reviewed the agenda and webinar ground rules, and provided meeting objectives. Specific meeting objectives were to: (1) Share and collect stakeholder input on Business As Usual and No Action draft modeling scenarios. (2) Share updates on Phase 2 activities. Finally, Ms. Di Vittorio provided time for introductions and welcomed a new member, Maria Mircheva – Executive Director of the Sugar Pine Foundation, to the Lake Tahoe West Collaborative.

There were no interested party comments.

Updates

General updates:
- Maria Mircheva, who has been tracking the LTW collaborative and attended the December SSC meeting, is now an official member of the collaborative.

- Ms. Di Vittorio is working on developing the 2018 timeline for Phase II. Uncertainties in the work flows between the different modeling components make it challenging to map out the specific dates when we will be ready to share products with stakeholders. Therefore while we will retain our monthly meeting schedule, we may also seek stakeholder participation in ad hoc webinars in between those monthly meetings in order to make timely progress.
- The Landscape Resilience Assessment (LRA) Version 1 has been finalized.

How the Strategy Descriptions will inform Science Modeling

Ms. Di Vittorio provided background for presenting the draft Strategy Descriptions, what they are, and how they feed into modeling efforts.

The Strategy Descriptions are the set of model inputs that outline hypothetical management approaches for the LTW landscape. The inputs defined in the Strategy Descriptions will be fed into the LANDIS-II model and other modeling efforts (WEPP, Air Quality, Fine Scale Fire Behavior, Economics, etc.). The models will project outcomes of the different strategies, under two climate scenarios. The LTW partnership will use that information to assess potential outcomes, trade-offs, and benefits of different landscape management approaches to ultimately develop a single Landscape Restoration Strategy that will be used as the basis of project planning in Phase 3.

Jonathon Long provided context for how descriptions will be input into LANDIS modeling (see attached slides). Mr. Long reviewed key inputs into LANDIS modeling, inputs into non-LANDIS modeling, and inputs into LANDIS that inform other models. Some of the key inputs into LANDIS include: location, timing, and intensity of tree removals, fate of removed biomass, how fire is managed, and more. See attached slides for further detail.

Discussion followed:

- Q: How will LANDIS interact with other modeling efforts?
  - o Mr. Long is working with Bill Elliot to coordinate efforts with WEPP modeling.
  - o Air quality modeling will also use LANDIS outputs, but there are intricacies in dates and meteorological conditions that need to be worked out.
- Q: What other modeling efforts are occurring besides LANDIS?
  - o Modeling efforts are: wildlife species and biodiversity, water quality and quantity, air quality and smoke, fine scale fire behavior, and ghost roads. There is also an economics analysis that will be based on model outputs, and an Ecosystem Decision Support Tool that will compile the results of the modeling efforts and provide additional tools for developing the Landscape Restoration strategy.
  - o **Action Item:** **Sarah** will distribute the Science Team Modeling Overviews to the Stakeholder Science Committee.
- Q: How will modeling address Red Fir?
  - o Most forest treatments aren't happening in Red Fir sites.
- Q: How will LANDIS model carbon?
  - o LANDIS will track carbon in trees/soils, wood coming out of forest (through biomass hauling), and carbon being volatilized in fires.
  - o Modeling thus far suggests treatment increases carbon sequestration over time, given climate change.

Business As Usual and No Action Strategy Descriptions

Brian Garrett provided background and context regarding the draft Strategy Descriptions. Draft No Action and Business As Usual Strategy Descriptions have been developed for the first round of LANDIS modeling. The Business as Usual draft Strategy Description uses the 2017 LTBMU Fire and Fuels Reduction Strategy and recent treatment activity to define treatment protocols while the No Action draft Strategy Description assumes only wildfire suppression and no other treatment. These two Strategies will provide an important baseline against which to assess other potential strategies. The draft Strategy Descriptions are not necessarily designed to be realistic Landscape Restoration Strategies, but will instead be used to identify tradeoffs between contrasting treatment approaches. The "high contrast" nature of the modeling strategies best enables the models to highlight the outcomes of different approaches. The Design Team is also working to develop two additional draft Strategies that represent high contrast management approaches.

Forest Schafer explained the need for stakeholder feedback on the first round of draft Strategy Descriptions, including both content and format. The format of the No Action and Business as Usual Strategy Descriptions will help decide the content of the additional two high-contrast Strategy Descriptions. See attached slides for further detail.

Q&A and Discussion: Strategy Descriptions

Sarah provided discussion questions for the session: (1) Is anything missing from the draft Strategy Descriptions? (2) What would you add to Business as Usual or No Action? What would you change? (3) How would you adjust the template for the two high-contrast Strategies?

Discussion followed. Stakeholders requested that the Design Team provide more specificity on a number of factors including how LANDIS places treatments on the landscape and how LANDIS will address reforestation, roads, ad watershed work. Stakeholders also made suggestions to improve the clarity of the document.

Regarding how LANDIS places treatments on the landscape:

- Q: How will modeling decide where to place treatments? To what extent is there a priority list to figure out what areas are treated and what would be random?
    - Under Business as Usual, everything in the Wildland Urban Interface (WUI) could be treated, but the timing is not determined.
    - Treatment locations are determined within the LANDIS framework, and operate on conditional rule sets (age, fuel hazard, spatial location, access, etc.). After satisfying these rule sets, the treatment location can be somewhat random (creating uncertainty/stochasticity), though there are natural correlations that will cause some adjacency.
    - Follow up comment: If the model does not aggregate properly, it will not accurately reflect treatment outcomes.
- Q: Is the model picking pixels that satisfy treatments or using larger treatment areas?
    - The LANDIS group has a stand map that will be used to select treatment areas; it won't just use a pixel.

- Q: Are there adjacency rulesets for previously treated stands? If not, is it possible to write a ruleset for adjacency?
  - The model relies on management areas and operational constraints (slopes, distance to roads, etc.).
  - There will be some natural adjacency to treatments, as stands closer together tend to have similar characteristics.
  - Stochasticity should be limited in deciding treatment (in reality, stochasticity occurs in nature's response to treatment).
  - At the same time, there is a need to be conscious of the role of professional judgement in deciding treatment - plans can change.
- It would be helpful to discuss what an adjacency ruleset might look like.
  - Sub-watersheds are a promising starting point.
    - 13 HUC 12's in the LTW planning area.
  - Consider land ownership: the size of treatment areas will vary based on ownership.
  - Aggregation is not always an issue (e.g. In the South Shore of the Basin, the Forest Service treated a limited number of acres within units to avoid impacts to water quality).
  - It is important to note that the LANDIS analysis is a first cut at differentiating strategies.
    - EMDS can be used to help fill in some of the gaps/shortfalls.
      - EMDS has more capacity to control where treatments go and why.

Other Discussion:

- Q: Is funding availability is reflected in scenarios?
  - Yes, it is represented in the Business as Usual scenario through pace and scale parameters, which are to be calculated using treatment accomplishments from 2004-2014.
  - Funding is not likely to be a constraint in developing future "highly contrasted scenarios," as the modeling will be designed to examine differences in the extremes of treatment pace/scale/intensity.
- Q: What will be the pace/scale in Business as Usual? How many acres have been treated in different management zones?
  - The LANDIS group, with the Design Tream, is working to determine the number of acres to be treated based on 2004-2014 project data.
- Q: How will contrast be created between pace/scale/intensity?
  - Currently there are two extremes: lowest pace/scale/intensity (No Action), current pace/scale/intensity (Business as Usual).
  - Future scenarios may examine higher levels of scale/intensity.
- Q: What does Table 3 depict? Conditions that determine harvest? Why is there no difference between upland PACs (Protected Activity Centers) and HRCA (Home Range Core Areas)?
  - Table 3 depicts treatment specifications to be input into LANDIS.
  - PACs are protected areas: age class removals/% removals seem too high
    - PACs in threat zone are different from PACs in WUI/defense zone.
    - No difference in a number of values for PACs and HRCA (e.g. residual left on site).
    - Numbers don't appear to match up.

- Suggestion: Piece out Table 3 using more information and descriptive titles. Table 3 is confusing as-is. A key may be beneficial. Define terms like 'depends on PAC status'
- Suggestion to define contrasting scenarios based on the goals you want to achieve -- start with the "why" and not the "what."
  - This process helps to frame what we are looking for, and how we would get there.
- Suggestion to revise titles of 'No Action' and 'Business As Usual.'
  - Strategy Description titles may be confused with different meanings.
  - 'No Action' could be changed to 'No Management' or 'No Treatment.'
- Factors to consider in future "highly contrasted scenarios":
  - Wildlife presence.
  - Biomass utilization (e.g. 50% removed, 50% chipped/burned).
  - Extent of differences between pace/scale/intensity.
- Suggestions for other changes/additions to Strategy Descriptions:
  - Business as Usual scenario needs to do better at describing how PACs will be treated.
  - Needs information on: stream restoration, best management practices, road reconstruction, culvert setting, tree planting/reforestation, and post-wildfire approach.
- Q: How will changes to the Forest Plan be inputted into future "highly contrasting scenarios"?
  - The Design Team and LANDIS group have talked about how to turn on/off slope constraints, diameter constraints, managed wildfire, etc. This is anticipated to be possible.

Action Item: **Design Team** will revise the draft Strategy Descriptions based on stakeholder feedback, including: consider the need and potential for adjacency rulesets for LANDIS, improve Table 3 content/format (including more clarity on how PACs are managed), improve titles of the draft strategies, and add more specificity on reforestation, roads, and watershed treatments including instream work.

Closing Remarks

Ms. Di Vittorio provided closing remarks, thanked all those who attended the meeting both in-person and remotely over the web, and reminded the group of the next SSC meeting on 2/6 from 1 to 5pm to be held at the Tahoe Regional Planning Agency, 128 Market St, Stateline, NV 89410.

No interested party comments.

Meeting Attendees

Organizing and Participating Agencies
CTC – California Tahoe Conservancy
NFF – National Forest Foundation
PCAPCD – Placer County Air Pollution Control District
SPF – Sugar Pine 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

Stakeholder Science Committee Members
1. Jennifer Quashnick
2. Matt Freitas
3. Sue Britting
4. Tricia Maloney
5. Maria Mircheva
6. Bruce Springsteen
7. Molly Hurt
8. Maureen McCarthy

Staff
9. Jen Greenberg, CTC
10. Whitney Brennan, CTC
11. Brian Garrett, USFS LTBMU
12. Forest Schafer, TFFT
13. Jason Vasques, CTC
14. Evan Ritzinger, NFF
15. Sarah Di Vittorio, NFF
16. Jonathon Long, USFS PSW
17. Kim Caringer, TRPA
18. Pat Manley, USFS PSW
19. Alec Kretchun, Portland State University

How Strategy Descriptions will inform Science Modeling

LTW Science Team

Jonathan Long

Key Inputs into LANDIS

- Location, timing, and intensity of tree removals
- Fate of removed biomass (in-forest, burned, harvested)
- How fire is managed
  - Prescribed understory burning (expected flame lengths, timing, area)
  - Suppression of wildfires
- How do prescriptions vary across various management zones (e.g., WUI, non-WUI, reserves), slopes, or distance from roads?
- How do prescriptions vary across major vegetation communities? (yellow pine, mixed conifer, subalpine, shrubs, riparian, aspen, meadow)

Inputs into non-LANDIS models

Fine-scale fire and water quantity modeling

- Guidance on gap size, size of trees removed, any limits on biomass removed

- Specify distinctions for riparian/aspen areas versus general uplands

Water Quality Modeling

- Creation of new roads or reopening of existing roads

- Expected groundcover following treatments

Economics Modeling

- Treatment costs and factors that change costs

Inputs into LANDIS that inform other models

- Location, frequency, and intensity of tree removals* and fires →
  - wildlife modeling
  - water quality modeling
  - carbon modeling

  *note that treatments can also include planting after fires
- Amount and timing of burning → smoke/air modeling
- All outputs will flow into economics and decision support analyses to help evaluate resilience and tradeoffs between strategies

Initial Modeling Scenarios

LTW Interagency Design Team

Brian Garrett
Forest Schafer

Scenarios

1. No Action Scenario
2. Business as Usual Scenario
3. Highly Contrasting Scenario A (To be developed)
4. Highly Contrasting Scenario B (To be developed)

Scenario components

- Management areas/zones
- Fire suppression
- Approaches for different vegetation types
- Treatment types
- Pace and scale
- Costs
- Treatment specifications

1) No Action Scenario

- "Under a no action scenario, forest fuels reduction work does not continue in the future… Full fire suppression action continues to be taken on all ignitions, on all ownerships."

2) Business as Usual Scenario

- Management areas/zones
  - Wildland-urban interface designations
  - Land ownership
  - Sensitive areas

2) Business as Usual Scenario

- Fire suppression
  - Full fire suppression on all ownerships

2) Business as Usual Scenario

- Approaches for different vegetation types
  - Thinning targets by forest type
  - Shrub management
  - Riparian, aspen and meadow management
  - Canopy openings

2) Business as Usual Scenario

- Treatment types
  - Thinning
    - Hand vs. ground based mechanical
    - Biomass removal
  - Prescribed burning
    - Pile vs. understory
    - Burn windows
  - Mastication and chipping

2) Business as Usual Scenario

- Pace and scale
  - Calculated from actual accomplishments 2004-2014
  - Initial vs. maintenance treatments
- Costs
- Treatment Specifications
  - Provide quantitative inputs based on scenario descriptions

3&4) Highly Contrasting Scenarios

- Capture differences in pace, scale, and intensity.
- Identify areas of least resilience/greatest vulnerability under future conditions.

Q&A and Discussion

- Is anything missing from the Strategy Descriptions?

- What would you change?

- How would you adjust the template for the two contrasting strategies (to be developed)?

- Other comments or feedback?