

HIGHLIGHTS AND ACTION ITEMS | FIELD VISIT
STAKEHOLDER SCIENCE COMMITTEE & STAKEHOLDER COMMUNITY COMMITTEE
LAKE TAHOE WEST RESTORATION PARTNERSHIP
Tuesday October 9, 2018, 8:30 am – 4:30 pm

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Synopsis

Lake Tahoe West stakeholders and agency representatives toured three sites on Lake Tahoe’s west shore landscape to discuss resilience and potential restoration options for terrestrial and aquatic wildlife. The group discussed considerations regarding wildlife habitat for the Landscape Restoration Strategy (LRS) that the project is currently developing.

Themes included:

- For many reasons it seems to make sense to conduct watershed/stream restoration from the headwaters down (rather than from the lake, up). It makes sense hydrologically and for species (e.g., to prevent invasive species from spreading up). Sarah Muskopf emphasized that: For biological restoration (species management) the top down approach is the most effective and preferred in almost all cases. When the restoration objective is related to aquatic organism passage typically opening up the most upstream habitat preferred when prioritizing sites. However, as we discussed on the field trip, sometimes these barriers are needed to manage species (e.g. keeping non-desirable species out of certain habitat). So, if a watershed has been selected as a recovery area, close coordination is needed.
- Aquatic Invasive Species are important drivers of environmental change and cost a lot to remove. An early detection and rapid removal strategy makes sense and is something we should consider in the Landscape Restoration Strategy. Such a strategy would need to use catchier terminology than we currently use and emphasize the cost-benefits of early detection and response as opposed to responding when an infestation is large and costly.
- There is a lot of variability in Protected Activity Centers (PACs) forest structure on the LTBMU, for example in tree density, structural heterogeneity, and other qualities. Species seem to tolerate a wide range of conditions here, for reasons we do not entirely understand.
- Sierra-wide regulatory frameworks for protecting wildlife habitat sometimes do not fit well with our unique conditions in the Tahoe basin.
- Treatments around PACs (not just in them) may be important for protecting the PACs.

- Many current treatments draw the boundaries around the Wildland Urban Interface (WUI). PACs are often excluded or treated less intensely. Moving forward, the landscape would benefit from a truly integrated approach to projects (even those in the WUI) that also include the entirety of a PAC and surrounding area to improve habitat and/or the entirety of an overlapping resource and treatments focused on improving/protecting that resource.
- When might we consider burning or other treatments in PACs to improve habitat quality?

Stop 1. Meeks Creek Restoration

At Meeks Creek the group discussed an ongoing restoration planning effort and challenges to resilience of aquatic habitats, including aquatic invasive species and fish passage barriers.

Stream Restoration: Meeks Creek

- Restoration planning has occurred on-and-off since 2004.
- Marina closed in 2015 because the water level was too low.
- Meeks is a unique lagoonal system; the mouth of the creek would be closed seasonally under natural conditions. This is the only opportunity for the Forest Service to restore this type of system in Tahoe.
- Most of the watershed/stream above is in excellent condition. Meeks Meadow Restoration Project intends to restore 325 acres via conifer removal and prescribed fire. The Forest Service is working closely with the Washoe Tribe to complete planning and seek implementation funding.
- Scoping document proposes to remove the marina infrastructure and restore the lagoon and stream. 4-8 years for project implementation.
 - A decision has not been made as to whether the marina will re-open. There is a proposal for a pier and boat launch in another part of Meeks Bay.
- Stream would hopefully be connected for fish passage upstream; the highway 89 bridge is currently a barrier, so much depends on Caltrans and the bridge.
 - The bridge also seems to be a barrier to other species, including aquatic invasive species.
- Forest Service does not own bottoms of waterways; CA Department of Wildlife has responsibility for those. Forest Service does not have rights of ways under bridges and must work with others to restore those.
- From 2010-2011 the Forest Service conducted a study of fish passage in the basin. Virtually all Hwy 89 bridges on west shore (where the highway crosses a creek) are barriers to fish passage.
- Meeks has been identified as a great stream for recovery of Lahontan Cutthroat Trout, a native threatened fish species that used to spawn in many of the west shore streams.
 - For fish/aquatic species habitat, restoration should start from the top of the watershed and work down.
 - Streams restored for Lahontan Cutthroat Trout will have to be closely managed to keep out rainbow trout, using weirs and active separation by humans.
 - Rainbows and Lahontan Cutthroat Trout do hybridize: called “cutbows.” This makes it even more tricky to keep out the non-Lahontan species.
 - Lahontan Cutthroat Trout life history: they lived in the lake and spawned in streams.

- A Lahontan Cutthroat Trout recovery effort is prioritizing streams/watersheds for restoration to serve as habitat for the species.
- Question: What about fish stocking? Is that hurting the Lahontan Cutthroat Trout?
 - California Department of Fish and Wildlife is the agency that stocks; they are not supposed to stock where it can impact listed species.

Aquatic Invasive Species (AIS)

- Forest Service has funding via California Tahoe Conservancy (CTC) to address Eurasian milfoil (an aquatic weed) at this site. This is the only AIS plant detected here so far.
 - Forest Service found more Eurasian milfoil here than expected – throughout the entire 2-acre marina and the creek channel up to the bridge.
 - Will need to install 350 bottom barriers; 3 years of treatment.
- This is the last west shore marina with active milfoil infestation (there are 3 west shore marinas).
- Milfoil weed fragments are transported around the lake via boat. AIS can also be transported in the water column. Places getting most infested are those highly frequented by boats.
- An active control program in Emerald Bay got rid of all of the milfoil; now using the same methods in other areas around the lake.
 - Big investment; requires a lot of work, maintenance, and funds.
- Curly leaf pondweed is more challenging to deal with. Spreading on south shore.
- Increased nutrient loading allow invasive species to get established. Once established, they change the substrate and habitat. Invasives are a key vector of environmental change.
 - There are big cost savings to finding invasives early.
- The Meeks Creek restoration project will recontour the stream, reduce erosion, and improve aquatic habitat. AIS will be removed first (before other treatments).
- League to Save Lake Tahoe has the “Eyes on the Lake” program, which trains citizens to recognize AIS; asks them to report back any sightings via an app. 80 volunteers were trained summer 2018.
- AIS committee wants to model out the climate change impacts. Models are projecting more drought overall and less connection between lake and streams.

Implications for Landscape Restoration Strategy:

- AIS: The Landscape Restoration Strategy would benefit from more action words than “monitoring and maintenance;” for example, “early detection” and “rapid response.” How can we make monitoring more embedded in the LRS objectives?
 - Would help to put the cost in context: cost of early detection and removal versus late. Much more expensive if you catch it late. Dennis at TRPA might have figures.
 - How should we point to efforts like this (AIS removal, early detection, rapid response) in our Landscape Restoration Strategy, without blurring lines of responsibility?
 - How should the Strategy prioritize AIS removal?
- Fish passage: Which fish passage barriers should we prioritize for removal in Lake Tahoe West?
 - Depends on your objectives.
 - Might make sense to start in headwaters and work down.

- Stream/watershed restoration: start from above (headwaters, down) or below (lake, up)?
 - Starting from above is generally better hydrologically and for species.
 - Starting from below is not efficient for aquatic invasive species because of infiltration from below (the lake).

Stop 2: Blackwood Canyon: Goshawk PAC

The group walked out to the Middle Blackwood Goshawk PAC, designated in 2012, and discussed implications of site condition and past management for resilience. A nest was found here this year and previously in 2013.

Overview of the site and habitat needs:

- Forest Service managers asked participants to note stand density, clumps, and gaps – is the current stand condition resilient? Also, what kind of treatments inside and around PACs might improve resilience?
- Participants noted a lot of woody debris on the ground and highly dense forest, with some gaps nearby.
- Hard to know if goshawks like this habitat or are merely tolerating it. What is “optimal habitat” seems highly variable.
 - Goshawks seem to like late seral forest, plenty of canopy cover (50-65%), some large downed woody debris. (Participants noted the amount of woody debris at this site seemed too high.)
 - LTBMU biologists have noticed the goshawk typically nest near a small drainage.
 - Douglas squirrel is critical prey for the goshawks; the squirrel must be present to initiate goshawk nesting. Woody debris influences squirrel caching and truffle presence (squirrels eat the truffles).
- Marten and goshawk have some overlap in their habitat needs and can sometimes be found together. A female marten and kit have been documented at this site.
 - Douglas squirrel is also important prey for marten. After they give birth, female martens rely heavily on the squirrel for prey (60% of their diet).
 - Marten like large woody debris and understory structural diversity.
- Goshawks versus spotted owls:
 - Goshawks tend to move around more between nests, while owls tend to return to same next over and over (“high fidelity”). E.g., goshawks moved out of the area after the Angora fire, whereas spotted owls will try to nest in areas that were severely burned.
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 - Owls nests in snags. Goshawks typically nest in live trees.

Discussion / Implications for Lake Tahoe West and potential treatment:

- How would we treat to improve resilience of this PAC and meet multiple objectives?
- Wildlife habitat is part of ecosystem process and function, and resilience.
- Why are PACs more vulnerable to fire? More fuels; we have not treated them.

- Projects currently do not address PACs; current focus is wildland-urban interface (WUI) protection. WUI treatment here did not decrease fire risk around PACs.
- But treatments could address multiple objectives; look at the whole context.
- Some of our PACs (especially for owls) are already below the minimum limit for canopy cover called for by the Sierra Nevada Framework and LTBMU Forest Plan in order to treat those areas. So that poses a major limit to treatment.
- How could we treat in PACs? What might this site need?
 - Could we burn this site? Comments:
 - Risk of over-story tree mortality from a burn. Perhaps a spring burn when conditions are not too dry. Have to be willing to accept some tree loss if we use fire.
 - Would prefer a mix of fire and thinning; remove ladder fuels first, before fire.
 - Would need to establish treatments outside of the PAC first and possibly some inside the PAC in strategic locations, in order to control fire spread.
 - Fire may be do-able if we are willing to commit resources to it.
- In our Landscape Restoration Strategy, we want to increase suitable habitat across the landscape; not just within PACs.
 - How to plan for complexity and dynamism while protecting existing species and habitat? With climate change, suitable habitat will likely move.
- We generally would not treat an entire PAC at once; put a limit on the percentage of a given PAC that we can treat within a year so that the species has other locations within the PAC to move temporarily.
- Do WUI treatments create good habitat?
 - WUI treatments create more homogeneity; more even-aged stands because they eliminate ladder fuels and generally clear downed woody debris.
 - Wildlife habitat needs more structured heterogeneity of various heights: snags, shrubs, seral stage diversity, etc.
 - Big, tall trees are good for both WUI protection and wildlife habitat.

Stop 3: Silvertip Court: Active Nest Tree and PAC

The group walked out to a goshawk PAC and nest very close to homes, near Silvertip Court in Tahoe City.

Overview of the site and habitat needs:

- This PAC has been here since 2012. The PAC boundary was shifted because this recently discovered nest site was outside the official PAC boundary. Previously goshawks were on the other side of Paige Meadows; moved here last year.
- Very active trail system very near the nest.
- Area was treated previously – 2007, 2003, and previously. Treatments are planned in this area under the West Shore WUI.
- This area is more open than last site; also more shrubs and large debris than the last stop. This is consistent with the area's different topography.

Discussion / Implications for Lake Tahoe West and potential treatment:

- We should not treat every PAC the same; different topography, etc., means they are naturally variable.
- Q: How does this PAC limit management options related to fire safety for the community nearby?
 - Canopy cover is already too low to allow treatment; can't do much additional treatment/thinning here.
- Some felt like this area was an ideal location for a prescribed burn, with a maintenance objective to keep small trees from coming back in. Burn to maintain the current structure, which seems generally pretty good. Others felt there was no need for any treatment.
- There are some gaps nearby. Are openings good for PACs?
 - Some small gaps might be good (particularly for foraging) but it is hard to create those under current rules for managing PACs. Activity needed to create the gaps could disturb the animals.
- Need to look at the PAC in the context of the larger landscape it is embedded in; how to protect the PAC within that landscape.
- If modeling for the Landscape Restoration Strategy shows that wildlife are not negatively impacted by treatments that could provide some more flexibility to managers.
- How does larger landscape composition (outside of PACs) play into what makes good habitat?
 - Martens need migration corridors of suitable habitat. Not as big of an issue for birds since they can fly from one place to the next.
- There are a variety of spatial scales important to these animals. The most important and limiting scale is the scale around the reproductive habitat. PACs are most important areas for supporting reproduction (need high quality habitat including prey to support energy needs and denning structures for reproduction). Elsewhere in territory, more of a mosaic of conditions is okay; Home Range Core Areas around owl PACs encompass a larger foraging area.
- This PAC seems atypical in how open it is. In this case habitat and WUI protection objectives may be very compatible.
- If PAC conditions on this Forest are indeed as atypical as we think they are then we need to document this.
- There are currently no active spotted owl sites on the west shore; they do exist on north and south shore.
- Anecdotally, fire protection staff report seeing more birds move in after WUI treatments than open up the forest; may create more room for birds to move around in the canopy.
- Why are there goshawks here?
 - Would need more data/documentation to understand what is happening.
 - It is hard to know what the animals like versus what they tolerate.
- Martens need vertical complexity of downed woody debris and snags – helps them get under the snow to hunt.

Wrap Up

Participants offered some final thoughts on favorite sites and key insights. General insights included:

- Resilience is not a single state. It is moving/dynamic.
- Need to make sure treatments in the same area are coordinated.
- It is great to get out in the field together. We learn a lot by talking in this way (including managers learning basic concepts about each other's fields).

Late seral habitat-related insights:

- There are anecdotal incidents where new goshawk nests have followed thinning projects. Might thinning encourage new nests in some cases?
- Some surprises in where birds locate nests; they sometimes tolerate areas we would not expect them to nest in.
- Valuable to see contrasts between two different PACs. PACs look different depending at least partly on where they are on the landscape (e.g. topographic).
 - Wide variety of PACs.
 - General Technical Report 220 applies to PACs.
- Wildlife and community fire protection objectives seem more compatible than I believed.
- The idea of controlled burns in PACs:
 - Pushes people out of comfort zone.
 - But treatment in PACs to modify fire behavior is not inconsistent with habitat quality.
- We need to look not just at PACs but also the area around them. Treatments around PACs are important for protecting the PAC too.
- There are some mismatches between our unique conditions in Tahoe and some of our more Sierra-wide policy frameworks. E.g. our PACs are already lower-density than required, but they may nonetheless need treatment to be resilient habitat.
- Interesting that martens and goshawk have compatible habitat requirements and can be found in the same places.
- Martens hunt under snow!
- It is interesting/surprising how much uncertainty there is regarding species needs with respect to habitat. There is a lot we know, but a lot we do not know.

Aquatic habitat-related insights:

- Fish passage barriers in streams can be a good thing – limit passage of aquatic invasive species; keep some areas free of aquatic invasive species.
- The right order for watershed restoration seems to be from the headwaters down to the lake.
- Aquatic Invasive Species is potentially something we want to address in Lake Tahoe West – not just monitoring but more active detection/response.

Participants

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