

FIELD VISIT SUMMARY | Dinkey Collaborative Full Group

Eastfork Project

August 5, 2011

Dinkey Landscape Restoration Project, Sierra National Forest

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Action Items

1. Ms. Gustafson to provide the UC Davis study on grazing and Yosemite toads.
2. Mr. van Velsor and Ms. Gustafson to add information about fence removal to the Collaborative's near-term monitoring plan.

1. Welcome and Introductions

Mosé Jones-Yellin, Dinkey Collaborative Project Manager for the Sierra National Forest (SNF), welcomed participants to the group's this field visit, to the Eastfork Project.

2. Stop 1: Upper Section of Eastfork, Road 10S66

Mr. Ramiro Rojas introduced members to the first site, located in north Eastfork, outside the wildland urban interface, with no fisher or owls in the territory. He noted that hydrology and aquatics (toads) issues existed, and that Ms. Stephanie Barnes, Aquatics Biologist, was tracking isolated populations. In response to a question, Ms. Barnes replied that yes, the unoccupied land could be managed for potential use by toads, with the buffer size depending on the distance adults travel after breeding. Currently there was not enough information to assess population dynamics, although changes were seen across the years. Ms. Julie Gott, Hydrologist, noted that the toads were also recently found in areas not previously seen.

Ms. Amy Gustafson, Range Manager, noted that the Patterson grazing allotment was being used here on a transitory basis.

In response to a question, Mr. Rojas confirmed that the area was cut over and had lots of shelterwoods. Red fir were present, a few western white pine at the top of ridges, and lodgepole pine near meadows, and other areas were rock-exposed. He had not seen much evidence of fire, perhaps it burned here 175 years ago, and was not sure of the primary drivers behind the fire regime. Mr. Chad Hanson asked whether the infrequent fire might be the natural regime. Mr. Rojas noted the Forest Service's historical policy of fire suppression and sheep grazing, so fires within this period would have not been allowed to spread; instead, the fires might have been all-consuming in a localized area, but not moved elsewhere.

Mr. John Mount agreed and added that if lightning struck it might burn in the deep duff and creeps, limiting its stand replacement effects; accordingly, it was important to consider the range of possible activities, rather than focusing on one thing. Mr. Hanson agreed that the fire regime would not be exclusively high intensity, and that some areas would be mixed. He also noted that some studies had found high intensity fires on the scale of hundreds or even thousands of acres. Mr. Craig Thompson asked whether a fire would be allowed to burn on its own or have set acreage. Ms. Carolyn Ballard, Fuels Officer, noted that 10 small fires had occurred and been suppressed since 1911. Fir tends to be a hot fire and to creep, cooking the bases of trees and killing them. So there is associated level of risk and type of fire for which the Forest Service has liability, so has to put in place boundaries and cutoffs; ideally one could light a spot and walk away, but in practice a burn in the dry fall must be watched until winter. Mr. Hanson noted that flame length and duration were acceptable to him if the desired mortality was achieved.

Ms. Ballard elaborated that three large bounded underburns were in the proposal, along the rocky ridge. The aim was to conduct different burns and compare effects. Mr. Mount asked whether more research was available, and noted the need for flexibility. Ms. Ballard noted that some research had involved red fir burns. Ms. Barnes noted that research should be distinguished from the goal of management. Mr. Craig Thomas noted that under the Ecological Restoration Initiative, Sierra Forest Legacy was helping the Regional Office develop opportunities to light spots (not strips), and replicate this practice as a management tool, though participation of air quality experts was needed. Ms. Ballard noted that in this location it took a lot for smoke to go down into the valley to the west, and this would be considered in NEPA review.

Mr. Hanson expressed concern that this was one area where burning could create habitat for blackbacked woodpecker, which was scarce on the Forest, yet this activity was not reflected in the proposed action. Mr. Thompson noted that the three planned underburns would have different sources and could be monitored for their creation of habitat. Ms. Ballard noted that

Ms. Kim Sorini-Wilson, Wildlife Biologist, had found blackbacked woodpecker in the area. Mr. Thomas noted he did not hear anyone opposing the creation of such habitat. Ms. Ballard noted that it could not be guaranteed when this would occur, since the fire windows were variable and might stretch across years.

Ms. Barnes noted that this area had concerns about Yosemite toads, which were isolated here and had limited dispersal capacity. It would be important to minimize impacts, as they were a candidate species. Monitoring would be one way to set up the project and limit impact to the toad during its terrestrial phase. Mr. Hanson noted that the project could be designed in a way that avoided not only spatial but also temporal impacts. Mr. Stan van Velsor asked whether burning would thus need to avoid meadows and buffers, and also whether some part could be burned to explore impacts in these areas. Ms. Barnes suggested it would be most important to try and burn during the historically natural time of year. Ms. Ballard noted that high intensity burns could affect soil erosion, and Ms. Gott added that this could in turn impact hydrology. Ms. Pamela Flick asked whether upstream areas could be protected somehow, including through baseline monitoring. Ms. Gott reiterated the importance of designing the spatial arrangement of burns, and their timing. Mr. Thomas expressed appreciation for the sensitivity to the toad, and noted that other activities like timber harvesting killed toads without careful attention; the important thing would be restoring natural system processes, and reiterated the importance of participation by the air quality board. Mr. Hanson noted that it sounded like high intensity burning could be conducted in areas further away from meadows to minimize or avoid impacts. Mr. Mount felt this area was not good for high intensity burning, although it would have interesting dynamics.

3. Stop 2: Impromptu Stop Along 10S66

The group made an impromptu stop along the road and Mr. Rojas oriented the group. The area was predominantly red fir and had a long fire return interval. The accumulation of biomass was likely outside the historical range. A range of tree classes was found, with historical clumps now infilling. Mr. Thompson asked what fire behavior would be like. Mr. Rojas suggested it would be low and creeping, with small flame lengths. Mr. Hanson suggested that an opportunity also existed here for high intensity fire, and that fisher preferred denser areas with large snags. Mr. Rojas replied that the group needed to decide what effects it desired, and be more specific than asking for as much as possible. He suggested high intensity burns seldom burned hundreds of acres.

Ms. Gott flagged the difference between how high intensity burns impacted vegetation and soils. What might have a low impact on vegetation could have a long residence time in the soils and a correspondingly high impact. In response to a question, Ms. Gott replied that the impacts

of high intensity fire did not necessarily correspond to clay or granitic soils. Ms. Barnes noted that it was important to identify areas that were transport reaches as soil impacts in these areas could in turn impact downstream areas.

Mr. Hanson suggested that large scale erosion and hydrophobicity were not typical of high severity fires, and disagreed that high severity fires were historically limited to patches. He also reiterated that blackbacked woodpecker habitat must be designated for some area, rather than nowhere in the project.

4. Stop 3: Stream Crossing at Snow Corral Meadow

Ms. Barnes noted that this area is a critical aquatic refuge for mountain yellow-legged frog, with the stream going up to Trouble Meadow and fish downstream. The group was standing on rock cages ("gabians"). In 1991 a flood backed up the culverts, so that area was redesigned to withstand this. The new bridge, however, stops log and sediment passage, possibly disrupting natural channel switching below. The frogs are closer to listing than the toads, and are being impacted by Kittredge (spell?) fungus. In response to a question, Mr. Barnes clarified that design criteria for frogs did not involve too much, typically a 165' stream buffer, with erosion control and riparian conservation objectives.

Ms. Gott added that the stream crossing was normally perpendicular, but here ran alongside the bridge. Any new crossing should accommodate a 100-year flood; the current capacity is much less, and overtops like a spillway. Ideally there would be open access to the floodplain, and allow for sediment deposition and water spreading rather than channeling. although one consideration was that frogs like deep pools. The area might not be stable with large flows.

Ms. Gott noted that one option was to create a series of culverts, but historically this tended to plug up with debris. Mr. Andy Hosford, Roads Manager, noted that other options included: decommissioning and digging up the road, building a bridge (which would be lengthy and costly), or building a series of box culverts (which would have mid-range costs) like Ms. Gott suggested. A key consideration was remaining access, since the road led to real estate with plantations. Ms. Barnes suggested another option would be a concrete ford crossing that was low-lying, with water passing through all the time. This would be steep so difficult, but provide flexibility regarding downstream habitat. Mr. Larry Duysen suggested a ford crossing done at the right grade, with a cement bottom, could create a permanent flood-proof structure. Mr. Jones-Yellin asked whether there was concern about creating permanent sheetflows. Ms. Gott suggested that a vented flow structure would treat high and low flows differently.

Mr. Hanson asked whether the headcut downstream was done to mitigate other impacts. Ms. Barnes noted that grazing and logging occurred in the area, so big flood events could create disturbances. Ms. Gott added that it could be an effect of the confined flow at this upstream point. Mr. Hanson asked what was known about the rate and scale of pulse flows, and their role in maintaining habitat. Ms. Gott replied that punctuated delivery and deposition events, as well as punctuated erosion events, were normal. Over time, meadows would emerge and disappear along channels. In response to a question, she clarified that "dewatering" could occur if a big event sediment old channels and created many pools rather than flow through.

Mr. Thomas asked about conifer encroachment. Ms. Barnes noted that encroachment continued to occur despite spring sheetflows. Ms. Gott noted that erosion into the creek created a platform for this. Mr. Thomas suggested looking at historical aerial photos to better understand options. Mr. Rojas noted that such encroachment was visible, and the meadow was decreasing; he felt that historically there had been greater movement along the fringes.

Mr. van Velsor asked whether the area could be restored then the road decommissioned, and the plantations accessed via an alternative route. Mr. Hosford suggested that the structure could be entirely removed and the original grade restored. Ms. Gott added that they had looked at different access if the crossing were removed, a higher road along Deer Creek. The crux was the cost of this change. The structure could be removed when restoration work was done, and not necessarily decommissioned; one could monitor over 10 years, and rebuild or decommission the remaining material as needed. Mr. Duysen suggested that the access gate was already limited, and that money had been invested in the existing infrastructure, so something should be done to improve the area and provide access over time. Mr. Thomas asked whether access was for timber and wildlife, and Ms. Barnes replied that historically the area served as a holding area for migrating deer.

Mr. van Velsor asked about the impact of grazing. Ms. Gustafson noted that there were historical impacts on the Yosemite toads, but now cattle numbers were down to 100 cow-calf pairs and permittees were asked to keep them out of the area. The area was still used for gathering in the fall, although horses could probably be used for the same purpose. The area was already a monitoring plot, and Ms. Barnes had found that there was less than 20% streambank disturbance within the meadow reach, so the number of cattle should be sustainable. If issues were observed the permittee would be called. Ms. Gustafson noted that a UC Davis study found no significant grazing impacts to tadpole toads, or differences between grazing strategies, although adults in conifers were not studied and the time period was five years.

ACTION ITEM: Ms. Gustafson to provide the UC Davis study on grazing and Yosemite toads.

Mr. van Velsor asked whether it was possible to remove grazing. Ms. Gustafson noted this was a main feeding area. Mr. Rojas added that the permittee was granted NEPA in 1996 and actively complying, and was unsure what would trigger removal. Ms. Barnes noted the Standards and Guidelines did not address frogs, while Ms. Gott agreed yet noted that there was direction to apply the Riparian Conservation Area objectives in critical aquatic refuges.

Mr. Thomas suggested that compatibility was a key question, linking the road, frogs, hydrology, conifers, and monitoring data.

5. Stop 4: House Meadow (including lunch)

Ms. Gott explained that the area had incised channels, like terrace walls that erode into the floodplain. The response reaches have chronic erosion, and trying to prevent this may be a losing battle. It was therefore an open question to the group whether this had value to pursue. A few different attempts could be made to address this, using layback banks and willow sticks. Ultimately this might depend on sequencing a series of work and monitoring the results. In response to a question, she added that the timeframe for work depends on flows in different years, to see the range of potential impacts. The higher peak flows and sediment might be a result of roads more than meadow structure, so the need for work was uncertain.

Mr. Hanson asked if the stream structure were evolving naturally, rather than mismanaged, what impact might this have downstream? Ms. Gott noted that a lot of sediment might be deposited, which may or may not achieve stability. This would affect aquatic habitat. Ms. Barnes added that many invertebrates required stable substrates, which get covered by sand in high sediment areas. Generally speaking, pulsed deposition was favorable, while chronic deposition was unfavorable.

Ms. Gott suggested that a good next step would be to survey more channels feeding into meadows, and think more about the issues. She invited anyone interested to join her for streambank surveys. Mr. Thomas asked whether Ms. Gott had a prioritized list of watershed improvement need (WIN) sites.

Mr. Jones-Yellin asked about fencing along the stream, noting this required minimal NEPA. Ms. Gustafson noted that historical impacts to the creek were mitigated through revegetation and drift (rather than enclosure) fencing, but the drift fencing was not well maintained and left only one part of the creek accessible, which concentrated impacts in this area. (Offsite water access would have been preferable.) She felt it was appropriate to remove the fencing because the sedges and willows had reestablished themselves and monitoring was in place. Removal would

even-out access and the impacted site could be restored.

Mr. van Velsor asked whether this would increase cattle impacts, and expressed strong preference for leaving the fencing in place unless it could be assured that there would be no impacts to water quality or riparian species. Ms. Gustafson explained that they were originally excluded for revegetation goals that had been achieved; the idea was that fencing could be removed and the area managed to standards, which meant that the original impacts would not be recreated. Fencing was typically only used if there was extensive use, and created a hazard for people and animals. It was preferable to manage to standards in this area. Ms. Barnes added that the Forest could not manage the area for zero impacts unless grazing were completely eliminated, yet grazing was an accepted part of the access to and use of public lands guaranteed by the multiple-use mission of the Forest Service, and limited by standards and guidelines.

Mr. Rojas explained that historically the Forest Service and California Department of Fish and Game had negotiated the holding and migration of deer in this area, and conducted numerous fencing studies between 1979 and 1988. The fencing here had allowed the Forest Service to free up other areas. The current proposal would restore the area and disperse the impacts created by concentrating access to water.

Mr. Thomas stressed that it was more appropriate to develop desired conditions for the area, implement management activities, and monitor their effectiveness, rather than abstractly supporting or opposing the fencing. Mr. Hanson noted that he felt fences should be assumed to have negative impacts in the wild unless proven otherwise. For that reason he sympathized with Mr. van Velsor, yet supported removal. As a middle ground he suggested it would be reasonable to remove the fence and also reduce the number of cattle, at least for a while, until monitoring provided further information.

In response to a question, Mr. Rojas estimated that perhaps two-thirds of Sierra National Forest had grazing allotments (although this was not all used at the same time). Mr. Hanson suggested that there was a larger question of whether cattle needed to have such an extensive range on the forest.

Mr. van Velsor commented that, after listening to the input of other members, he would be comfortable with the proposal if there were an adequate protocol for monitoring the results. Ms. Gustafson suggested that the Forest's wildlife management team would probably monitor the area, they already have photograph points, and she monitors the area for the use of best management practices. She also noted the project would leave the fence posts until monitoring provided further information, which would allow for reinstalling the fence if shown to be necessary.

ACTION ITEM: Mr. van Velsor and Ms. Gustafson to add information about fence removal to the Collaborative's near-term monitoring plan.

6. Stop 5: Lower Eastfork (Final Stop of the Day)

Mr. Rojas oriented the group, noting that white fir was encroaching in this area to the detriment of pine. The area was not within the wildland urban interface. Some areas had high tree density. He recommended applying the GTR-220 to this area. In response to a question, he clarified that the lower end of the area, at the bottom of the drainage, had shelterwoods until the late 1980s and early 1990s (in 1965/66 it had been established as a Jeffrey pine plantation). Underburning was proposed for the spotted owl protected activity centers. Outside these areas he recommended that density be reduced consistent with pine forests as described in the GTR-220. Ms. Ballard added that they had bounded the area for prescribed fire application, and that a riparian area was located on the opposite side.

In response to a question, Mr. Rojas clarified that the vegetation type was mixed conifer. It contained Jeffrey and sugarpine, as well as red fir. Mr. Hanson commented that the overstory appeared to be red fir that predated fire suppression, which differed from lower elevations, and that the area was a conifer-fir transition zone that was trending toward true fir.

In response to a question, Mr. Rojas noted that there was a large component of white fir, with red fir in the drainage area. Perhaps that area would only need prescribed fire. He believed that the white fir component had increasingly significantly since fire was removed from the landscape, and that historically there was a greater proportion of Jeffrey pine, which now had only remnants. He estimated about 30% was white fir, 10-15% red fir, and the remainder a combination of Jeffrey and sugarpine, with bits of lodgepole pine along the basin.

Mr. Hanson commented that the GTR-220 took only a historical snapshot of the area, and that historically steady states did not exist. He expressed greater interest in process and structure, rather than species basal area.

Mr. Thomas flagged that climate change, drought, and other factors would influence the future vegetation. He asked whether the vegetation here was light because of pretreatment. Ms. Ballard explained that fire could be applied here in the fall, and then monitoring. Lightning fires moved on their own. Mr. Thomas asked whether the white fir was increasing because a lack of fire. Ms. Ballard replied she was unsure, and noted that Native Americans may also have influenced the area.

Mr. van Velsor asked whether white fir was less desirable. Mr. Rojas suggested the abundance

was greater now than it would be if fire were still part of the landscape. Mr. van Velsor asked whether climate change was causing this. Mr. Rojas replied that he did not know, but observed that moisture patterns and drought were changing. Mr. van Velsor asked whether having more white fir would be good for the purpose of heterogeneity. Mr. Rojas suggested it would be preferable to have more pine if fire were brought back to the landscape.

Mr. Hanson commented that this suggestion implied engineering resistance, rather than ecological resistance. He felt that it was appropriate if natural disturbances led to changes in vegetation types. Mr. Rojas replied that the GTR-220 and other studies pointed to a relationship between tree density and resistance and resilience on this part of the landscape. Mr. Hanson replied that the GTR-220 supported multiple uses on the forest, and was not strictly an ecological document. Mr. Rojas noted that the Forest Service has a multiple-use mission. He agreed that heterogeneity and disturbance were needed for a healthy landscape, and also believed that removal and consumption of biomass was necessary to retain resilience. Mr. Hanson expressed concern that the removal of large diameter trees was driven by commerce rather than ecology, and that this was inconsistent with the Collaborative Forest Landscape Restoration Act.

Mr. Thomas suggested the basic question was whether the increased fir was problematic, or a natural process. The group would eventually have to decide whether to change this proportion or not, and if so, by how much.

Mr. Jones-Yellin thanked members for their participation and closed the field visit.

7. Attendees

1. Stephanie Barnes, USFS
2. Rich Bagley
3. Carolyn Ballard, USFS
4. Larry Duysen
5. Pamela Flick
6. Dorian Fougères, facilitator
7. Julie Gott, USFS
8. Amy Gustafson, USFS
9. Chad Hanson
10. Andy Hosford, USFS
11. Mosé Jones-Yellin, USFS
12. John Mount
13. Ramiro Rojas, USFS
14. Craig Thomas
15. Craig Thompson, USFS
16. Stan Van Velsor