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To: David Olson, Dominick A. DellaSala, Reed F. Noss, James R. Strittholt, Jamie Kass, Marni E. Koopman and Thomas F. Allnutt

CC: Klamath Mountains Forest Watch folks

Gentlemen and Lady,

It is another day and I find myself still "bothered" by your paper. As some of you know, I have long been a champion of using the best available science to inform environmental/conservation advocacy. This remains a minority position. I find that most enviro activists still decide what they want to save and then look to science for reasons to save it.

My approach causes me to think ahead to how we can apply the best available science in the new round of forest plans. I'm already involved in initial organizing for that. So my approach to the paper is: does it make sense as a methodology to approach the new round of forest plans? That is my frame of reference for analysis of the paper. And that is why I am cc'ing the Forest Watch organizations and activists working in the Klamath Mountains. I want to stimulate us to think together about how to apply this paper and the previous related science to inform work on the new round of forest plans.

So here is a bit more that (hopefully) gets to the crux of the methodological issues I have with the paper:

1. What about Riparian Reserves and the ACS?

You say:

"The existing protected area system (i.e., National and State Parks, Wilderness Areas, National Monuments, Botanical Areas) is inadequate for ensuring the persistence of most of the ecoregion's vulnerable biodiversity (DellaSala et al. 1999; Noss et al. 1999; Carroll et al. 2010). Existing reserves largely protect higher-elevation communities, while the lower-elevation reserves are limited in their geographic extent, thereby missing many distinct lowland species assemblages and areas that may act as potential microrefugia."

My question here is: What about riparian reserves…why have you ignored them and the entire ACS? I suspect that hanging on to the Aquatic Conservation Strategy – and especially that Strategy's protection

of riparian reserves – is the single most important task for us in the next round of forest plans. How well does protecting riparian reserves provide for climate change risks? How well do the RRs protect those species (amphibians, arthropods, mollusks) of particular concern? How well do the RRs function as "micro-refugia?

BTW, the RRs are supposed to include "unstable and potentially unstable" lands but in the Klamath mountains they do not. Specifically, all they included was active landslides; major "potentially unstable" landscapes – including the large earth flows and debris basins – were excluded….illegally I believe. The earthflows consist of deep soils (up to 140 feet thick). These lands grow the largest trees…that is, I think, why they were excluded from RRs.

2. Why are mesorefugia a good proxy for microrefugia?

You say:

"Useful proxies for assessing representation of biodiversity within and among microrefugia are mesorefugia."

I fail to see how mesorefugia constitute a "proxy" for "representation of biodiversity in microrefugia." If the problem is that we don't know enough about "patterns of local endemism and beta-diversity for species groups, such as invertebrates," how do mesorefugia compensate for this problem? It seems counter-intuitive.

3. Lack of north facing OG in the proposed reserves:

You say:

"If all the proposed reserve expansions were implemented, then 70% of remaining old-growth forest and 33% of north-facing old-growth forest would be protected."

This is the crux of my problem with the paper. You emphasize how important OG on north and northeast slopes is to protecting biodiversity during a period of climate change - but the reserve design you are advocating only protects 33% of North facing OG while protecting 70% of existing OG. Doesn't that mean that north facing OG is underrepresented in the combined reserve design? Looking at Table 1, the Siskiyou Wild Rivers and Siskiyou Crest proposals contain roughly the same proportion of north facing OG as the existing reserves (mainly wilderness areas). The "representation conservation areas" also don't protect much north facing OG. Noss et al phase 1 is by far best at protecting north facing OG.

Doesn't this mean that the Wild Rivers and Siskiyou Crest proposals are not very good from the climate refugia standpoint? This is not an indictment since these proposals were not designed primarily to protect biodiversity but via criteria much like that used to designate existing reserves, i.e. what people want protected, i.e. human v. biological criteria. In my mind both criteria are valid and need to be considered but are nevertheless distinct approaches. I think – and the paper appears to argue for – a reserve design that emphasizes and protects North-facing OG; the reserves suggested don't do this well enough in my opinion; I'd like to see a reserve design which protects at least 70% of north facing OG.

4. Methodology:

I had missed the appendix which answered some of my questions about the veg data-base and Dominick provided more information via e-mail. You used a database constructed using imagery from 2000. Since that data was published we've had a major fire season and extensive discretionary suppression fires by means of which the FS burned large areas at high intensity…including some areas with some of the best extant OG (e.g. Uncles Creek on the Little North Fork Salmon River). I'm not sure we can do good reserve planning using that database unless it is updated.

Attached is a paper by Kostyack, et al titled "Beyond Reserves and Corridors: Policy Solutions to Facilitate the Movement of Plants and Animals in a Changing Climate." I suspect that we need to create protected climate refugia and corridors AND do things in "matrix" as they have suggested. What would really help (in the next round of forest plans) is having in hand science that integrates both approaches. Maybe y'all and other colleagues will want to provide us with that.

5. Minor note:

Corridor/linkage #3 is called "Trinity/Scott Bar River–Siskiyou Crest." But it is nowhere near the Trinity River or the Trinity Alps. The correct terms are Scott River and Scott Bar Mountain. The text mentions the "north slope of Scott Bar Mountain" as an important refugia. But that area is extremely cut over and fragmented. It is along theSouth side of the Klamath River upriver from the mouth of the Scott. But the concentration of north facing OG is downriver from the mouth of the Scott. This is very confusing.

6. Conclusion:

Thank you for the paper. It has stimulated my thinking about reserve design and how to apply reserve design criteria in my work. I hope you will do a follow-up paper which does some of the next steps you advocate in the paper – fills some of the gaps (so to speak). Perhaps a follow-up next step paper would also address some of the issues I've raised….assuming you think they are valid. If they are not valid I hope at least one of you will explain to me why you believe they are not valid.